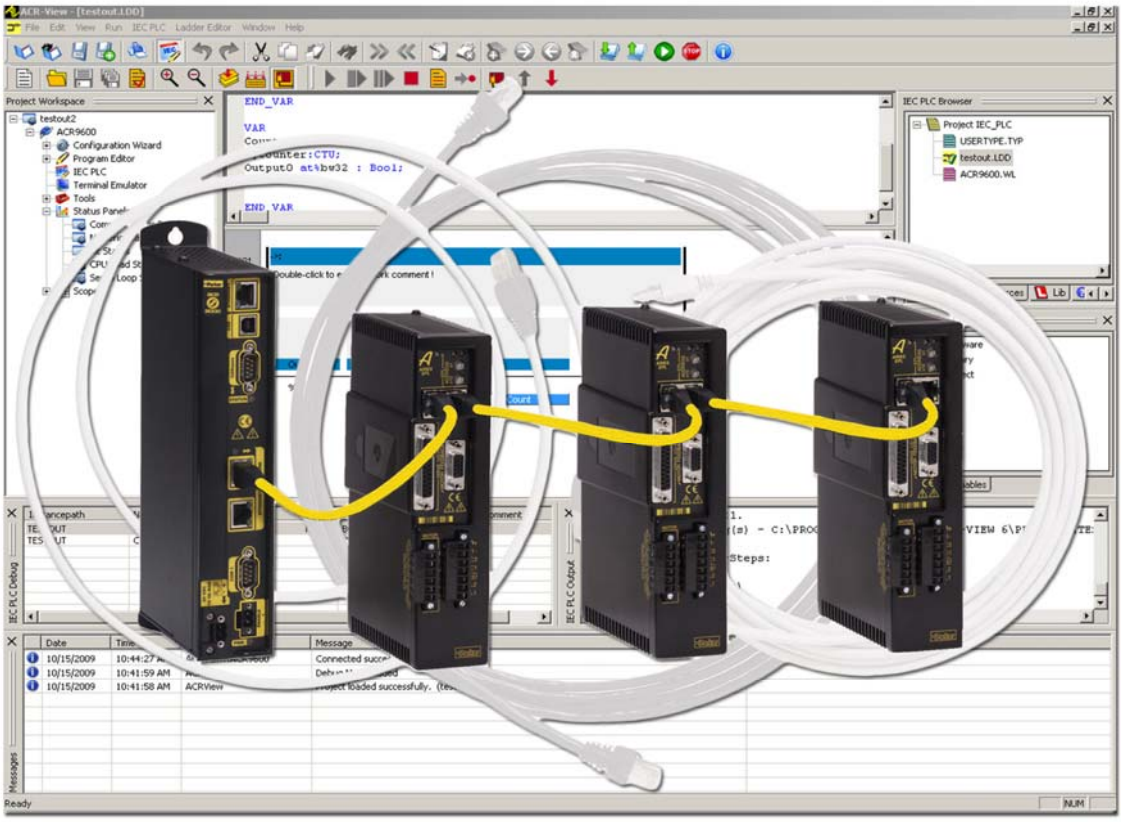
ACR Motion Controllers

88-025605-01H

ACR Parameter and Bit Reference

Effective: July 2010



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User Information

Warning — ACR Series products are used to control electrical and mechanical components of motion control systems. You should test your motion system for safety under all potential conditions. Failure to do so can result in damage to equipment and/or serious injury to personnel.

Technical Assistance

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Change Summary

The change summary below lists the latest additions, changes, and corrections to the *ACR Parameter and Bit Reference* (formerly *ACR User's Guide, Part 2*), and the ACR-View Online Help. Changes to this guide previous to revision E are in the Change Summary section of *ACR Command Language Reference* (formerly *ACR User's Guide, Part 1*).

Revision H Changes

Document 88-025605-01H supersedes document 88-025605-01G. Changes, additions, clarifications and corrections are as follows:

Topic	Description
Parameter Reference	
P4624 - P4631 IEC Task Control/Status Parameters	Added IEC task parameters.
P37632 - P37887 EPLD Status & Control Parameters	Added Vendor ID, Compax3 Drive Error Code, Compax3 Tracking Filter, Extended Drive Data.
P38656 - P38665 IEC Status & Control Parameters	Added IEC task parameters.
P7680 - P7871 Connection Status Parameters	Added return values of 8 and 9 to Connection Status description.
Bit Reference	
Bit2560 - Bit3175 Encoder Flags	Added OOP Output Selection (Bit Index 10).
Bit9472 - Bit9727 Drive Status 1 Flags	Updated Axes 0-7 and Axes 8-15.
Bit9984 - Bit10239 Drive Status 2 Flags	Updated Axes 0-7 and Axes 8-15.
Bit 11264 – Bit11279 CANopen Control Flags	Added Request to Get Object, Request to Send Object, Object Access Successful, Object Access Failed, Getting Object, and Sending Object. Also changed Discover Network Config to Reserved.
Bit16896 - Bit16923 IEC Control and Status Flags	Added IEC flags.
P32768 - P35327 CANopen Parameters	Added to Master Node Status and Control (formerly Status and Control): Target Object Node ID, Object Dictionary Index, Object Dictionary Sub-Index, Object Data Type, SCO Access Timeout (default-100 msec.), Integer Object Data (set/get), Access Attempt Status, Access Error Code, Float Object Data (set/get).

Topic	Description
	Added to Slave Node Status and Control (formerly Node Status and Control): CAN Cycles Per Input Update

Revision G Changes

Document 88-025605-01G supersedes document 88-025605-01F. Changes, additions, clarifications and corrections are as follows:

Topic	Description
Parameter Reference	
P4448 – P4583 CANopen Control Flags	Corrected Code for Control Flags from 0x11 to 0x10, Index from 0x60 to 0x2C. Corrected Code for Digital I/O from 0x11 to 0x10, Index from 0x68 – 0x77 to 0x2D – 0x3C.
P4616 – P4623 EPL Network Flags	Corrected typo in Code.
P12288 – P14207, P14336 – P16255 Axis Parameters (Axes 0-7 and 8-15)	Added Cam Cycle Position (0x7D), Cam Cycle Number (0x7E), and Cam Cycle Length (0x7F); Corrected table titles to reflect additional parameter numbers.
Drive Talk for EPL: P28672 – P30543, P30720 – P32691 Drive Parameters (Axes 0-7 and 8-15)	Changed overall headers to *ACR90x0 only*; added notes regarding EPL to descriptions for Analog Center Deadband and Max Startup Voltage; added Shaft Power in Watts to Drive Parameters as Aries EPL option to ±10V Input Signal (Index 0x46). Corrected parameter numbering for all axes for the following: Drive Configuration Parameters - from Gearbox Ratio to Fault on Drive Disable, Drive Talk Status Parameters – from Operating Hours to Operating Milliseconds.
P37376 – P37391 EPL Network Parameters	Changed Network State description, indicators 2 and 3, for clarity.
P38144 – P38391 EPLD Position Parameters	Added EPLE Position and EPLE Velocity.
Bit Reference	
Axis Flags Bit Index 0 (Not In Position)	Added to description, “or the axis is in motion.”
Master Flags Bit Index 16 (Not In Position)	Added to description, “or the axis is in motion.”
Bit 16128 - Bit 16383, Bit 16384 - Bit 16639 Quinary Axis Flags (Axes 0-7 and 8-15)	Added Jog Move Interrupt.
Bit 96 - Bit 127 Miscellaneous Outputs for ACR1505 and ACR8020	Rewrote description for Bit Index 17 (Trigger Software Capture).
Bit 96 - Bit 127	Added Bit Index 18 (Trigger EPLD Soft Capture) and 19

Topic	Description
Miscellaneous Outputs for ACR90x0 and Aries Controller	(Trigger EPLE Soft Capture). Rewrote description for Bit Index 17 (Trigger Software Capture).
Bit 512 – Bit 767, Bit 7424 – Bit 7679 Master Flags (Axes 0-7 and 8-15)	Corrected labeling of Increment and Decrement Count Sequence Flags.
Bit 2304 – Bit 2559 Bit 8192 – Bit 8447 Secondary Axis Flags (Axes 0-7 and 8-15)	Added new Bit Index 6 CAM SRC Zero, and new Bit Index 11 SRC Based Accel (which was incorrectly a duplication of Dir Limit Tripped).
Bit 4448 CANopen Flag Parameters	Removed (duplicate of Bit11264 – Bit11279).
Bit 5696 – Bit 5823 Stream 4, 5, 6, and 7 Stream Flags	Corrected Code, Index, and Mask as needed.
Bit 6400 – Bit 6655, Bit 6656 – Bit 6911 Tertiary Axis Flags (Axes 0-7 and 8-15)	Corrected Flag Parameter Index from 0x14 to 0x19 (Axes 0-7), and from 0x19 to 0x1A (Axes 8-15).
Drive Talk for EPL: Bit 10496 – Bit10750, Bit 10752 – Bit 11007 Drive Control Flags (Axes 0-7 and 8-15)	Changed overall header to *ACR90x0 only*; added notes regarding EPL to descriptions for Auto Address Request, Send ERRORL Request, Drive Status 1, and Drive Status 2; added Shaft Power in Watts to Drive Control Flags as Aries EPL option to ±10V Input Signal (Bit 22).
Bit 10496 – Bit10750 Drive Control Flags (Axes 0-7)	Corrected Bit numbering for all axes from Drive Temp (Bit 23) to end of table.
Bit 11264 – Bit11279 CANopen Control Flags	Added Bit11281 (Starting) and Bit11282 (Start Failed) to table/descriptions. Corrected Code (from 0x10 to 0x11), Index (from 0x2C to 0x60), and Mask (from x01 to 0xFF).
Bit 17152 – Bit 17407, Bit 17408 – Bit 17663	New Senary (6th) Axis Flags.
Aries Controller Parameter Reference	
ALIGN	Removed references to hardware enable.
DRIVE ON, DRIVE OFF	Removed.

Revision F Changes

Document 88-025605-01F supersedes document 88-025605-01E. Changes, additions, clarifications and corrections are as follows:

Topic	Description
Added new section: *Aries Controller Parameter Reference*	Includes the Aries Controller configuration parameters, status parameters, and commands.

Revision E Changes

Document 88-025605-01E supersedes document 88-025605-01D. Changes, additions, clarifications and corrections are as follows:

Topic	Description
Added Parameters for EPL	EPL Network Flag Parameter, P4616; EPL Network Parameter block, P37376-P37391; EPL Drive Status and Control Parameter, block, P37632-P37887; EPL Drive Position Parameter, block P38144-P38391; EPLD Digital Input Flag Parameters, P4200-P4203; EPLD Digital Output Flag Parameters, P4216-P4209.
Added Bits for EPL	EPL Digital Input Flags, Bit3328-Bit3455; EPL Digital Output Flags, Bit3840-Bit3967; EPL Network Flags, Bit16640-Bit16660
Updated Quaternary Axis Flags	Added Disable Encoder Fault Checking, Invert Motion Direction, Disable Drive on Kill, and Latched Excess Position Error. Removed DEO REN Pending. Corrected layout of descriptions section.

Parameter Reference

Parameter Overview

The following provides a list of parameter blocks:

Parameter	Description
P0 – P4095	User Parameters
P4096 – P4375	Flag Parameters
P4400 – P4447	Drive Talk Flag Parameters
P4448 – P4583	CANopen Flag Parameters
P4600 – P4615	Quinary Axis Flag Parameters
P4616	EPL Network Parameter
P4624	IEC Task Control/Status
P6144 – P6655	Object Parameters 0-15
P6656 – P6775	PLC Parameters
P6912 – P7119	Miscellaneous Parameters
P7168 – P7408	Program Parameters
P7424 – P7575	FSTST Setup Parameters
P8192 – P8255	Master 0 Parameters
P8448 – P8511	Master 1 Parameters
P8704 – P8767	Master 2 Parameters
P8960 – P9023	Master 3 Parameters
P9216 – P9279	Master 4 Parameters
P9472 – P9535	Master 5 Parameters
P9728 – P9791	Master 6 Parameters
P9984 – P10047	Master 7 Parameters
P10240 – P10303	Master 8 Parameters
P10496 – P10559	Master 9 Parameters
P10752 – P10815	Master 10 Parameters
P11008 – P11071	Master 11 Parameters
P11264 – P11327	Master 12 Parameters
P11520 – P11583	Master 13 Parameters
P11776 – P11839	Master 14 Parameters
P12032 – P12095	Master 15 Parameters
P12288 – P12407	Axis 0 Parameters
P12544 – P12663	Axis 1 Parameters
P12800 – P12919	Axis 2 Parameters

Parameter	Description
P13056 – P13175	Axis 3 Parameters
P13312 – P13431	Axis 4 Parameters
P13568 – P13687	Axis 5 Parameters
P13824 – P13943	Axis 6 Parameters
P14080 – P14199	Axis 7 Parameters
P14336 – P14455	Axis 8 Parameters
P14592 – P14711	Axis 9 Parameters
P14848 – P14967	Axis 10 Parameters
P15104 – P15223	Axis 11 Parameters
P15360 – P15479	Axis 12 Parameters
P15616 – P15735	Axis 13 Parameters
P15872 – P15991	Axis 14 Parameters
P16128 – P16247	Axis 15 Parameters
P20480 – P20487	Logging Parameters
P24576 – P24831	Object Parameters 16-31
P28672 – P32591	Drive Talk Parameters
P32768 – P35327	CANopen Parameters
P36864 – P37353	Event Counter Parameters
P37376 – P37391	EPL Network Parameters
P37632 – P37887	EPL Drive Status and Control Parameters
P31844 - P38391	EPL Drive Position Parameters
P38656 – P38665	IEC Status and Control Parameters

P4096 – P4375 Flag Parameters

General Flag Parameters Code=0x10; Index=0x00; Mask=0xFF		P
Opto-Isolated Inputs	LONG	4096
Opto-Isolated Outputs	LONG	4097
Miscellaneous Inputs	LONG	4098
Miscellaneous Outputs	LONG	4099
User Group 0	LONG	4100
User Group 1	LONG	4101
User Group 2	LONG	4102
User Group 3	LONG	4103

Expansion I/O Flag Parameters Code=0x10; Index=0x01; Mask=0xFF		P
XIO Board 0 Inputs	LONG	4104
XIO Board 0 Outputs	LONG	4105
XIO Board 1 Inputs	LONG	4106
XIO Board 1 Outputs	LONG	4107
XIO Board 2 Inputs	LONG	4108
XIO Board 2 Outputs	LONG	4109
XIO Board 3 Inputs	LONG	4110
XIO Board 3 Outputs	LONG	4111

Master Flag Parameters Code=0x10; Index=0x02; Mask=0xFF		P
Master 0 Flags	LONG	4112
Master 1 Flags	LONG	4113
Master 2 Flags	LONG	4114
Master 3 Flags	LONG	4115
Master 4 Flags	LONG	4116
Master 5 Flags	LONG	4117
Master 6 Flags	LONG	4118
Master 7 Flags	LONG	4119

Axis Flag Parameters Code=0x10; Index=0x03; Mask=0xFF		P
Axis 0 Flags	LONG	4120
Axis 1 Flags	LONG	4121
Axis 2 Flags	LONG	4122
Axis 3 Flags	LONG	4123
Axis 4 Flags	LONG	4124
Axis 5 Flags	LONG	4125
Axis 6 Flags	LONG	4126
Axis 7 Flags	LONG	4127

Program Flag Parameters Code=0x10; Index=0x04; Mask=0xFF		P
Program 0 Flags	LONG	4128
Program 1 Flags	LONG	4129
Program 2 Flags	LONG	4130
Program 3 Flags	LONG	4131
Program 4 Flags	LONG	4132
Program 5 Flags	LONG	4133
Program 6 Flags	LONG	4134
Program 7 Flags	LONG	4135

Program Flag Parameters Code=0x10; Index=0x05; Mask=0xFF		P
Program 8 Flags	LONG	4136
Program 9 Flags	LONG	4137
Program 10 Flags	LONG	4138
Program 11 Flags	LONG	4139
Program 12 Flags	LONG	4140
Program 13 Flags	LONG	4141
Program 14 Flags	LONG	4142
Program 15 Flags	LONG	4143

PLC Flag Parameters Code=0x10; Index=0x06; Mask=0xFF		P
PLC 0 Flags	LONG	4144
PLC 1 Flags	LONG	4145
PLC 2 Flags	LONG	4146
PLC 3 Flags	LONG	4147
PLC 4 Flags	LONG	4148
PLC 5 Flags	LONG	4149
PLC 6 Flags	LONG	4150
PLC 7 Flags	LONG	4151

Other Flag Parameters Code=0x10; Index=0x07; Mask=0xFF		P
FIFO/Stream 1 Flags	LONG	4152
LPT1 Flags	LONG	4153
COM1 Flags	LONG	4154
COM2 Flags	LONG	4155
User Group 4	LONG	4156
User Group 5	LONG	4157
User Group 6	LONG	4158
User Group 7	LONG	4159

Secondary Master Flag Parameters Code=0x10; Index=0x08; Mask=0xFF		P
Secondary Master 0 Flags	LONG	4160
Secondary Master 1 Flags	LONG	4161
Secondary Master 2 Flags	LONG	4162
Secondary Master 3 Flags	LONG	4163
Secondary Master 4 Flags	LONG	4164
Secondary Master 5 Flags	LONG	4165
Secondary Master 6 Flags	LONG	4166
Secondary Master 7 Flags	LONG	4167

Secondary Axis Flag Parameters Code=0x10; Index=0x09; Mask=0xFF		P
Secondary Axis 0 Flags	LONG	4168
Secondary Axis 1 Flags	LONG	4169
Secondary Axis 2 Flags	LONG	4170
Secondary Axis 3 Flags	LONG	4171
Secondary Axis 4 Flags	LONG	4172
Secondary Axis 5 Flags	LONG	4173
Secondary Axis 6 Flags	LONG	4174
Secondary Axis 7 Flags	LONG	4175

Encoder Flag Parameters Code=0x10; Index=0x0A; Mask=0xFF		P
Encoder 0 Flags	LONG	4176
Encoder 1 Flags	LONG	4177
Encoder 2 Flags	LONG	4178
Encoder 3 Flags	LONG	4179
Encoder 4 Flags	LONG	4180
Encoder 5 Flags	LONG	4181
Encoder 6 Flags	LONG	4182
Encoder 7 Flags	LONG	4183

Encoder Flag Parameters Code=0x10; Index=0x0B; Mask=0xFF		P
Encoder 8 Flags	LONG	4184
Encoder 9 Flags	LONG	4185
Encoder 10 Flags	LONG	4186
Encoder 11 Flags	LONG	4187
Encoder 12 Flags	LONG	4188
Encoder 13 Flags	LONG	4189
Encoder 14 Flags	LONG	4190
Encoder 15 Flags	LONG	4191

Encoder Flag Parameters Code=0x10; Index=0x0C; Mask=0xFF		P
Encoder 16 Flags	LONG	4192
Encoder 17 Flags	LONG	4193
Encoder 18 Flags	LONG	4194
Encoder 19 Flags	LONG	4195
Encoder 20 Flags	LONG	4196
Encoder 21 Flags	LONG	4197
Encoder 22 Flags	LONG	4198
Encoder 23 Flags	LONG	4199

EPLD Digital Input Flag Parameters Code=0x10; Index=0x0D; Mask=0xFF		P
EPLD0 – 3 Digital Inputs	LONG	4200
EPLD4 – 7 Digital Inputs	LONG	4201
EPLD8 – 11 Digital Inputs	LONG	4202
EPLD12 – 15 Digital Inputs	LONG	4203
Reserved	LONG	4204
Reserved	LONG	4205
Reserved	LONG	4206
Reserved	LONG	4207

EPLD Digital Output Flag Parameters Code=0x10; Index=0x0F; Mask=0xFF		P
EPLD0 – 3 Digital Outputs	LONG	4216
EPLD4 – 7 Digital Outputs	LONG	4217
EPLD8 – 11 Digital Outputs	LONG	4218
EPLD12 – 15 Digital Outputs	LONG	4219
Reserved	LONG	4220
Reserved	LONG	4221
Reserved	LONG	4222
Reserved	LONG	4223

DAC Flag Parameters Code=0x10; Index=0x10; Mask=0xFF		P
Reserved	LONG	4224
Reserved	LONG	4225
Reserved	LONG	4226
Reserved	LONG	4222
Reserved	LONG	4228
Reserved	LONG	4229
Reserved	LONG	4230
Reserved	LONG	4231

DAC Flag Parameters Code=0x10; Index=0x11; Mask=0xFF		P
Reserved	LONG	4232
Reserved	LONG	4233
Reserved	LONG	4234
Reserved	LONG	4235
Reserved	LONG	4236
Reserved	LONG	4237
Reserved	LONG	4238
Reserved	LONG	4239

ADC Flag Parameters Code=0x10; Index=0x12; Mask=0xFF		P
Reserved	LONG	4240
Reserved	LONG	4241
Reserved	LONG	4242
Reserved	LONG	4243
Reserved	LONG	4244
Reserved	LONG	4245
Reserved	LONG	4246
Reserved	LONG	4247

ADC Flag Parameters Code=0x10; Index=0x13; Mask=0xFF		P
Reserved	LONG	4248
Reserved	LONG	4249
Reserved	LONG	4250
Reserved	LONG	4251
Reserved	LONG	4252
Reserved	LONG	4253
Reserved	LONG	4254
Reserved	LONG	4255

Tertiary Master Flag Parameters Code=0x10; Index=0x14; Mask=0xFF		P
Tertiary Master 0 Flags	LONG	4256
Tertiary Master 1 Flags	LONG	4257
Tertiary Master 2 Flags	LONG	4258
Tertiary Master 3 Flags	LONG	4259
Tertiary Master 4 Flags	LONG	4260
Tertiary Master 5 Flags	LONG	4261
Tertiary Master 6 Flags	LONG	4262
Tertiary Master 7 Flags	LONG	4263

Tertiary Master Flag Parameters Code=0x10; Index=0x15; Mask=0xFF		P
Tertiary Master 8 Flags	LONG	4264
Tertiary Master 9 Flags	LONG	4265
Tertiary Master 10 Flags	LONG	4266
Tertiary Master 11 Flags	LONG	4267
Tertiary Master 12 Flags	LONG	4268
Tertiary Master 13 Flags	LONG	4269
Tertiary Master 14 Flags	LONG	4270
Tertiary Master 15 Flags	LONG	4271

Misc Control Flag Parameters Code=0x10; Index=0x16; Mask=0xFF		P
Misc Control Group 1	LONG	4272
Reserved	LONG	4273
Stream 4	LONG	4274
Stream 5	LONG	4275
Stream 2	LONG	4276
DPCB/Stream 3	LONG	4277
FSTAT	LONG	4278
Reserved	LONG	4279

Quaternary Master Flag Parameters Code=0x10; Index=0x17; Mask=0xFF		P
Quaternary Master 0 Flags	LONG	4280
Quaternary Master 1 Flags	LONG	4281
Quaternary Master 2 Flags	LONG	4282
Quaternary Master 3 Flags	LONG	4283
Quaternary Master 4 Flags	LONG	4284
Quaternary Master 5 Flags	LONG	4285
Quaternary Master 6 Flags	LONG	4286
Quaternary Master 7 Flags	LONG	4287

Quaternary Master Flag Parameters Code=0x10; Index=0x18; Mask=0xFF		P
Quaternary Master 8 Flags	LONG	4288
Quaternary Master 9 Flags	LONG	4289
Quaternary Master 10 Flags	LONG	4290
Quaternary Master 11 Flags	LONG	4291
Quaternary Master 12 Flags	LONG	4292
Quaternary Master 13 Flags	LONG	4293
Quaternary Master 14 Flags	LONG	4294
Quaternary Master 15 Flags	LONG	4295

Tertiary Axis Flag Parameters Code=0x10; Index=0x19; Mask=0xFF		P
Tertiary Axis 0 Flags	LONG	4296
Tertiary Axis 1 Flags	LONG	4297
Tertiary Axis 2 Flags	LONG	4298
Tertiary Axis 3 Flags	LONG	4299
Tertiary Axis 4 Flags	LONG	4300
Tertiary Axis 5 Flags	LONG	4301
Tertiary Axis 6 Flags	LONG	4302
Tertiary Axis 7 Flags	LONG	4303

Tertiary Axis Flag Parameters Code=0x10; Index=0x1A; Mask=0xFF		P
Tertiary Axis 8 Flags	LONG	4304
Tertiary Axis 9 Flags	LONG	4305
Tertiary Axis 10 Flags	LONG	4306
Tertiary Axis 11 Flags	LONG	4307
Tertiary Axis 12 Flags	LONG	4308
Tertiary Axis 13 Flags	LONG	4309
Tertiary Axis 14 Flags	LONG	4310
Tertiary Axis 15 Flags	LONG	4311

Reserved Code=0x10; Index=0x1B; Mask=0xFF		P
Reserved	LONG	4312
Reserved	LONG	4313
Reserved	LONG	4314
Reserved	LONG	4315
Reserved	LONG	4316
Reserved	LONG	4317
Reserved	LONG	4318
Reserved	LONG	4319

PLC Flag Parameters Code=0x10; Index=0x1C; Mask=0xFF		P
PLC 8 Flags	LONG	4320
PLC 9 Flags	LONG	4321
PLC 10 Flags	LONG	4322
PLC 11 Flags	LONG	4323
PLC 12 Flags	LONG	4324
PLC 13 Flags	LONG	4325
PLC 14 Flags	LONG	4326
PLC 15 Flags	LONG	4327

Master Flag Parameters Code=0x10; Index=0x1D; Mask=0xFF		P
Master 8 Flags	LONG	4328
Master 9 Flags	LONG	4329
Master 10 Flags	LONG	4330
Master 11 Flags	LONG	4331
Master 12 Flags	LONG	4332
Master 13 Flags	LONG	4333
Master 14 Flags	LONG	4334
Master 15 Flags	LONG	4335

Axis Flag Parameters Code=0x10; Index=0x1E; Mask=0xFF		P
Axis 8 Flags	LONG	4336
Axis 9 Flags	LONG	4337
Axis 10 Flags	LONG	4338
Axis 11 Flags	LONG	4339
Axis 12 Flags	LONG	4340
Axis 13 Flags	LONG	4341
Axis 14 Flags	LONG	4342
Axis 15 Flags	LONG	4343

Secondary Master Flag Parameters Code=0x10; Index=0x1F; Mask=0xFF		P
Secondary Master 8 Flags	LONG	4344
Secondary Master 9 Flags	LONG	4345
Secondary Master 10 Flags	LONG	4346
Secondary Master 11 Flags	LONG	4347
Secondary Master 12 Flags	LONG	4348
Secondary Master 13 Flags	LONG	4349
Secondary Master 14 Flags	LONG	4350
Secondary Master 15 Flags	LONG	4351

Secondary Axis Flag Parameters Code=0x10; Index=0x20; Mask=0xFF		P
Secondary Axis 8 Flags	LONG	4352
Secondary Axis 9 Flags	LONG	4353
Secondary Axis 10 Flags	LONG	4354
Secondary Axis 11 Flags	LONG	4355
Secondary Axis 12 Flags	LONG	4356
Secondary Axis 13 Flags	LONG	4357
Secondary Axis 14 Flags	LONG	4358
Secondary Axis 15 Flags	LONG	4359

Quaternary Axis Flag Parameters Code=0x10; Index=0x21; Mask=0xFF		P
Quaternary Axis 0 Flags	LONG	4360
Quaternary Axis 1 Flags	LONG	4361
Quaternary Axis 2 Flags	LONG	4362
Quaternary Axis 3 Flags	LONG	4363
Quaternary Axis 4 Flags	LONG	4364
Quaternary Axis 5 Flags	LONG	4365
Quaternary Axis 6 Flags	LONG	4366
Quaternary Axis 7 Flags	LONG	4367

Quaternary Axis Flag Parameters Code=0x10; Index=0x22; Mask=0xFF		P
Quaternary Axis 8 Flags	LONG	4368
Quaternary Axis 9 Flags	LONG	4369
Quaternary Axis 10 Flags	LONG	4370
Quaternary Axis 11 Flags	LONG	4371
Quaternary Axis 12 Flags	LONG	4372
Quaternary Axis 13 Flags	LONG	4373
Quaternary Axis 14 Flags	LONG	4374
Quaternary Axis 15 Flags	LONG	4375

P4096 – P4375 Flag Parameters

Field Description	Read/ Write	Description
Opto-Isolated Inputs	R	This Parameter shows the states of the onboard isolated inputs. Each bit of this long parameter represents an individual input state. See Bit 0 – 31 for more information
Opto-Isolated Outputs	R/W	This Parameter shows the states of the onboard isolated outputs or Drive outputs (ACR9000 only). Each bit of this long parameter represents an individual output state. See Bit 32 – 63 for more information.
Miscellaneous Inputs	R	This Parameter shows the states of some miscellaneous inputs such as the DIP switch inputs or the Drive fault inputs (ACR9000 only), the High Speed Inputs (ACR9000 only), the clock pulse inputs and the Programmable Limit Switch inputs. See Bit 64 – 95 for more information.
Miscellaneous outputs	R/W	This Parameter shows the states of some miscellaneous outputs such as the LED outputs, the Sample related outputs, trigger interrupt outputs and expansion I/O enable outputs. See Bit 96 – 127 for more information.
User Group	R/W	These Parameters show the states of users defined Boolean flags. . Each bit of this long parameter represents an individual user defined flag state. User can use these flags and defined to suit their application need. See Bit 128 – 255 for more information.
XIO Board	R/W	These parameters show the states of the Expansion I/O. For ACR9000, if P32711 is set to 1, the CANopen I/O states will be mapped to these parameters.

Field Description	Read/ Write	Description
Master Flags	R/W	These Parameters indicate the status of master move profile. See Bit 512 – Bit 767 for master 0 – 7 and Bit 7424- Bit 7679 for master 8 – 15 for more information.
Axis Flags	R/W	These Parameters indicate the limit status, Gear and Jog profile status of the axis. See Bit 768 – Bit 1023 for axis 0 – 7 and Bit 7680 – 7935 for axis 8 – 15 for more information.
Program Flags	R	These Parameters indicate the status of user program flow. See Bit 1024 – Bit 1535 for more information.
PLC Flags	R	These Parameters indicate the status of PLC (Programmable Logic Controller) program flow. See Bit 1536 – Bit 1791 for more information.
FIFO/Stream Flags	R/W	This Parameter shows the status of the FIFO (First In First Out data stream buffer). See Bit1792 – Bit1823 for more information.
LPT1 Flags	R	This Parameter shows the status of the LPT1 (the parallel port interface). See Bit 1824 – Bit 1855 for more information.
COM1 Flags	R/W	This Parameter shows the status of the serial COM1 data stream. See Bit 1856 – Bit 1887 for more information.
COM2 Flags	R/W	This Parameter shows the status of the serial COM2 data stream. See Bit 1856 – Bit 1887 for more information.
Secondary Master Flags	R/W	This is the second set of Master move status flags. See Bit 2048 – Bit 2303 for more information.
Secondary Axis Flags	R/W	This is the second set of Axis move status flags such as CAM, GEAR and Limit related. See Bit 2304 – Bit 2559 for more information.
Encoder Flags	R	These parameters report the status of encoder signal. See bit 2560 – Bit3175
EPLD Digital Inputs	R/W	These parameters show drive input states.
EPLD Digital Outputs	R	These parameters show control drive output states.
Tertiary Master Flags	R/W	This is the third set of Master move status flags such as Spline and NURB motion related. See Bit 5120 – Bit 5631 for more information.
Misc. Control Group Flags	R/W	This parameter shows some miscellaneous control flags. See bit 5632 – Bit 5663 for more information
Stream Flags	R/W	These parameters show the status of Ethernet communication stream. ACR9000 creates a communication stream for each Ethernet connection.

Field Description	Read/ Write	Description
Quaternary Master Flags	R/W	This is the fourth set of Master move status flags such as MBUF and Look Ahead motion related. See Bit 5888 – Bit 6399 for more information.
Tertiary Axis Flags	R/W	This is the third set of Axis move status flags for CAM, GEAR and Limit related. See Bit 2304 – Bit 2559 for more information.
Quaternary Axis Flags	R/W	This is the fourth set of Axis move status flags for Position Maintenance, Ethernet Alarm, and Drive I/O.

P4448 - P4583 CANopen Flag Parameters

Version 1.18.10 & Up - ACR9000 only

CANopen Control Flags Code=0x10; Index=0x2C, Mask=0xFF		P
CANopen Control Flag	LONG	4448
Reserved	LONG	4449
Reserved	LONG	4450
Reserved	LONG	4451
Reserved	LONG	4452
Reserved	LONG	4453
Reserved	LONG	4454
Reserved	LONG	4455

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	CANopen Digital I/O Parameters Code=0x10		Long Index							
			0	1	2	3	4	5	6	7
0x2D	Node 0 DI	LONG	4456	4457	4458	4459	4460	4461	4462	4463
0x2F	Node 0 DO	LONG	4472	4473	4474	4475	4476	4477	4478	4479
0x31	Node 1 DI	LONG	4488	4489	4490	4491	4492	4493	4494	4495
0x33	Node 1 DO	LONG	4504	4505	4506	4507	4508	4509	4510	4511
0x35	Node 2 DI	LONG	4520	4521	4522	4523	4524	4525	4526	4527
0x37	Node 2 DO	LONG	4536	4537	4538	4539	4540	4541	4542	4543
0x39	Node 3 DI	LONG	4552	4553	4554	4555	4556	4557	4558	4559
0x3B	Node 3 DO	LONG	4568	4569	4570	4571	4572	4573	4574	4575

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	CANopen Digital I/O Parameters Code=0x11		Long Index							
			8	9	10	11	12	13	14	15
0x2E	Node 0 DI	LONG	4464	4465	4466	4467	4468	4469	4470	4471
0x30	Node 0 DO	LONG	4480	4481	4482	4483	4484	4485	4486	4487
0x32	Node 1 DI	LONG	4496	4497	4498	4499	4500	4501	4502	4503
0x34	Node 1 DO	LONG	4512	4513	4514	4515	4516	4517	4518	4519
0x36	Node 2 DI	LONG	4528	4529	4530	4531	4532	4533	4534	4535
0x38	Node 2 DO	LONG	4544	4545	4546	4547	4548	4549	4550	4551
0x3A	Node 3 DI	LONG	4560	4561	4562	4563	4564	4565	4566	4567
0x3C	Node 3 DO	LONG	4576	4577	4578	4579	4580	4581	4582	4583

Field Description	Read/ Write	Description
CANopen Control Flag	R/W	Control flags for CANopen Network
Node Digital Input	R/W	Digital input bits.
Node Digital Output	R/W	Digital output bits.

P4600 - P4615 Hardware, Software, and Homing Parameters

Version 1.18.14 & Up - ACR9000 only

Hardware, Software, and Homing Flags Code=0x10; Index=0x3f, Mask=0xff		P
Quinary Axis 0 Flags	LONG	4600
Quinary Axis 1 Flags	LONG	4601
Quinary Axis 2 Flags	LONG	4602
Quinary Axis 3 Flags	LONG	4603
Quinary Axis 4 Flags	LONG	4604
Quinary Axis 5 Flags	LONG	4605
Quinary Axis 6 Flags	LONG	4606
Quinary Axis 7 Flags	LONG	4607

Hardware, Software, and Homing Flags Code=0x10; Index=0x40, Mask=0xff		P
Quinary Axis 8 Flags	LONG	4608
Quinary Axis 9 Flags	LONG	4609
Quinary Axis 10 Flags	LONG	4610
Quinary Axis 11 Flags	LONG	4611
Quinary Axis 12 Flags	LONG	4612
Quinary Axis 13 Flags	LONG	4613
Quinary Axis 14 Flags	LONG	4614
Quinary Axis 15 Flags	LONG	4615

Field Description	Read/ Write	Description
Quinary Axis Flags	R/W	Control and Status flags for Homing and Limits.

P4616 - P4623 EPL Network Flag Parameters

EPL Network Flags Code=0x10; Index=0x41		P
EPL Network Flags	LONG	4616
Reserved	LONG	4617
Reserved	LONG	4618
Reserved	LONG	4619
Reserved	LONG	4620
Reserved	LONG	4621
Reserved	LONG	4622
Reserved	LONG	4623

Field Description	Read/ Write	Description
EPL Network Flags	R/W	Control and Status flags for an Ethernet Powerlink Network.

P4624 - P4631 IEC Task Control/Status Parameters

IEC Control and Status Code=0x10; Index=0x41		P
IEC Task Control/Status	LONG	4624
Reserved	LONG	4625
Reserved	LONG	4626
Reserved	LONG	4627
Reserved	LONG	4628
Reserved	LONG	4629
Reserved	LONG	4630
Reserved	LONG	4631

Field Description	Read/ Write	Description
IEC Task Control/Status Parameters	R/W	Control and Status parameters for IEC PLC.

P6144 - P6655 Object Parameters

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	ENC Parameters Code=0x18		ENC Number							
			0	1	2	3	4	5	6	7
0x00	Encoder Position	LONG	6144	6160	6176	6192	6208	6224	6240	6256
0x01	Encoder Velocity	LONG	6145	6161	6177	6193	6209	6225	6241	6257
0x02	Reserved	LONG	6146	6162	6178	6194	6210	6226	6242	6258
0x03	Reserved	LONG	6147	6163	6179	6195	6211	6227	6243	6259
0x04	ABS Revolution	LONG	6148	6164	6180	6196	6212	6228	6244	6260
0x05	Reserved	LONG	6149	6165	6181	6197	6213	6229	6245	6261
0x06	Reserved	LONG	6150	6166	6182	6198	6214	6230	6246	6262
0x07	Reserved	LONG	6151	6167	6183	6199	6215	6231	6247	6263

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	STEPPER Parameters Code=0x18		STEPPER Number							
			0	1	2	3	4	5	6	7
0x08	Stepper Signal	FP32	6152	6168	6184	6200	6216	6232	6248	6264
0x09	Reserved	FP32	6153	6169	6185	6201	6217	6233	6249	6265
0x0A	Reserved	FP32	6154	6170	6186	6202	6218	6234	6250	6266
0x0B	Reserved	FP32	6155	6171	6187	6203	6219	6235	6251	6267
0x0C	Stepper Count	LONG	6156	6172	6188	6204	6220	6236	6252	6268
0x0D	Reserved	LONG	6157	6173	6189	6205	6221	6237	6253	6269
0x0E	Reserved	LONG	6158	6174	6190	6206	6222	6238	6254	6270
0x0F	Reserved	LONG	6159	6175	6191	6207	6223	6239	6255	6271

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	DAC Parameters Code=0x19		DAC Number							
			0	1	2	3	4	5	6	7
0x00	DAC Output	FP32	6400	6416	6432	6448	6464	6480	6496	6512
0x01	Reserved	FP32	6401	6417	6433	6449	6465	6481	6497	6513
0x02	DAC Gain	FP32	6402	6418	6434	6450	6466	6482	6498	6514
0x03	DAC Offset	FP32	6403	6419	6435	6451	6467	6483	6499	6515
0x04	Reserved	FP32	6404	6420	6436	6452	6468	6484	6500	6516
0x05	Reserved	FP32	6405	6421	6437	6453	6469	6485	6501	6517
0x06	Reserved	FP32	6406	6422	6438	6454	6470	6486	6502	6518
0x07	Reserved	FP32	6407	6423	6439	6455	6471	6487	6503	6519

Index	ADC Parameters Code=0x19	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			ADC Number							
			0	1	2	3	4	5	6	7
0x08	ADC Input	FP32	6408	6424	6440	6456	6472	6488	6504	6520
0x09	Reserved	FP32	6409	6425	6441	6457	6473	6489	6505	6521
0x0A	ADC Gain	FP32	6410	6426	6442	6458	6474	6490	6506	6522
0x0B	ADC Offset	FP32	6411	6427	6443	6459	6475	6491	6507	6523
0x0C	Reserved	FP32	6412	6428	6444	6460	6476	6492	6508	6524
0x0D	Reserved	FP32	6413	6429	6445	6461	6477	6493	6509	6525
0x0E	Reserved	FP32	6414	6430	6446	6462	6478	6494	6510	6526
0X0F	Reserved	FP32	6415	6431	6447	6463	6479	6495	6511	6527

Index	ENC Parameters Code=0x18	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			ENC Number							
			8	9	10	11	12	13	14	15
0x80	Encoder Position	LONG	6272	6288	6304	6320	6336	6352	6368	6384
0x81	Encoder Velocity	LONG	6273	6289	6305	6321	6337	6353	6369	6385
0x82	Reserved	LONG	6274	6290	6306	6322	6338	6354	6370	6386
0x83	Reserved	LONG	6275	6291	6307	6323	6339	6355	6371	6387
0x84	ABS Revolution	LONG	6276	6292	6308	6324	6340	6356	6372	6388
0x85	Reserved	LONG	6277	6293	6309	6325	6341	6357	6373	6389
0x86	Reserved	LONG	6278	6294	6310	6326	6342	6358	6374	6390
0X87	Reserved	LONG	6279	6295	6311	6327	6343	6359	6375	6391

Index	STEPPER Parameters Code=0x18	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			STEPPER Number							
			8	9	10	11	12	13	14	15
0x88	Stepper Signal	FP32	6280	6296	6312	6328	6344	6360	6376	6392
0x89	Reserved	FP32	6281	6297	6313	6329	6345	6361	6377	6393
0X8A	Reserved	FP32	6282	6298	6314	6330	6346	6362	6378	6394
0x8B	Reserved	FP32	6283	6299	6315	6331	6347	6363	6379	6395
0x8C	Stepper Count	LONG	6284	6300	6316	6332	6348	6364	6380	6396
0x8D	Reserved	LONG	6285	6301	6317	6333	6349	6365	6381	6397
0x8E	Reserved	LONG	6286	6302	6318	6334	6350	6366	6382	6398
0x8F	Reserved	LONG	6287	6303	6319	6335	6351	6367	6383	6399

Index	DAC Parameters Code=0x19	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			DAC Number							
			8	9	10	11	12	13	14	15
0x80	DAC Output	FP32	6528	6544	6560	6576	6592	6608	6624	6640
0x81	Reserved	FP32	6529	6545	6561	6577	6593	6609	6625	6641
0x82	DAC Gain	FP32	6530	6546	6562	6578	6594	6610	6626	6642
0x83	DAC Offset	FP32	6531	6547	6563	6579	6595	6611	6627	6643
0x84	Reserved	FP32	6532	6548	6564	6580	6596	6612	6628	6644
0x85	Reserved	FP32	6533	6549	6565	6581	6597	6613	6629	6645
0x86	Reserved	FP32	6534	6550	6566	6582	6598	6614	6630	6646
0x87	Reserved	FP32	6535	6551	6567	6583	6599	6615	6631	6647

Index	ADC Parameters Code=0x19	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			ADC Number							
			8	9	10	11	12	13	14	15
0x88	ADC Input	FP32	6536	6552	6568	6584	6600	6616	6632	6648
0x89	Reserved	FP32	6537	6553	6569	6585	6601	6617	6633	6649
0x8A	ADC Gain	FP32	6538	6554	6570	6586	6602	6618	6634	6650
0x8B	ADC Offset	FP32	6539	6555	6571	6587	6603	6619	6635	6651
0x8C	Reserved	FP32	6540	6556	6572	6588	6604	6620	6636	6652
0x8D	Reserved	FP32	6541	6557	6573	6589	6605	6621	6637	6653
0x8E	Reserved	FP32	6542	6558	6574	6590	6606	6622	6638	6654
0X8F	Reserved	FP32	6543	6559	6575	6591	6607	6623	6639	6655

Field Description	Read/ Write	Description
Encoder Position	R	Current position of the encoder in counts, updated every servo period.
Encoder Velocity	R	Signed change in encoder counts since the previous servo period.
ABS Revolution	R	Number of revolutions of the absolute encoder.
Stepper Signal	R	Intermediate signal applied to step generator.
Stepper Count	R	Signed step counts generated this servo period.
DAC Output	R	Voltage (volts) applied to DAC, updated every servo period.
DAC Gain	R/W	Gain factor to convert volts to DAC counts.
DAC Offset	R/W	Offset (volts) subtracted from DAC Output before DAC Gain is applied.
ADC Input	R	Value of ADC input after ADC Gain and ADC Offset have been applied, updated every servo period.
ADC Gain	R/W	Gain applied to normalized (-1 to 1) ADC value.
ADC Offset	R/W	Offset (volts) added to Gain adjusted ADC value.

P24567 - P24831 Object Parameters

			Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	ENC Parameters Code=0x18			ENC Number							
				16	17	18	19	20	21	22	23
0x80	Encoder Position	LONG		24576	24592	24608	24624	N/A	N/A	N/A	N/A
0x81	Encoder Velocity	LONG		24577	24593	24609	24625	N/A	N/A	N/A	N/A
0x82	Reserved	LONG		24578	24594	24610	24626	N/A	N/A	N/A	N/A
0x83	Reserved	LONG		24579	24595	24611	24627	N/A	N/A	N/A	N/A
0x84	ABS Revolution	LONG		24580	24596	24612	24628	N/A	N/A	N/A	N/A
0x85	Reserved	LONG		24581	24597	24613	24629	N/A	N/A	N/A	N/A
0x86	Reserved	LONG		24582	24598	24614	24630	N/A	N/A	N/A	N/A
0X87	Reserved	LONG		24583	24599	24615	24631	N/A	N/A	N/A	N/A

Field Description	Read/ Write	Description
Encoder Position	R	Current position of the encoder in counts, updated every servo period.
Encoder Velocity	R	Signed change in encoder counts since the previous servo period.
ABS Revolution	R	Number of revolutions of the absolute encoder.

P6656 - P6775 PLC Parameters

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	PLC Parameters Code=0x1A		PLC Number							
			0	1	2	3	4	5	6	7
0x00	Tick Preload	LONG	6656	6672	6688	6704	6720	6736	6752	6768
0x01	Tick Count	LONG	6657	6673	6689	6705	6721	6737	6753	6769
0x02	Reserved	LONG	6658	6674	6690	6706	6722	6738	6754	6770
0x03	Reserved	LONG	6659	6675	6691	6707	6723	6739	6755	6771

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	TIM Parameters Code=0x1A		TIM Number							
			0	1	2	3	4	5	6	7
0x04	Timer Preload	LONG	6660	6676	6692	6708	6724	6740	6756	6772
0x05	Timer Count	LONG	6661	6677	6693	6709	6725	6741	6757	6773

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	CNT Parameters Code=0x1A		CNT Number							
			0	1	2	3	4	5	6	7
0x06	Counter Preload	LONG	6662	6678	6694	6710	6726	6742	6758	6774
0x07	Counter Count	LONG	6663	6679	6695	6711	6727	6743	6759	6775

Field Description	Read/ Write	Description
Tick Preload	R/W	Scan rate in milliseconds.
Tick Count	R	Milliseconds remaining before scanning PLC program.
Timer Preload	R/W	Number of milliseconds between timer input activation and timer output activation.
Timer Count	R	Milliseconds remaining before timer output activation.
Counter Preload	R/W	Starting count of down counter counting clock inputs.
Counter Count	R	Counts remaining before counter output goes active.

P6912 - P7119 Miscellaneous Parameters

Mask	Position Parameters Code=0x1B, Index=0x00		P
0x01	Sample Array Index	LONG	6912
0x02	Sample Trigger Index	LONG	6913
0x04	Sample Timer Clock	LONG	6914
0x08	Sample Timer Period	LONG	6915
0x10	Global System Clock	LONG	6916
0x20	ADC State Control (ADC MODE)	LONG	6917
0x40	ADC Positive Channels (ADC POS)	LONG	6918
0x80	ADC Negative Channels (ADC NEG)	LONG	6919

Mask	Stream 4 Stream Parameters Code=0x1B, Index=0x04		P
0x01	Stream 4 Character Buffer Count	LONG	6944
0x02	Stream 4 Line Buffer Count	LONG	6945
0x04	Stream 4 Free Character Space	LONG	6946
0x08	Stream 4 Command Counter	LONG	6947
0x10	Stream 4 Communication Timeout	LONG	6948

Mask	Stream 5 Stream Parameters Code=0x1B, Index=0x06		P
0x01	Stream 5 Character Buffer Count	LONG	6960
0x02	Stream 5 Line Buffer Count	LONG	6961
0x04	Stream 5 Free Character Space	LONG	6962
0x08	Stream 5 Command Counter	LONG	6963
0x10	Stream 5 Communication Timeout	LONG	6964

Mask	FIFO/Stream 1 Stream Parameters (DIM) Code=0x1B, Index=0x08		P
0x01	FIFO/Stream 1 Character Buffer Count	LONG	6976
0x02	FIFO/Stream 1 Line Buffer Count	LONG	6977
0x04	FIFO/Stream 1 Free Character Space	LONG	6978
0x08	FIFO/Stream 1 Command Counter	LONG	6979
0x10	FIFO/Stream 1 Communication Timeout	LONG	6980

Mask	COM1 Stream Parameters (DIM) Code=0x1B, Index=0x0C		P
0x01	COM1 Character Buffer Count	LONG	7008
0x02	COM1 Line Buffer Count	LONG	7009
0x04	COM1 Free Character Space	LONG	7010
0x08	COM1 Command Counter	LONG	7011
0x10	COM1 Communication Timeout	LONG	7012
0x20	COM1 Startup Mode	LONG	7013

Mask	COM2 Stream Parameters (DIM) Code=0x1B; Index=0x0E		P
0x01	COM2 Character Buffer Count	LONG	7024
0x02	COM2 Line Buffer Count	LONG	7025
0x04	COM2 Free Character Space	LONG	7026
0x08	COM2 Command Counter	LONG	7027
0x10	COM2 Communication Timeout	LONG	7028
0x20	COM2 Startup Mode	LONG	7029

Mask	Board Information (Version 1.18 & Up) Code=0x1B; Index=0x10		P
0x01	Card / Serial Number	LONG	7040
0x02	Card Number	LONG	7041
0x04	Firmware Version	LONG	7042
0x08	Update Number	LONG	7043
0x10	Diagnostics	LONG	7044
0x20	FPGA ID	LONG	7045
0x40	IO Configuration	LONG	7046

Mask	FSTAT Information Code=0x1B, Index=0x12		P
0x01	FSTAT Period	LONG	7056
0x02	FSTAT Count	LONG	7057

Mask	Stream 2 Stream Parameters Code=0x1B, Index=0x14		P
0x01	Stream 2 Character Buffer Count	LONG	7072
0x02	Stream 2 Line Buffer Count	LONG	7073
0x04	Stream 2 Free Character Space	LONG	7074
0x08	Stream 2 Command Counter	LONG	7075
0x10	Stream 2 Communication Timeout	LONG	7076

Mask	Stream 3 Stream Parameters (DIM) Code=0x1B, Index=0x16		P
0x01	DPCB/Stream 3 Character Buffer Count	LONG	7088
0x02	DPCB/Stream 3 Line Buffer Count	LONG	7089
0x04	DPCB/Stream 3 Free Character Space	LONG	7090
0x08	DPCB/Stream 3 Command Counter	LONG	7091
0x10	DPCB/Stream 3 Communication Timeout	LONG	7092

Mask	Firmware Information (FIRMWARE CHECKSUM) Code=0x1B, Index=0x18		P
0x01	Bootflash Version	LONG	7104
0x02	Bootflash Checksum	LONG	7105
0x04	Reserved	LONG	7106
0x08	Reserved	LONG	7107
0x10	Sysflash1 Version	LONG	7108
0x20	Sysflash1 Checksum	LONG	7109
0x40	Reserved	LONG	7110
0x80	Reserved	LONG	7111

Mask	Firmware Information (FIRMWARE CHECKSUM) Code=0x1B, Index=0x19		P
0x01	Sysflash2 Version	LONG	7112
0x02	Sysflash2 Checksum	LONG	7113
0x04	Reserved	LONG	7114
0x08	Reserved	LONG	7115
0x10	Reserved	LONG	7116
0x20	Userflash Checksum	LONG	7117
0x40	Reserved	LONG	7118
0x80	Reserved	LONG	7119

Field Description	Read/ Write	Description
Sample Array Index	R	Destination where the next samples are going to be put in the user defined sample arrays. During sampling, if the index is greater than or equal to the size of the array, that channel is tagged as being full. If all channels are full, the index is reset and the "trigger armed" and "in progress" flags are cleared. This allows different channels to have arrays of different lengths.
Sample Trigger Index	R	Set with the **SAMP TRG** command and is stored as a one's complement number (to allow triggering on minus zero.) A number greater than or equal to zero will trigger on an active state or a rising edge depending on the setting of the sample mode flag. A value less than zero is bitwise inverted and triggers on an inactive state or a falling edge.
Sample Timer Clock	R	The number of milliseconds remaining before a sample will be taken. This value is normally zero unless the sample timer period has been set. Whenever a sample is taken, this parameter is loaded with the value in sample timer period.
Sample Timer Period	R	Loaded into the sample timer clock whenever a sample is taken. This parameter is normally zero, indicating that samples should be taken at the servo interrupt period. For edge triggered sample operation, the period indicates the number of milliseconds that will pass after an edge before a sample is taken.
Global System Clock	R	Free running millisecond clock.
ADC State Control	R	Current ADC state. 0= Inactive 6= Active
ADC Positive Channels	R	Packed values of ADC POS, 4 bits per channel.
ADC Negative Channels	R	Packed values of ADC NEG, 4 bits per channel.
Character Buffer Count	R	Number of characters in the line so far. Set to zero when the line is complete.
Line Buffer Count	R	Number of lines in buffer. Incremented when line is complete; decremented when line is processed.
Free Character Space	R	Fee space for characters left in buffer.
Command Counter	R	Commands executed so far on this stream.
Communication Timeout	R	Timeout in milliseconds for receiving multi-word communications.
Card/Serial Number	R	Returns the card type in the upper four digits returned. The Serial N umber is returned in the lower four digits returned. Currently, all board serial numbers default to “0000”. For example: ACR8010 board returns “80100000” (Version 1.18 & Up)

Field Description	Read/ Write	Description
Card Number	R	Returns the Card Number selected by the Card Address Dip Switch (SW1). Refer to the appropriate hardware manual for details. (Version 1.18 & Up)
Firmware Version	R	Returns the firmware version of the installed EPROM(s). For example: ACR8010 board with firmware version 1.18.01 EPROMs returns “11801” (Version 1.18 & Up)
Update Number	R	Returns the firmware version update number, if any, of the installed EPROM(s). Firmware versions with no update number will return a “0”. For example: ACR8010 board with firmware version 1.18.01 Update 3 EPROMs returns “3” (Version 1.18 & Up)
Diagnostics	R	Returns the card diagnostic information. This is a 32-bit number representation of the information that is returned from the **DIAG** command. See parameter detailed description following these descriptions. (Version 1.18 & Up)
FPGA ID	R	Returns the ID number of the Encoder FPGAs installed. (Version 1.18 & Up)
IO Configuration	R	ACR1500 Only. Returns the IO Configuration of the ACR1500 board. Returns a “0” for all other boards. (Version 1.18 & Up)
FSTAT Period	R	Sets the FSTAT update frequency.
FSTAT Count	R	Copies the FSTAT period to the FSTAT count when FSTAT is on, or at the finish of every FSTAT update. The FSTAT update occurs if FSTAT counter is less than or equal to zero.
Bootflash Version	R	Version number for boot code.
Bootflash Checksum	R	Flash checksum for boot code
Sysflash1 Version	R	Version number for system code
Sysflash1 Checksum	R	Flash checksum for system code.
Sysflash2 Version	R	Version number for system code backup.
Sysflash2 Checksum	R	Flash checksum for system code backup.

COM1 & COM2 Startup Modes

Note: **ESAVE** and **ELOAD** commands will store and load the COM1/COM2 startup mode settings in EEPROM/FLASH. **ERASE** will not modify the COM1/COM2 startup mode settings in EEPROM/FLASH.

Note: Default echo modes are not affected by COM1/COM2 startup mode settings. Cards numbered as Card Number 0 will default to ECHO 1; all other card numbers will default to ECHO 6 (no echo).

COM1 Startup Mode (P7013) Code=0x1B; Index=0x0C; Mask=0x20	
COM2 Startup Mode (P7029) Code=0x1B; Index=0x0E; Mask=0x20	
Baud rate Field Selection Bit Description	**Bit Index**
Baud rate Bit 0	0
Baud Rate Bit 1	1
Baud Rate Bit 2	2
Baud Rate Bit 3	3
Baud Rate Bit 4	4
Baud Rate Bit 5	5
Baud Rate Bit 6	6
Baud Rate Bit 7	7

Data bits Control Fields Bit Description	**Bit Index**
Data bits Bit 0	8
Data bits Bit 1	9

Stop bits Control Fields Bit Description	**Bit Index**
Stop bits	10

Parity Bits Control Fields Bit Description	**Bit Index**
Parity Bit 0	11
Parity Bit 1	12
Reserved	13
Reserved	14

Startup Enable Control Fields Bit Description	**Bit Index**
Startup Enable	15

Reserved Bits	Bit Index
Reserved	16
Reserved	17
Reserved	18
Reserved	19
Reserved	20
Reserved	21
Reserved	22
Reserved	23
Reserved	24
Reserved	25
Reserved	26
Reserved	27
Reserved	28
Reserved	29
Reserved	30
Reserved	31

COM1 & COM2 Startup Mode Bit Field Descriptions

Version 1.17 & Up - ACR8000

Version 1.18.02 & Up - ACR1200, ACR1500, ACR2000, ACR8010

Field Description	Read/ Write	Description
Baud rate	R/W	Selects the baud rate when the Autobaud Detect function is disabled via the Startup Enable field. The baud rate field is set as follows: Baud rate Bit 7 thru Bit 0 = Baud rate / 300 For Example: To select a baud rate of 9600: 9600 / 300 = 32d = 20h
Data bits Control	R/W	Selects the number of data bits transmitted as follows: 0 = 5 Data Bits 1 = 6 Data Bits 2 = 7 Data Bits 3 = 8 Data Bits
Stop bits Control	R/W	Selects the number of stop bits as follows: 0 = 1 Stop Bit 1 = 2 Stop Bits

Field Description	Read/ Write	Description
Parity Control	R/W	Selects the parity as follows: 0 = No Parity 1 = Odd Parity 2 = No Parity 3 = Even Parity
Startup Enable	R/W	Enables / disables the Autobaud Detect feature of the motion controller board, in conjunction with the Autobaud Detect Disable jumper (or switch for the ACR8000) as follows: 0 = Always autobaud detect (**Note:** The Autobaud Detect Disable jumper (or switch) will be ignored) 1 = If the Autobaud Detect Disable jumper (or switch) is enabled, use the manual port communication settings above; otherwise, autobaud detect. Refer to the appropriate Hardware Manual for Autobaud Detect Disable jumper (or switch) details.

ACR1200 Diagnostic Parameter Details

ACR1200 Diagnostic Parameter P7044 Code=0x1B; Index=0x80; Mask=0x10	
ACR1200 Motherboard Bit Description	**Bit Index**
ISO	31
EXT	30
STP	29
ENC	28
Reserved	27
Reserved	26
Reserved	25
Reserved	24
BCF	23
BCL	22
VEE	21
VDD	20
Reserved	19
Reserved	18
Reserved	17
Reserved	16

I/O Expansion Board 0 Bit Description	Bit Index
Board Present**	15
ISO	14
EXT	13
Reserved	12

I/O Expansion Board 1 Bit Description	Bit Index
Board Present**	11
ISO	10
EXT	9
Reserved	8

I/O Expansion Board 2 Bit Description	Bit Index
Board Present**	7
ISO	6
EXT	5
Reserved	4

I/O Expansion Board 3 Bit Description	Bit Index
Board Present**	3
ISO	2
EXT	1
Reserved	0

Where:

0 = Pass
1 = Fail

**Board Present:

0 = Expansion Board is detected (Present)
1 = Expansion Board is not detected (Not Present)

Field Description	Read/ Write	Description
EXT	R	Isolated external voltage provided for the optoisolation circuitry on the ACR1200 Motherboard. PASS: External voltage present FAIL: No external voltage present
ISO	R	On-board isolated +5VDC voltage provided for the optoisolation circuitry on the ACR1200 Motherboard. The isolated +5VDC is generated from the isolated external supplied voltage. PASS: On-board isolated +5VDC voltage present FAIL: No voltage present
VDD	R	+12VDC supply voltage. PASS: Voltage present FAIL: No voltage present
VEE	R	-12VDC supply voltage. PASS: Voltage present FAIL: No voltage present
BCL	R	1000 mAh Lithium Battery BT1 voltage low indicator. This is a warning indicator that battery voltage is approaching minimum requirements for SRAM back-up. Minimum SRAM data retention voltage is 2.0VDC. BT1 should be replaced. (Panasonic P/N CR2477N) PASS: BT1 > 2.5 VDC FAIL: BT1 is between 2.3 and 2.5 VDC (when BCF displays PASS)
BCF	R	1000 mAh Lithium Battery BT1 voltage fail indicator. This is a warning indicator that battery voltage is below requirements for SRAM back-up (minimum SRAM data retention voltage is 2.0VDC). BT1 must be replaced. (Panasonic P/N CR2477N) PASS: BT1 > 2.2VDC FAIL: BT1 is between 2.0 and 2.2 VDC.
ENC	R	Fused Encoder +5VDC available at the P1 encoder connector. PASS: Voltage present FAIL: No voltage present
STP	R	Fused Stepper +5VDC available at the P2 analog connector. PASS: Voltage present FAIL: No voltage present

ACR1500 Diagnostic Parameter Details

ACR1500 Diagnostic Parameter P7044 Code=0x1B; Index=0x80; Mask=0x10	
ACR1500 Board Bit Description	**Bit Index**
Reserved	31
Reserved	30
Reserved	29
EVCC	28
Reserved	27
Reserved	26
Reserved	25
Reserved	24
Reserved	23
Reserved	22
Reserved	21
Reserved	20
Reserved	19
Reserved	18
Reserved	17
Reserved	16
Reserved	15
Reserved	14
Reserved	13
Reserved	12
Reserved	11
Reserved	10
Reserved	9
Reserved	8
Reserved	7
Reserved	6
Reserved	5
Reserved	4
Reserved	3
Reserved	2
Reserved	1
Reserved	0

Where:

0 = Pass
1 = Fail

Field Description	Read/ Write	Description
EVCC	R	Fused +5 VDC available at the P1 encoder connector. PASS: Voltage present FAIL: No voltage present

ACR1505 Diagnostic Parameter Details

ACR1505 Diagnostic Parameter P7044 Code=0x1B; Index=0x80; Mask=0x10	
ACR1505 Motherboard Bit Description	**Bit Index**
IO PWR	31
STP PWR	30
ENC PWR	29
Reserved	28
Reserved	27
Reserved	26
Reserved	25
Reserved	24
Reserved	23
Reserved	22
Reserved	21
COM Board Present**	20
Reserved	19
Reserved	18
Reserved	17
Reserved	16

I/O Expansion Board 3 Bit Description	Bit Index
Board Present**	15
ISO	14
EXT	13
Reserved	12

I/O Expansion Board 2 Bit Description	Bit Index
Board Present**	11
ISO	10
EXT	9
Reserved	8

I/O Expansion Board 1 Bit Description	Bit Index
Board Present**	7
ISO	6
EXT	5
Reserved	4

I/O Expansion Board 0 Bit Description	Bit Index
Board Present**	3
ISO	2
EXT	1
Reserved	0

Where:

0 = Fail

1 = Pass

**Board Present:

0 = Expansion Board is detected (Present)

1 = Expansion Board is not detected (Not Present)

Field Description	Read/ Write	Description
ENC PWR	R	Fused +5VDC available at the P1 Encoder connector. PASS: Voltage present FAIL: No voltage present
STP PWR	R	Fused +5VDC available at the P2 Analog I/O connector. PASS: Voltage present FAIL: No voltage present
ISO PWR	R	Fused +5VDC available at the P3/P4 I/O connectors. PASS: Voltage present FAIL: No voltage present

ACR2000 Diagnostic Parameter Details

ACR2000 Diagnostic Parameter P7044 Code=0x1B; Index=0x80; Mask=0x10	
ACR2000 Motherboard Bit Description	**Bit Index**
ISO	31
EXT	30
Reserved	29
Reserved	28
Reserved	27
Reserved	26
Reserved	25
Reserved	24

ACRCOMM Module Bit Description	**Bit Index**
BCF	23
BCL	22
VEE	21
VDD	20
Reserved	19
Reserved	18
Reserved	17
Reserved	16

I/O Expansion Board 0 Bit Description	**Bit Index**
Board Present**	15
ISO	14
EXT	13
Reserved	12

I/O Expansion Board 1 Bit Description	**Bit Index**
Board Present**	11
ISO	10
EXT	9
Reserved	8

I/O Expansion Board 2 Bit Description	Bit Index
Board Present**	7
ISO	6
EXT	5
Reserved	4

I/O Expansion Board 3 Bit Description	Bit Index
Board Present**	3
ISO	2
EXT	1
Reserved	0

Where:

0 = Pass
1 = Fail

**Board Present:

0 = Expansion Board is detected (Present)
1 = Expansion Board is not detected (Not Present)

Field Description	Read/ Write	Description
EXT	R	Isolated external voltage provided for the optoisolation circuitry on the ACR2000 Motherboard. PASS: External voltage present FAIL: No external voltage present
ISO	R	On-board isolated +5VDC voltage provided for the optoisolation circuitry on the ACR2000 Motherboard. The isolated +5VDC is generated from the isolated external supplied voltage. PASS: On-board isolated +5VDC voltage present FAIL: No voltage present
VDD	R	+12VDC supply voltage. PASS: Voltage present FAIL: No voltage present

Field Description	Read/ Write	Description
VEE	R	-12VDC supply voltage. PASS: Voltage present FAIL: No voltage present
BCL	R	1000 mAh Lithium Battery BT1 voltage low indicator. This is a warning indicator that battery voltage is approaching minimum requirements for SRAM back-up. Minimum SRAM data retention voltage is 2.0VDC. BT1 should be replaced. (Panasonic P/N CR2477N) PASS: BT1 > 2.5VDC FAIL: BT1 is between 2.3 and 2.5 VDC (when BCF displays PASS)

ACR8000 Diagnostic Parameter Details

ACR8000 Diagnostic Parameter P7044 Code=0x1B; Index=0x80; Mask=0x10	
ACR8000 Motherboard Bit Description	**Bit Index**
+5V	31
+24V	30
Reserved	29
Reserved	28
Reserved	27
Reserved	26
Reserved	25
Reserved	24
Reserved	23
Reserved	22
-12V	21
+12V	20
Reserved	19
Reserved	18
Reserved	17
Reserved	16

I/O Expansion Board 0 Bit Description	Bit Index
Reserved	15
Reserved	14
Reserved	13
Reserved	12

I/O Expansion Board 1 Bit Description	Bit Index
Reserved	11
Reserved	10
Reserved	9
Reserved	8

I/O Expansion Board 2 Bit Description	Bit Index
Reserved	7
Reserved	6
Reserved	5
Reserved	4

I/O Expansion Board 3 Bit Description	Bit Index
Reserved	3
Reserved	2
Reserved	1
Reserved	0

Where:

0 = Pass
1 = Fail

Field Description	Read/ Write	Description
+24V	R	Isolated external voltage provided for the optoisolation circuitry on the ACR8000 controller. PASS: External voltage present FAIL: No external voltage present
+5V	R	On-board isolated +5VDC voltage provided for the optoisolation circuitry on the ACR8000 controller. The isolated +5VDC is generated from the isolated external supplied voltage. PASS: On-board isolated +5VDC voltage present FAIL: No voltage present
+12V	R	+12VDC supply voltage. PASS: Voltage present FAIL: No voltage present
-12V	R	-12VDC supply voltage. PASS: Voltage present FAIL: No voltage present

ACR8010 Diagnostic Parameter Details

ACR8010 Diagnostic Parameter P7044 Code=0x1B; Index=0x80; Mask=0x10	
ACR8010 Motherboard Bit Description	**Bit Index**
ISO	31
EXT	30
Reserved	29
Reserved	28
Reserved	27
Reserved	26
Reserved	25
Reserved	24
BCF	23
BCL	22
VEE	21
VDD	20
Reserved	19
Reserved	18
Reserved	17
Reserved	16

I/O Expansion Board 3 Bit Description	Bit Index
Board Present**	15
ISO	14
EXT	13
Reserved	12

I/O Expansion Board 2 Bit Description	Bit Index
Board Present**	11
ISO	10
EXT	9
Reserved	8

I/O Expansion Board 1 Bit Description	Bit Index
Board Present**	7
ISO	6
EXT	5
Reserved	4

I/O Expansion Board 0 Bit Description	Bit Index
Board Present**	3
ISO	2
EXT	1
Reserved	0

Where:

0 = Pass
1 = Fail

**Board Present:

0 = Expansion Board is detected (Present)
1 = Expansion Board is not detected (Not Present)

Field Description	Read/ Write	Description
EXT	R	Isolated external voltage provided for the optoisolation circuitry on the ACR8010 Motherboard. PASS: External voltage present FAIL: No external voltage present
ISO	R	On-board isolated +5VDC voltage provided for the optoisolation circuitry on the ACR8010 Motherboard. The isolated +5VDC is generated from the isolated external supplied voltage. PASS: On-board isolated +5VDC voltage present FAIL: No voltage present
VDD	R	+12VDC supply voltage. PASS: Voltage present FAIL: No voltage present
VEE	R	-12VDC supply voltage. PASS: Voltage present FAIL: No voltage present
BCL	R	1000 mAh Lithium Battery BT1 voltage low indicator. This is a warning indicator that battery voltage is approaching minimum requirements for SRAM back-up. Minimum SRAM data retention voltage is 2.0VDC. BT1 should be replaced. (Panasonic P/N CR2477N) PASS: BT1 > 2.5VDC FAIL: BT1 is between 2.3 and 2.5 VDC (when BCF displays PASS)
BCF	R	1000 mAh Lithium Battery BT1 voltage fail indicator. This is a warning indicator that battery voltage is below requirements for SRAM back-up (minimum SRAM data retention voltage is 2.0VDC). BT1 must be replaced. (Panasonic P/N CR2477N) PASS: BT1 > 2.2VDC FAIL: BT1 is between 2.0 and 2.2 VDC.

ACR8020 Diagnostic Parameter Details

ACR8020 Diagnostic Parameter P7044 Code=0x1B; Index=0x80; Mask=0x10	
ACR8020 Motherboard Bit Description	**Bit Index**
ISO	31
EXT	30
Reserved	29
Reserved	28
Reserved	27
Reserved	26
Reserved	25
Reserved	24
Reserved	23
Reserved	22
VEE	21
VDD	20
Reserved	19
Reserved	18
Reserved	17
Reserved	16

I/O Expansion Board 3 Bit Description	Bit Index
Board Present**	15
ISO	14
EXT	13
Reserved	12

I/O Expansion Board 2 Bit Description	Bit Index
Board Present**	11
ISO	10
EXT	9
Reserved	8

I/O Expansion Board 1 Bit Description	Bit Index
Board Present**	7
ISO	6
EXT	5
Reserved	4
Board Present**	3
ISO	2
EXT	1
Reserved	0

Where:

0 = Pass
1 = Fail

**Board Present:

0 = Expansion Board is detected (Present)
1 = Expansion Board is not detected (Not Present)

Field Description	Read/ Write	Description
ISO	R	EXT: Isolated external voltage provided for the optoisolation circuitry on the ACR8020 Motherboard. PASS: External voltage present FAIL: No external voltage present
EXT	R	ISO: On-board isolated +5VDC voltage provided for the optoisolation circuitry on the ACR8020 Motherboard. The isolated +5VDC is generated from the isolated external supplied voltage. PASS: On-board isolated +5VDC voltage present FAIL: No voltage present
VEE	R	VDD: +12VDC supply voltage. PASS: Voltage present FAIL: No voltage present
VDD	R	VEE: -12VDC supply voltage. PASS: Voltage present FAIL: No voltage present

ACR9000 Diagnostic Parameter Details

ACR9000 Diagnostic Parameter P7044 Code=0x1B; Index=0x80; Mask=0x10	
ACR1500 Board Bit Description	**Bit Index**
Reserved	31
Reserved	30
Reserved	29
Reserved	28
Reserved	27
Reserved	26
Reserved	25
Reserved	24
Reserved	23
BCL	22
Reserved	21
Reserved	20
Reserved	19
Reserved	18
Reserved	17
Reserved	16
Reserved	15
Reserved	14
Reserved	13
Reserved	12
Reserved	11
Reserved	10
Reserved	9
Reserved	8
Reserved	7
Reserved	6
Reserved	5
Reserved	4
Reserved	3
Reserved	2
Reserved	1
Reserved	0

Where:

0 = Pass
1 = Fail

Field Description	Read/ Write	Description
BCL	R	210000 mAh Lithium Battery voltage low indicator. This is a warning indicator that battery voltage is approaching minimum requirements for SRAM back-up. Minimum SRAM data retention voltage is 2.0VDC. Factory service is required for battery replacement. (Tadiran P/N TL-5242/W) PASS: Always for an old board, or if there is a good battery in a board that supports battery backed RAM. FAIL: If there is no battery or the battery is low in a board that supports battery backed RAM. The fail will latch on power-up if the battery <2.2 VDC.

P7168 - P7408 Program Parameters

PROG0 - PROG7

Index	Program Parameters Code=0x1C		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				Program Number							
				0	1	2	3	4	5	6	7
0x00	Line Number (RUN)	LONG		7168	7184	7200	7216	7232	7248	7264	7280

PROG8 - PROG15

Index	Program Parameters Code=0x1C		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				Program Number							
				8	9	10	11	12	13	14	15
0x80	Line Number (RUN)	LONG		7296	7312	7328	7344	7360	7376	7392	7408

P7424 - P7575 FSTAT Setup Parameters

ACR8020 only

Index	FSTAT Setup Parameters Code=0x1D	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			FSTAT Number							
			0	1	2	3	4	5	6	7
0x00	Reserved	LONG	7424	7440	7456	7472	7488	7504	7520	7536
0x01	Reserved	LONG	7425	7441	7457	7473	7489	7505	7521	7537
0x02	Reserved	LONG	7426	7442	7458	7474	7490	7506	7522	7538
0x03	Code	LONG	7427	7443	7459	7475	7491	7507	7523	7539
0x04	Index	LONG	7428	7444	7460	7476	7492	7508	7524	7540
0x05	Type	LONG	7429	7445	7461	7477	7493	7509	7525	7541
0x06	Reserved	LONG	7430	7446	7462	7478	7494	7510	7526	7542
0x07	Reserved	LONG	7431	7447	7463	7479	7495	7511	7527	7543

Index	FSTAT Setup Parameters Code=0x1D	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			FSTAT Number							
			8	9	10	11	12	13	14	15
0x80	Reserved	LONG	7552	7568	N/A	N/A	N/A	N/A	N/A	N/A
0x81	Reserved	LONG	7553	7569	N/A	N/A	N/A	N/A	N/A	N/A
0x82	Reserved	LONG	7554	7570	N/A	N/A	N/A	N/A	N/A	N/A
0x83	Code	LONG	7555	7571	N/A	N/A	N/A	N/A	N/A	N/A
0x84	Index	LONG	7556	7572	N/A	N/A	N/A	N/A	N/A	N/A
0x85	Type	LONG	7557	7573	N/A	N/A	N/A	N/A	N/A	N/A
0x86	Reserved	LONG	7558	7574	N/A	N/A	N/A	N/A	N/A	N/A
0x87	Reserved	LONG	7559	7575	N/A	N/A	N/A	N/A	N/A	N/A

Field Description	Read/ Write	Description
Code Field Description	R/W	The group code and group index work as a pair to select the data to be copied to dual port memory. The group code selects a general data grouping and the group index selects a set of eight fields within that group. The group code and group index parameters can be changed while the **FSTAT** is on and it won't affect the current **FSTAT** setup. The new **FSTAT** setup will not be effective until the **FSTAT ON REQUEST** is acknowledged.
Index Field Description	R/W	The group code and group index work as a pair to select the data to be copied to dual port memory. The group code selects a general data grouping and the group index selects a set of eight fields within that group. The group code and group index parameters can be changed while the **FSTAT** is on and it won't affect the current **FSTAT** setup. The new **FSTAT** setup will not be effective until the **FSTAT ON REQUEST** is acknowledged.
Type Field Description	R	Data Type: 1 =FP32 2 =LONG

P7680 - P7871 Connection Status Parameters

Mask	Command Connection (Data\Index) Code=0x1E		Index (Stream)				
			0	1	2	3	4
0x01	Connection Status	LONG	7680	7688	7696	7704	7712
0x02	Client's IP Address	LONG	7681	7689	7697	7705	7713
0x04	Client's IP Port	LONG	7682	7690	7698	7706	7714
0x08	Current Status Duration	LONG	7683	7691	7699	7707	7715
0x10	Attached ACR Stream Number	LONG	7684	7692	7700	7708	7716
0x20	Guarded By Watchdog Number	LONG	7685	7693	7701	7709	7717
0x40	Reserved	LONG	7686	7694	7702	7710	7718
0x80	Reserved	LONG	7687	7695	7703	7711	7719

Mask	Fast Status (Data\Index) Code=0x1E		Index (Stream)				
			8	9	10	11	12
0x01	Connection Status	LONG	7744	7752	7760	7768	7776
0x02	Client's IP Address	LONG	7745	7753	7761	7769	7777
0x04	Client's IP Port	LONG	7746	7754	7762	7770	7778
0x08	Current Status Duration	LONG	7747	7755	7763	7771	7779
0x10	Update Period To Client	LONG	7748	7756	7764	7772	7780
0x20	Guarded By Watchdog Number	LONG	7749	7757	7765	7773	7781
0x40	Reserved	LONG	7750	7758	7766	7774	7782
0x80	Reserved	LONG	7751	7759	7767	7775	7783

Mask	Management Connection (Data\Index) Code=0x1E		Index (Stream)				
			16	17	18	19	20
0x01	Connection Status	LONG	7808	7816	7824	7832	7840
0x02	Client's IP Address	LONG	7809	7817	7825	7833	7841
0x04	Client's IP Port	LONG	7810	7818	7826	7834	7842
0x08	Current Status Duration	LONG	7811	7819	7827	7835	7843
0x10	Watchdog Timer Value	LONG	7812	7820	7828	7836	7844
0x20	Watchdog Ticker Value	LONG	7813	7821	7829	7837	7845
0x40	User Alarm Filter Value	LONG	7814	7822	7830	7838	7846
0x80	Controller Alarm Filter Value	LONG	7815	7823	7831	7839	7847

Field Descriptions	Read/ Write	Description
Connection Status	R	The return values and descriptions are as follows: **0 = Never connected**. This means that no client has ever connected to this resource. **1 = Currently connected**, no watchdog. The resource has a connected client, but the resource is not protected with a watchdog. **2 = Currently connected**, watchdog protected. This resource has a connected client, and the resource is protected with a watchdog. **3 = Connection closed by client**. This resource had been connected once, but the client has since closed the connection. **4 = Connection aborted by watchdog**. This resource had been connected once, but the watchdog has since aborted the connection. **8 = User requesting connection closure**. This is a result of the user having written a value of 8 to one of the Connection Status parameters listed above. If this connection is currently active, the controller will respond by closing the connection and changing the status value to 9. **9 = Connection closed by user**. This is a result of a previous user request described above.
Client's IP Address	R	The IP address of the current or recently connected client. The address is expressed as an integer in the parameter– the first number corresponds to the most significant byte of the parameter, etc. When using **DIAG** command, the address is expressed using dot notion (xxx.xxx.xxx.xxx). This applies to all connection types (connection management, fast status, and ASCII).
Client's IP Port	R	The port number of the current or recently connected client. This is expressed as an integer in the parameter. This applies to all connection types (connection management, fast status, and ASCII).
Current Status Duration	R	The duration of the current connection status. This is expressed as an integer number of seconds in the parameter. When using **DIAG** command, the duration is expressed as “hours:minutes:seconds”. This applies to all connection types (connection management, fast status, and ASCII).
Attached ACR Stream #	R	The stream number of the associated ACR command stream. The stream number will be the same as the last digit in the name reported by the **STREAM** command given on this connection. This applies only to command stream connections.
Update Period To Client	R	The update period in milliseconds used by this connection to send Fast Status data to its client. This applies only to Fast Status connections.
Guarded By	R	The management connection number whose watchdog

Field Descriptions	Read/ Write	Description
Watchdog #		guards this connection. This number is meaningful only if the connection status is 2 = currently connected, watchdog protected. This applies only to command stream and Fast Status connections.
Watchdog Timer Value	R	This is the timer value in milliseconds supplied by the management connection client in its most recent watchdog request. This applies to only management connections
Watchdog Ticker Value	R	The ticker value supplied by the management connection client in its most recent watchdog request. This applies to only Connection Management connections.
User Alarm Filter Value	R	This is the user alarm filter value supplied by the management connection client in its most recent alarm subscription request. This applies to only Connection Management connections.
Controller Alarm Filter Value	R	This is the controller alarm filter value supplied by the management connection client in its most recent alarm subscription request. This applies to only Connection Management connections.

P8192 - P10047 Master Parameters (Masters 0-7)

Index	Position Parameters Code=0x20	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			0	1	2	3	4	5	6	7
0x00	Distance Into Move	FP32	8192	8448	8704	8960	9216	9472	9728	9984
0x01	Vector VEL	FP32	8193	8449	8705	8961	9217	9473	9729	9985
0x02	Vector ACC	FP32	8194	8450	8706	8962	9218	9474	9730	9986
0x03	Vector JRK	FP32	8195	8451	8707	8963	9219	9475	9731	9987
0x04	Vector Length	FP32	8196	8452	8708	8964	9220	9476	9732	9988
0x05	Target VEL	FP32	8197	8453	8709	8965	9221	9477	9733	9989
0x06	Target ACC	FP32	8198	8454	8710	8966	9222	9478	9734	9990
0x07	Reserved	FP32	8199	8455	8711	8967	9223	9479	9735	9991
0x08	Distance To Go	FP32	8200	8456	8712	8968	9224	9480	9736	9992
0x09	Feedrate Override (FOV)	FP32	8201	8457	8713	8969	9225	9481	9737	9993
0x0A	Manual VECTOR	FP32	8202	8458	8714	8970	9226	9482	9738	9994
0x0B	Total Distance	FP32	8203	8459	8715	8971	9227	9483	9739	9995
0x0C	Distance Squared	FP32	8204	8460	8716	8972	9228	9484	9740	9996
0x0D	Velocity Squared	FP32	8205	8461	8717	8973	9229	9485	9741	9997
0x0E	Fraction Into Move	FP32	8206	8462	8718	8974	9230	9486	9742	9998
0x0F	Distance Into Path	FP32	8207	8463	8719	8975	9231	9487	9743	9999

Index	Sequence Parameters Code=0x20	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			0	1	2	3	4	5	6	7
0x10	Move Counter	LONG	8208	8464	8720	8976	9232	9488	9744	10000
0x11	Reserved	LONG	8209	8465	8721	8977	9233	9489	9745	10001
0x12	Reserved	LONG	8210	8466	8722	8978	9234	9490	9746	10002
0x13	INT Response Period	LONG	8211	8467	8723	8979	9235	9491	9747	10003
0x14	MBUF Filled	LONG	8212	8468	8724	8980	9236	9492	9748	10004
0x15	Reserved	LONG	8213	8469	8725	8981	9237	9493	9749	10005
0x16	Reserved	LONG	8214	8470	8726	8982	9238	9494	9750	10006
0x17	Reserved	LONG	8215	8471	8727	8983	9239	9495	9751	10007

Index	Speed Parameters Code=0x20	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			0	1	2	3	4	5	6	7
0x18	Rapid Feedrate Override (ROV)	FP32	8216	8472	8728	8984	9240	9496	9752	10008
0x19	Move Time (TMOV)	FP32	8217	8473	8729	8985	9241	9497	9753	10009
0x1A	Delta TMOV Time	FP32	8218	8474	8730	8986	9242	9498	9754	10010
0x1B	TMOV Velocity	FP32	8219	8475	8731	8987	9243	9499	9755	10011
0x1C	Time Over Velocity (TOV)	FP32	8220	8476	8732	8988	9245	9500	9756	10012
0x1D	TOV Internal	FP32	8221	8477	8733	8989	9245	9501	9757	10013
0x1E	TOV Rate	FP32	8222	8478	8734	8990	9246	9502	9758	10014
0x1F	User Velocity	FP32	8223	8479	8735	8991	9247	9503	9759	10015

Index	NURB SPLINE Parameters Code=0x20	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			0	1	2	3	4	5	6	7
0x20	NURB Time Factor	FP32	8224	8480	8736	8992	9248	9504	9760	10016
0x21	NURB Start Time	FP32	8225	8481	8737	8993	9249	9505	9761	10017
0x22	Reserved	FP32	8226	8482	8738	8994	9250	9506	9762	10018
0x23	Reserved	FP32	8227	8483	8739	8995	9251	9507	9763	10019
0x24	SPLINE Time Factor	FP32	8228	8484	8740	8996	9252	9508	9764	10020
0x25	SPLINE Buffer Length	FP32	8229	8485	8741	8997	9253	9509	9765	10021
0x26	Reserved	FP32	8230	8486	8742	8998	9254	9510	9766	10022
0x27	Reserved	FP32	8231	8487	8743	8999	9255	9511	9767	10023

Index	LookAhead Parameters Code=0x20	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			0	1	2	3	4	5	6	7
0x28	VEL LIMIT	FP32	8232	8488	8744	9000	9256	9512	9768	10024
0x29	LOOK Ahead Min Vel	FP32	8233	8489	8745	9001	9257	9513	9769	10025
0x2A	Look Ahead Vector Angle	FP32	8234	8490	8746	9002	9258	9514	9770	10026
0x2B	Reserved	FP32	8235	8491	8747	9003	9259	9515	9771	10027
0x2C	TANG Turn Limit	FP32	8236	8492	8748	9004	9260	9516	9772	10028
0x2D	Reserved	FP32	8237	8493	8749	9005	9261	9517	9773	10029
0x2E	Reserved	FP32	8238	8494	8750	9006	9262	9518	9774	10030
0x2F	Reserved	FP32	8239	8495	8751	9007	9263	9519	9775	10031

Index	Reserved Parameters Code=0x20	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			0	1	2	3	4	5	6	7
0x30	Reserved	FP32	8240	8496	8752	9008	9264	9520	9776	10032
0x31	Reserved	FP32	8241	8497	8753	9009	9265	9521	9777	10033
0x32	Reserved	FP32	8242	8498	8754	9010	9266	9522	9778	10034
0x33	Reserved	FP32	8243	8499	8755	9011	9267	9523	9779	10035
0x34	Reserved	FP32	8244	8500	8756	9012	9268	9524	9780	10036
0x35	Reserved	FP32	8245	8501	8757	9013	9269	9525	9781	10037
0x36	Reserved	FP32	8246	8502	8758	9014	9270	9526	9782	10038
0x37	Reserved	FP32	8247	8503	8759	9015	9271	9527	9783	10039

Index	Reserved Parameters Code=0x20	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			0	1	2	3	4	5	6	7
0x38	Reserved	LONG	8248	8504	8760	9016	9272	9528	9784	10040
0x39	Reserved	LONG	8249	8505	8761	9017	9273	9529	9785	10041
0x3A	Reserved	LONG	8250	8506	8762	9018	9274	9530	9786	10042
0x3B	Reserved	LONG	8251	8507	8763	9019	9275	9531	9787	10043
0x3C	Reserved	LONG	8252	8508	8764	9020	9276	9532	9788	10044
0x3D	Reserved	LONG	8253	8509	8765	9021	9277	9533	9789	10045
0x3E	Reserved	LONG	8254	8510	8766	9022	9278	9534	9790	10046
0x3F	Reserved	LONG	8255	8511	8767	9023	9279	9535	9791	10047

Field Description	Read/ Write	Description
Distance Into Move	R	The distance traveled into the current move.
Vector Velocity	R	This is the current total vector velocity of all the axes attached to the master. It is always positive and varies between zero and user set velocity (**VEL**).
Vector Acceleration	R	Current vector acceleration, could be plus or minus number.
Vector Jerk	R	Current vector jerk value.
Vector Length	R	User entered Target position.
Target Velocity	R	User entered velocity for the current move block in motion.
Target Acceleration	R	User entered acceleration for the current move block in motion.
Distance To Go	R	This is the distance left for the current move in process.
Feedrate Override	R	See **FOV** command.
Manual Vector	R	See **VECTOR** command.
Total Distance	R	User programmed total distance of the master up until current move.
Distance Squared	R	This is the square of the vector distance of all the axes attached to the master for the buffered move.
Velocity Squared	R	Square of the current vector velocity.
Fraction Into Move	R	It goes from zero to one as the move goes from start to end.
Distance Into Path	R	Current total distance traveled by the master.
Move Counter	R	If the master flags to count up or down is set then this will count the number of moves
INT Response Period	R/W	This is used by **HSINT** and **INT** commands. The default value for the **INT** Response period is 5 (the units are in servo period). It should be set –1 to turn this feature off.
MBUF Filled	R	It shows the number of moves buffered when using the multi-buffer mode.
Rapid Feedrate Override	R/W	See **ROV** command
Move Time	R	It is the time set in seconds for each move to complete. See **TMOV** command for details.
Delta TMOV time	R	When masters are synchronized, this is the minimum move time needed by each master to complete its move.
TMOV Velocity	R	This is the value set by the **TMOV VEL** command.
Time over Velocity	R	See **TOV** command.

Field Description	Read/ Write	Description
TOV internal	R	Current **TOV** value.
TOV Rate	R/W	User sets this value to change the rate of change of **TOV** from one value to another.
User Velocity		
NURB Time Factor	R/W	This parameter may be changed before starting the NURB move to change the speed of NURB Time Mode interpolator. Reducing this parameter by half will double the speed.
NURB Start Time	R/W	Contains the values in which the NURB will go from zero velocity to full velocity. Setting it zero nullifies it, and the profiler go to full velocity immediately.
SPLINE Time Factor	R/W	This parameter may be changed before starting the **SPLINE** move to change the speed of the **SPLINE** Time Mode interpolator. Reducing this parameter by half will double the speed.
SPLINE Buffer Length	R/W	The default value is 5. The user can change this value from 2 to 5. Making the **SPLINE** buffer length smaller will result in reduced smoothness of the position curve.
VEL Limit	R	The master current vector velocity will not go above this limit.
LookAhead Min Velocity	R/W	Minimum velocity to which the LookAhead will slow down. User can change this value.
LookAhead Vector Angle	R	3-D vector turn angle at the end of current move
TANG Turn Limit	R/W	User sets this angle in degrees. If the angle between two moves is less then this angle then no extra move is inserted for the tangential axis. The default value is zero, which means that a move will always be inserted unless the moves make a straight line.

P10240 - P12095 Master Parameters (Masters 8-15)

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	Position Parameters Code=0x28		Master Number							
			8	9	10	11	12	13	14	15
0x00	Distance Into Move	FP32	10240	10496	10752	11008	11264	11520	11776	12032
0x01	Vector VEL	FP32	10241	10497	10753	11009	11265	11521	11777	12033
0x02	Vector ACC	FP32	10242	10498	10754	11010	11266	11522	11778	12034
0x03	Vector JRK	FP32	10243	10499	10755	11011	11267	11523	11779	12035
0x04	Vector Length	FP32	10244	10500	10756	11012	11268	11524	11780	12036
0x05	Target VEL	FP32	10245	10501	10757	11013	11269	11525	11781	12037
0x06	Target ACC	FP32	10246	10502	10758	11014	11270	11526	11782	12038
0x07	Reserved	FP32	10247	10503	10759	11015	11271	11527	11783	12039
0x08	Distance To Go	FP32	10248	10504	10760	11016	11272	11528	11784	12040
0x09	Feedrate Override (FOV)	FP32	10249	10505	10761	11017	11273	11529	11785	12041
0x0A	Manual VECTOR	FP32	10250	10506	10762	11018	11274	11530	11786	12042
0x0B	Total Distance	FP32	10251	10507	10763	11019	11275	11531	11787	12043
0x0C	Distance Squared	FP32	10252	10508	10764	11020	11276	11532	11788	12044
0x0D	Velocity Squared	FP32	10253	10509	10765	11021	11277	11533	11789	12045
0x0E	Fraction Into Move	FP32	10254	10510	10766	11022	11278	11534	11790	12046
0x0F	Distance Into Path	FP32	10255	10511	10767	11023	11279	11535	11791	12047

		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Index	Sequence Parameters Code=0x28		Master Number							
			8	9	10	11	12	13	14	15
0x10	Move Counter	LONG	10256	10512	10768	11024	11280	11536	11792	12048
0x11	Reserved	LONG	10257	10513	10769	11025	11281	11537	11793	12049
0x12	Reserved	LONG	10258	10514	10770	11026	11282	11538	11794	12050
0x13	INT Response Period	LONG	10259	10515	10771	11027	11283	11539	11795	12051
0x14	MBUF Filled	LONG	10260	10516	10772	11028	11284	11540	11796	12052
0x15	Reserved	LONG	10261	10517	10773	11029	11285	11541	11797	12053
0x16	Reserved	LONG	10262	10518	10774	11030	11286	11542	11798	12054
0x17	Reserved	LONG	10263	10519	10775	11031	11287	11543	11799	12055

Index	Speed Parameters Code=0x28	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			8	9	10	11	12	13	14	15
0x18	Rapid Feedrate Override (ROV)	FP32	10264	10520	10776	11032	11288	11544	11800	12056
0x19	Move Time (TMOV)	FP32	10265	10521	10777	11033	11289	11545	11801	12057
0x1A	Delta TMOV Time	FP32	10266	10522	10778	11034	11290	11546	11802	12058
0x1B	TMOV Velocity	FP32	10267	10523	10779	11035	11291	11547	11803	12059
0x1C	Time Over Velocity (TOV)	FP32	10268	10524	10780	11036	11292	11548	11804	12060
0x1D	TOV Internal	FP32	10269	10525	10781	11037	11293	11549	11805	12061
0x1E	TOV Rate	FP32	10270	10526	10782	11038	11294	11550	11806	12062
0x1F	User Velocity	FP32	10271	10527	10783	11039	11295	11551	11807	12063

Index	NURB SPLINE Parameters Code=0x28	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			8	9	10	11	12	13	14	15
0x20	NURB Time Factor	FP32	10272	10528	10784	11040	11296	11552	11808	12064
0x21	NURB Start Time	FP32	10273	10529	10785	11041	11297	11553	11809	12065
0x22	Reserved	FP32	10274	10530	10786	11042	11298	11554	11810	12066
0x23	Reserved	FP32	10275	10531	10787	11043	11299	11555	11811	12067
0x24	SPLINE Time Factor	FP32	10276	10532	10788	11044	11300	11556	11812	12068
0x25	SPLINE Buffer Length	FP32	10277	10533	10789	11045	11301	11557	11813	12069
0x26	Reserved	FP32	10278	10534	10790	11046	11302	11558	11814	12070
0x27	Reserved	FP32	10279	10535	10791	11047	11303	11559	11815	12071

Index	LookAhead Parameters Code=0x28	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			8	9	10	11	12	13	14	15
0x28	VEL LIMIT	FP32	10280	10536	10792	11048	11304	11560	11816	12072
0x29	LOOK Ahead Min Vel	FP32	10281	10537	10793	11049	11305	11561	11817	12073
0x2A	Look Ahead Vector Angle	FP32	10282	10538	10794	11050	11306	11562	11818	12074
0x2B	Reserved	FP32	10283	10539	10795	11051	11307	11563	11819	12075
0x2C	TANG Turn Limit	FP32	10284	10540	10796	11052	11308	11564	11820	12076
0x2D	Reserved	FP32	10285	10541	10797	11053	11309	11565	11821	12077
0x2E	Reserved	FP32	10286	10542	10798	11054	11310	11566	11822	12078
0x2F	Reserved	FP32	10287	10543	10799	11055	11311	11567	11823	12079

Index	Reserved Parameters Code=0x28	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			8	9	10	11	12	13	14	15
0x30	Reserved	FP32	10288	10544	10800	11056	11312	11568	11824	12080
0x31	Reserved	FP32	10289	10545	10801	11057	11313	11569	11825	12081
0x32	Reserved	FP32	10290	10546	10802	11058	11314	11570	11826	12082
0x33	Reserved	FP32	10291	10547	10803	11059	11315	11571	11827	12083
0x34	Reserved	FP32	10292	10548	10804	11060	11316	11572	11828	12084
0x35	Reserved	FP32	10293	10549	10805	11061	11317	11573	11829	12085
0x36	Reserved	FP32	10294	10550	10806	11062	11318	11574	11830	12086
0x37	Reserved	FP32	10295	10551	10807	11063	11319	11575	11831	12087

Index	Reserved Parameters Code=0x28	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Master Number							
			8	9	10	11	12	13	14	15
0x38	Reserved	LONG	10296	10552	10808	11064	11320	11576	11832	12088
0x39	Reserved	LONG	10297	10553	10809	11065	11321	11577	11833	12089
0x3A	Reserved	LONG	10298	10554	10810	11066	11322	11578	11834	12090
0x3B	Reserved	LONG	10299	10555	10811	11067	11323	11579	11835	12091
0x3C	Reserved	LONG	10300	10556	10812	11068	11324	11580	11836	12092
0x3D	Reserved	LONG	10301	10557	10813	11069	11325	11581	11837	12093
0x3E	Reserved	LONG	10302	10558	10814	11070	11326	11582	11838	12094
0x3F	Reserved	LONG	10303	10559	10815	11071	11327	11583	11839	12095

Field Description	Read/ Write	Description
Distance Into Move	R	The distance traveled into the current move.
Vector Velocity	R	This is the current total vector velocity of all the axes attached to the master. It is always positive and varies between zero and user set velocity (**VEL**).
Vector Acceleration	R	Current vector acceleration, could be plus or minus number.
Vector Jerk	R	Current vector jerk value.
Vector Length	R	User entered Target position.
Target Velocity	R	User entered velocity for the current move block in motion.
Target Acceleration	R	User entered acceleration for the current move block in motion.
Distance To Go	R	This is the distance left for the current move in process.
Feedrate Override	R	See **FOV** command.
Manual Vector	R	See **VECTOR** command.
Total Distance	R	User programmed total distance of the master up until current move.
Distance Squared	R	This is the square of the vector distance of all the axes attached to the master for the buffered move.
Velocity Squared	R	Square of the current vector velocity.
Fraction Into Move	R	It goes from zero to one as the move goes from start to end.
Distance Into Path	R	Current total distance traveled by the master.
Move Counter	R	If the master flags to count up or down is set then this will count the number of moves
INT Response Period	R/W	This is used by **HSINT** and **INT** commands. The default value for the **INT** Response period is 5 (the units are in servo period). It should be set –1 to turn this feature off.
MBUF Filled	R	It shows the number of moves buffered when using the multi-buffer mode.
Rapid Feedrate Override	R/W	See **ROV** command
Move Time	R	It is the time set in seconds for each move to complete. See **TMOV** command for details.
Delta TMOV time	R	When masters are synchronized, this is the minimum move time needed by each master to complete its move.
TMOV Velocity	R	This is the value set by the **TMOV VEL** command.
Time over Velocity	R	See **TOV** command.

Field Description	Read/ Write	Description
TOV internal	R	Current **TOV** value.
TOV Rate	R/W	User sets this value to change the rate of change of **TOV** from one value to another.
User Velocity		
NURB Time Factor	R/W	This parameter may be changed before starting the NURB move to change the speed of NURB Time Mode interpolator. Reducing this parameter by half will double the speed.
NURB Start Time	R/W	Contains the values in which the NURB will go from zero velocity to full velocity. Setting it zero nullifies it, and the profiler go to full velocity immediately.
SPLINE Time Factor	R/W	This parameter may be changed before starting the **SPLINE** move to change the speed of the **SPLINE** Time Mode interpolator. Reducing this parameter by half will double the speed.
SPLINE Buffer Length	R/W	The default value is 5. The user can change this value from 2 to 5. Making the **SPLINE** buffer length smaller will result in reduced smoothness of the position curve.
VEL Limit	R	The master current vector velocity will not go above this limit.
LookAhead Min Velocity	R/W	Minimum velocity to which the LookAhead will slow down. User can change this value.
LookAhead Vector Angle	R	3-D vector turn angle at the end of current move
TANG Turn Limit	R/W	User sets this angle in degrees. If the angle between two moves is less then this angle then no extra move is inserted for the tangential axis. The default value is zero, which means that a move will always be inserted unless the moves make a straight line.

P12288 - P14207 Axis Parameters (Axes 0-7)

Index	Position Parameters Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x00	Current Position	LONG	12288	12544	12800	13056	13312	13568	13824	14080
0x01	Target Position	LONG	12289	12545	12801	13057	13313	13569	13825	14081
0x02	Actual Position	LONG	12290	12546	12802	13058	13314	13570	13826	14082
0x03	Following Error	LONG	12291	12547	12803	13059	13315	13571	13827	14083
0x04	Hardware Capture (INTCAP)	LONG	12292	12548	12804	13060	13316	13572	13828	14084
0x05	Software Capture (INTCAP)	LONG	12293	12549	12805	13061	13317	13573	13829	14085
0x06	Primary Setpoint	LONG	12294	12550	12806	13062	13318	13574	13830	14086
0x07	Secondary Setpoint	LONG	12295	12551	12807	13063	13319	13575	13831	14087

Index	Offset Parameters Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x08	Gear Offset (GEAR RES)	LONG	12296	12552	12808	13064	13320	13576	13832	14088
0x09	Jog Offset (JOG RES)	LONG	12297	12553	12809	13065	13321	13577	13833	14089
0x0A	Cam Offset (CAM RES)	LONG	12298	12554	12810	13066	13322	13578	13834	14090
0x0B	Ballscrew Offset	LONG	12299	12555	12811	13067	13323	13579	13835	14091
0x0C	Backlash Offset (BKL)	LONG	12300	12556	12812	13068	13324	13580	13836	14092
0x0D	Reserved	LONG	12301	12557	12813	13069	13325	13581	13837	14093
0x0E	Reserved	LONG	12302	12558	12814	13070	13326	13582	13838	14094
0x0F	Reserved	LONG	12303	12559	12815	13071	13327	13583	13839	14095

Index	Servo Parameters Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x10	Proportional Gain (PGAIN)	FP32	12304	12560	12816	13072	13328	13584	13840	14096
0x11	Integral Gain (IGAIN)	FP32	12305	12561	12817	13073	13329	13585	13841	14097
0x12	Integral Limit (ILIMIT)	FP32	12306	12562	12818	13074	13330	13586	13842	14098
0x13	Integral Delay (IDELAY)	FP32	12307	12563	12819	13075	13331	13587	13843	14099
0x14	Derivative Gain (DGAIN)	FP32	12308	12564	12820	13076	13332	13588	13844	14100
0x15	Derivative Width (DWIDTH)	FP32	12309	12565	12821	13077	13333	13589	13845	14101
0x16	Feedforward Velocity (FFVEL)	FP32	12310	12566	12822	13078	13334	13590	13846	14102
0x17	Feedforward Accel (FFACC)	FP32	12311	12567	12823	13079	13335	13591	13847	14103

Index	Monitor Parameters Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x18	Proportional Term	FP32	12312	12568	12824	13080	13336	13592	13848	14104
0x19	Integral Term	FP32	12313	12569	12825	13081	13337	13593	13849	14105
0x1A	Derivative Term	FP32	12314	12570	12826	13082	13338	13594	13850	14106
0x1B	Velocity	FP32	12315	12571	12827	13083	13339	13595	13851	14107
0x1C	Acceleration	FP32	12316	12572	12828	13084	13340	13596	13852	14108
0x1D	Summation Point	FP32	12317	12573	12829	13085	13341	13597	13853	14109
0x1E	Filter Output Signal	FP32	12318	12574	12830	13086	13342	13598	13854	14110
0x1F	Output Signal	FP32	12319	12575	12831	13087	13343	13599	13855	14111

Index	Limit Parameters Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x20	Plus Excess Error (EXC)	FP32	12320	12576	12832	13088	13344	13600	13856	14112
0x21	Minus Excess Error (EXC)	FP32	12321	12577	12833	13089	13345	13601	13857	14113
0x22	Plus In Position (IPB)	FP32	12322	12578	12834	13090	13346	13602	13858	14114
0x23	Minus In Position (IPB)	FP32	12323	12579	12835	13091	13347	13603	13859	14115
0x24	Plus A Limit (ALM)	FP32	12324	12580	12836	13092	13348	13604	13860	14116
0x25	Minus A Limit (ALM)	FP32	12325	12581	12837	13093	13349	13605	13861	14117
0x26	Plus B Limit (BLM)	FP32	12326	12582	12838	13094	13350	13606	13862	14118
0x27	Minus B Limit (BLM)	FP32	12327	12583	12839	13095	13351	13607	13863	14119
0x28	Plus Torque Limit (TLM)	FP32	12328	12584	12840	13096	13352	13608	13864	14120
0x29	Minus Torque Limit (TLM)	FP32	12329	12585	12841	13097	13353	13609	13865	14121
0x2A	Plus Torque Band	FP32	12330	12586	12842	13098	13354	13610	13866	14122
0x2B	Minus Torque Band	FP32	12331	12587	12843	13099	13355	13611	13867	14123
0x2C	Backlash Setting (BKL)	FP32	12332	12588	12844	13100	13356	13612	13868	14124
0x2D	Reserved	FP32	12333	12589	12845	13101	13357	13613	13869	14125
0x2E	Plus Jog Limit (JLM)	FP32	12334	12590	12846	13102	13358	13614	13870	14126
0x2F	Minus Jog Limit (JLM)	FP32	12335	12591	12847	13103	13359	13615	13871	14127

Index	Filter 0 Parameters (NOTCH) Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x30	b2 Coefficient	FP32	12336	12592	12848	13104	13360	13616	13872	14128
0x31	a2 Coefficient	FP32	12337	12593	12849	13105	13361	13617	13873	14129
0x32	b1 Coefficient	FP32	12338	12594	12850	13106	13362	13618	13874	14130
0x33	a1 Coefficient	FP32	12339	12595	12851	13107	13363	13619	13875	14131
0x34	a0 Coefficient	FP32	12340	12596	12852	13108	13364	13620	13876	14132

Index	Filter 1 Parameters (LOPASS) Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x35	b2 Coefficient	FP32	12341	12597	12853	13109	13365	13621	13877	14133
0x36	a2 Coefficient	FP32	12342	12598	12854	13110	13366	13622	13878	14134
0x37	b1 Coefficient	FP32	12343	12599	12855	13111	13367	13623	13879	14135
0x38	a1 Coefficient	FP32	12344	12600	12856	13112	13368	13624	13880	14136
0x39	a0 Coefficient	FP32	12345	12601	12857	13113	13369	13625	13881	14137

Index	Jog Parameters Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x3A	Current JOG VEL	FP32	12346	12602	12858	13114	13370	13626	13882	14138
0x3B	Current JOG ACC	FP32	12347	12603	12859	13115	13371	13627	13883	14139
0x3C	JOG VEL Setting	FP32	12348	12604	12860	13116	13372	13628	13884	14140
0x3D	JOG ACC Setting	FP32	12349	12605	12861	13117	13373	13629	13885	14141
0x3E	JOG DEC Setting	FP32	12350	12606	12862	13118	13374	13630	13886	14142
0x3F	JOG JRK Setting	FP32	12351	12607	12863	13119	13375	13631	13887	14143

Index	Servo Parameters Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x40	FBVEL Gain Setting	FP32	12352	12608	12864	13120	13376	13632	13888	14144
0x41	FBVEL Term	FP32	12353	12609	12865	13121	13377	13633	13889	14145
0x42	FFVEL Term	FP32	12354	12610	12866	13122	13378	13634	13890	14146
0x43	FFACC Term	FP32	12355	12611	12867	13123	13379	13635	13891	14147
0x44	Reserved	FP32	12356	12612	12868	13124	13380	13636	13892	14148
0x45	Reserved	FP32	12357	12613	12869	13125	13381	13637	13893	14149
0x46	Reserved	FP32	12358	12614	12870	13126	13382	13638	13894	14150
0x47	Reserved	FP32	12359	12615	12871	13127	13383	13639	13895	14151

Index	Reserved Parameters Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x48	INVK Input	FP32	12360	12616	12872	13128	13384	13640	13896	14152
0x49	INVK Output	FP32	12361	12617	12873	13129	13385	13641	13897	14153
0x4A	INVK Input Previous	FP32	12362	12618	12874	13130	13386	13642	13898	14154
0x4B	Reserved	FP32	12363	12619	12875	13131	13387	13643	13899	14155
0x4C	Reserved	FP32	12364	12620	12876	13132	13388	13644	13900	14156
0x4D	Reserved	FP32	12365	12621	12877	13133	13389	13645	13901	14157
0x4E	Reserved	FP32	12366	12622	12878	13134	13390	13646	13902	14158
0x4F	Reserved	FP32	12367	12623	12879	13135	13391	13647	13903	14159
0x50	MAXVEL	FP32	12368	12624	12880	13136	13392	13648	13904	14160
0x51	Gear Slip	FP32	12369	12625	12881	13137	13393	13649	13905	14161
0x52	RPM Factor	FP32	12370	12626	12882	13138	13394	13650	13906	14162
0x53	RPM	FP32	12371	12627	12883	13139	13395	13651	13907	14163
0x54	Smooth Encoder Velocity	FP32	12372	12628	12884	13140	13396	13652	13908	14164
0x55	Start Radius	FP32	12373	12629	12885	13141	13397	13653	13909	14165
0x56	End Radius	FP32	12374	12630	12886	13142	13398	13654	13910	14166
0x57	PPU	FP32	12375	12631	12887	13143	13399	13655	13911	14167
0x58	Lock Feedback Gain	FP32	12376	12632	12888	13144	13400	13656	13912	14168
0x59	DIP	FP32	12377	12633	12889	13145	13401	13657	13913	14169
0x5A	DIN	FP32	12378	12634	12890	13146	13402	13658	13914	14170
0x5B	KVF	FP32	12379	12635	12891	13147	13403	13659	13915	14171
0x5C	KVI	FP32	12380	12636	12892	13148	13404	13660	13916	14172
0x5D	KVP	FP32	12381	12637	12893	13149	13405	13661	13917	14173
0x5E	Reserved	FP32	12382	12638	12894	13150	13406	13662	13918	14174
0x5F	Reserved	FP32	12383	12639	12895	13151	13407	13663	13919	14175
0x60	NOTCH Filter Center Frequency	FLOAT	12384	12640	12896	13152	13408	13664	13920	14176
0x61	NOTCH Filter Width	FLOAT	12385	12641	12897	13153	13409	13665	13921	14177
0x62	LOPASS Cutoff Frequency	FLOAT	12386	12642	12898	13154	13410	13666	13922	14178
0x63	Reserved	FLOAT	12387	12643	12899	13155	13411	13667	13923	14179
0x64	PM Velocity	FLOAT	12388	12644	12900	13156	13412	13668	13924	14180
0x65	PM ACC	FLOAT	12389	12645	12901	13157	13413	13669	13925	14181
0x66	Reserved	FLOAT	12390	12646	12902	13158	13414	13670	13926	14182
0x67	PM SCALE	FLOAT	12391	12647	12903	13159	13415	13671	13927	14183
0x68	Reserved	LONG	12392	12648	12904	13160	13416	13672	13928	14184
0x69	Reserved	LONG	12393	12649	12905	13161	13417	13673	13929	14185
0x6A	Reserved	LONG	12394	12650	12906	13162	13418	13674	13930	14186
0x6B	Reserved	LONG	12395	12651	12907	13163	13419	13675	13931	14187

Index	Reserved Parameters Code=0x30	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x6C	GEAR ON TRG Offset	LONG	12396	12652	12908	13164	13420	13676	13932	14188
0x6D	GEAR OFF TRG Offset	LONG	12397	12653	12909	13165	13421	13677	13933	14189
0x6E	Reserved	LONG	12398	12654	12910	13166	13422	13678	13934	14190
0x6F	Reserved	LONG	12399	12655	12911	13167	13423	13679	13935	14191
0x70	CAM Cycles	LONG	12400	12656	12912	13168	13424	13680	13936	14192
0x71	CAM Velocity Smooth	LONG	12401	12657	12913	13169	13425	13681	13937	14193
0x72	DGAIN Smooth	LONG	12402	12658	12914	13170	13426	13682	13938	14194
0x73	DZU	LONG	12403	12659	12915	13171	13427	13683	13939	14195
0x74	DZL	LONG	12404	12660	12916	13172	13428	13684	13940	14196
0x75	FFVC	LONG	12405	12661	12917	13173	13429	13685	13941	14197
0x76	Reserved	LONG	12406	12662	12918	13174	13430	13686	13942	14198
0x77	CAM Segment Active	LONG	12407	12663	12919	13175	13431	13687	13943	14199
0x78	PM Deadband (PM DB)	LONG	12408	12664	12920	13176	13432	13688	13944	14200
0x79	PM Current Velocity	LONG	12409	12665	12921	13177	13433	13689	13945	14201
0x7A	Reserved	LONG	12410	12666	12922	13178	13434	13690	13946	14202
0x7B	Reserved	LONG	12411	12667	12923	13179	13435	13691	13947	14203
0x7C	PM Position Error	LONG	12412	12668	12924	13180	13436	13692	13948	14204
0x7D	Cam Cycle Position	LONG	12413	12669	12925	13181	13437	13693	13949	14205
0x7E	Cam Cycle Number	LONG	12414	12670	12926	13182	13438	13694	13950	14206
0x7F	Cam Cycle Length	LONG	12415	12671	12927	13183	13439	13695	13951	14207

Field Description	Read/ Write	Description
Current Position	R/W	This is the current commanded position of the axis.
Target Position	R/W	User programmed target position of the buffered move.
Actual Position	R/W	Current actual position read through feedback.
Following Error	R/W	Current following error in servo control loop.
Hardware Capture	R	Latest hardware-capture register value.
Software Capture	R	Latest software-capture register value.
Primary Setpoint	R/W	See Servo loop block diagram.
Secondary Setpoint	R/W	See servo loop block diagram.
Gear Offset	R/W	Current geared position.
Jog Offset	R/W	Current Jog position.
Cam Offset	R/W	Current Cam position.
Ballscrew Offset	R/W	Current ballscrew position.
Backlash Offset	R/W	Current backlash position.

Field Description	Read/ Write	Description
Proportional Gain	R/W	See servo loop block diagram.
Integral Gain	R/W	See servo loop block diagram.
Integral Limit	R/W	See servo loop block diagram.
Integral Delay	R/W	See servo loop block diagram.
Derivative Gain	R/W	See servo loop block diagram.
Derivative Width	R/W	See servo loop block diagram.
Feedforward Velocity	R/W	See servo loop block diagram.
Feedforward Accel	R/W	See servo loop block diagram.
Proportional Term	R/W	Value after the P Gain block.
Integral Term	R/W	Value after the Integral block.
Derivative Term	R/W	Value after the D-gain block.
Velocity	R/W	Current total velocity of an axis, including any cam and gear velocity etc.
Acceleration	R/W	Current total acceleration of an axes, including any cam and gear acceleration etc.
Summation Point	R	Intermediate servo loop signal, sum of all gain terms, but before filtering.
Filter Output Signal	R	Filtered servo loop signal
Output Signal	R	Servo loop output signal to be fed into the **DAC**s or Stepper
Plus Excess Error	R/W	Excess error positive band value. See **EXC** command.
Minus Excess Error	R/W	Excess error negative band value. See **EXC** command.
Plus In Position	R/W	**IPB** (in-position-band) positive value.
Minus In Position	R/W	**IPB** (in-position-band) negative value.
Plus A Limit	R/W	Parameter set/reported by first argument of **ALM** command
Minus A Limit	R/W	Parameter set/reported by second argument of **ALM** command
Plus B Limit	R/W	Parameter set/reported by first argument of **BLM** command
Minus B Limit	R/W	Parameter set/reported by second argument of **BLM** command
Plus Torque Limit	R/W	Parameter set/reported by first argument of **TLM** command
Minus Torque Limit	R/W	Parameter set/reported by second argument of **TLM** command
Plus Torque Band	R/W	Parameter set/reported by first argument of **ITB** command
Minus Torque Band	R/W	Parameter set/reported by second argument of **ITB** command

Field Description	Read/ Write	Description
Backlash Setting	R/W	Parameter set/reported by **BKL** command
Plus Jog Limit	R/W	Parameter set/reported by first argument of **JLM** command
Minus Jog Limit	R/W	Parameter set/reported by second argument of **JLM** command
NOTCH b2 coefficient	R/W	This parameter sets the b2 coefficient for the notch filter.
NOTCH a2 coefficient	R/W	This parameter sets the a2 coefficient for the notch filter.
NOTCH b1 coefficient	R/W	This parameter sets the b1 coefficient for the notch filter.
NOTCH a1 coefficient	R/W	This parameter sets the a1 coefficient for the notch filter.
NOTCH a0 coefficient	R/W	This parameter sets the a0 coefficient for the notch filter.
LOPASS b2 coefficient	R/W	This parameter sets the b2 coefficient for the lopass filter.
LOPASS a2 coefficient	R/W	This parameter sets the a2 coefficient for the lopass filter.
LOPASS b1 coefficient	R/W	This parameter sets the b1 coefficient for the lopass filter.
LOPASS a1 coefficient	R/W	This parameter sets the a1 coefficient for the lopass filter.
LOPASS a0 coefficient	R/W	This parameter sets the a0 coefficient for the lopass filter.
Current JOG VEL	R	The instantaneous current velocity of a **JOG** move is reported in the parameter.
Current JOG ACC	R	The instantaneous current acceleration of a **JOG** move is reported in the parameter.
JOG VEL Setting	R/W	This parameter sets the target **JOG** velocity.
JOG ACC Setting	R/W	This parameter sets the target **JOG** acceleration.
JOG DEC Setting	R/W	This parameter sets the target **JOG** deceleration.
JOG JRK Setting	R/W	This parameter sets the target **JOG** jerk.
FBVEL Gain Setting	R/W	This parameter sets the **FBVEL** gain value
FBVEL Term	R	Current contribution to control signal from **FBVEL** gain. Established by servo control.
FFVEL Term	R	Current contribution to control signal from **FFVEL** gain. Established by servo control.
FFACC Term	R	Current contribution to control signal from **FFACC** gain. Established by servo control.

Field Description	Read/ Write	Description
INVK Input	R/W	The Cartesian coordinates entered by an end-user. The input is sent to the inverse kinematic algorithms.
INVK Output	R/W	The rotational coordinates computed through inverse kinematics.
INVK Input Previous	R/W	Use this parameter to store the previous input.
Max Velocity Limit	R/W	Parameter set/reported by **MAXVEL** command.
Gear Slip	R/W	If the **GEAR ACC** value is other than zero, then the gear ratio will smoothly ramp up to target Gear Ratio. This will cause the gear to slip during the acceleration ramp. The number of pulses slipped is recorded in this parameter. The user can superimpose a normal move of this gear slip value.
RPM Factor	W	If RPM factor > 0, then the algorithm turns on to calculate the RPM User enter its value according to following formula RPM Factor = 60/(Encoder Pulses per Revolution * Servo Period).
RPM	R	Once the user enters the RPM factor> 0, the revolution per minutes are calculated and stored in this parameter. The axis must be attached to update this parameter.
Smooth Encoder Velocity	R	Intermediate value in calculation of RPM, units are encoder counts/update
Start Radius	R	Internal variable used with Spiral Interpolation. Please refer to the **SINE** command.
End Radius	R	Internal variable used with Spiral Interpolation. Please refer to the **SINE** command.
PPU	R/W	Parameter set/reported by **PPU** command
Lock Feedback Gain	R/W	Optional feedback gain for use with **LOCK** command, default = 0
DIP	R/W	Parameter set/reported by **DIP** command
DIN	R/W	Parameter set/reported by **DIN** command
KVF	R/W	Parameter set/reported by **KVF** command
KVI	R/W	Parameter set/reported by **KVI** command
KVP	R/W	Parameter set/reported by **KVP** command
NOTCH Filter Center Frequency	R/W	Parameter set/reported by first argument of **NOTCH** command
NOTCH Filter Width	R/W	Parameter set/reported by second argument of **NOTCH** command
LOPASS Cutoff Frequency	R/W	Parameter set/reported by **LOPASS** command

Field Description	Read/ Write	Description
Position Maintenance Velocity	R/W	Sets the maximum velocity for a corrective move (**PM VEL**).
Position Maintenance Acceleration	R	Sets the acceleration for the corrective move. Use the **PM ACC** command to set the value.
Position Maintenance Scale	R/W	Sets the value equal to the ratio between stepper pulses and encoder counts per revolution.
Gear Trigger On Offset	R/W	Refer to the **GEAR ON TRG** command.
Gear Trigger Off Offset	R/W	Refer to the **GEAR OFF TRG** command.
CAM Cycles	R/W	The default value is zero, which means that if the **CAM** is turned on, then it will stay on. However, if this value is set to a positive number, then the **CAM** will stay on for that number of **CAM CYCLES**, and then automatically turn itself OFF. This parameter is valid for **CAM** Trigger mode as well.
CAM Velocity Smooth	R/W	Used to smooth out the **CAM** velocity that used for the feed forward control. The default value is “10”, which means that the velocity is averaged across 10 samples, to reduce the jitter in the velocity term. The user can change this value as required by the application. However, this value should be changed before turning the **CAM** on.
DGAIN Smooth	R/W	Used to subdue the humming noise in a torque motor as a result **DGAIN**. The default value is “0”, which means that no smoothing is applied. The user may change this value from “0” to “5”. The **DGAIN** command must be used after changing this parameter, for the change to become effective.
DZU	R/W	Parameter set/reported by DZU command
DZL	R/W	Parameter set/reported by DZL command
FFVC	R/W	Parameter set/reported by FFVC command
CAM Segment Active	R	Indicates the current CAM segment. (Version 1.18.08 Update 13)
Position Maintenance Deadband	R	Sets the deadband zone where, when the axis enters the region, position maintenance stops. The Position Maintenance Active flag clears when an axis enters its assigned deadband range. Use the **PM DB** command to set the range.
Position Maintenance Current Velocity	R	When position maintenance running, reports the current velocity

Field Description	Read/ Write	Description
Position Maintenance Position Error	R	The amount of error between actual and commanded positions (units in stepper pulses).
Cam Cycle Position	R	The current number of **CAM SRC** counts within the current cam cycle.
Cam Cycle Number	R	The number of completed cam cycles assuming cam source is counting positive.
Cam Cycle Length	R	The total cam length equal to the sum of the **CAM SEG** lengths.

P14336 - P16255 Axis Parameters (Axes 8-15)

Index	Position Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x00	Current Position	LONG	14336	14592	14848	15104	15360	15616	15872	16128
0x01	Target Position	LONG	14337	14593	14849	15105	15361	15617	15873	16129
0x02	Actual Position	LONG	14338	14594	14850	15106	15362	15618	15874	16130
0x03	Following Error	LONG	14339	14595	14851	15107	15363	15619	15875	16131
0x04	Hardware Capture (INTCAP)	LONG	14340	14596	14852	15108	15364	15620	15876	16132
0x05	Software Capture (INTCAP)	LONG	14341	14597	14853	15109	15365	15621	15877	16133
0x06	Primary Setpoint	LONG	14342	14598	14854	15110	15366	15622	15878	16134
0x07	Secondary Setpoint	LONG	14343	14599	14855	15111	15367	15623	15879	16135

Index	Offset Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x08	Gear Offset (GEAR RES)	LONG	14344	14600	14856	15112	15368	15624	15880	16136
0x09	Jog Offset (JOG RES)	LONG	14345	14601	14857	15113	15369	15625	15881	16137
0x0A	Cam Offset (CAM RES)	LONG	14346	14602	14858	15114	15370	15626	15882	16138
0x0B	Ballscrew Offset	LONG	14347	14603	14859	15115	15371	15627	15883	16139
0x0C	Backlash Offset (BKL)	LONG	14348	14604	14860	15116	15372	15628	15884	16140
0x0D	Reserved	LONG	14349	14605	14861	15117	15373	15629	15885	16141
0x0E	Reserved	LONG	14350	14606	14862	15118	15374	15630	15886	16142
0x0F	Reserved	LONG	14351	14607	14863	15119	15375	15631	15887	16143

Index	Servo Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x10	Proportional Gain (PGAIN)	FP32	14352	14608	14864	15120	15376	15632	15888	16144
0x11	Integral Gain (IGAIN)	FP32	14353	14609	14865	15121	15377	15633	15889	16145
0x12	Integral Limit (ILIMIT)	FP32	14354	14610	14866	15122	15378	15634	15890	16146
0x13	Integral Delay (IDELAY)	FP32	14355	14611	14867	15123	15379	15635	15891	16147
0x14	Derivative Gain (DGAIN)	FP32	14356	14612	14868	15124	15380	15636	15892	16148
0x15	Derivative Width (DWIDTH)	FP32	14357	14613	14869	15125	15381	15637	15893	16149
0x16	Feedforward Velocity (FFVEL)	FP32	14358	14614	14870	15126	15382	15638	15894	16150

Index	Servo Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x17	Feedforward Accel (FFACC)	FP32	14359	14615	14871	15127	15383	15639	15895	16151

Index	Monitor Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x18	Proportional Term	FP32	14360	14616	14872	15128	15384	15640	15896	16152
0x19	Integral Term	FP32	14361	14617	14873	15129	15385	15641	15897	16153
0x1A	Derivative Term	FP32	14362	14618	14874	15130	15386	15642	15898	16154
0x1B	Velocity	FP32	14363	14619	14875	15131	15387	15643	15899	16155
0x1C	Acceleration	FP32	14364	14620	14876	15132	15388	15644	15900	16156
0x1D	Summation Point	FP32	14365	14621	14877	15133	15389	15645	15901	16157
0x1E	Filter Output Signal	FP32	14366	14622	14878	15134	15390	15646	15902	16158
0x1F	Output Signal	FP32	14367	14623	14879	15135	15391	15647	15903	16159

Index	Limit Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x20	Plus Excess Error (EXC)	FP32	14368	14624	14880	15136	15392	15648	15904	16160
0x21	Minus Excess Error (EXC)	FP32	14369	14625	14881	15137	15393	15649	15905	16161
0x22	Plus In Position (IPB)	FP32	14370	14626	14882	15138	15394	15650	15906	16162
0x23	Minus In Position (IPB)	FP32	14371	14627	14883	15139	15395	15651	15907	16163
0x24	Plus A Limit (ALM)	FP32	14372	14628	14884	15140	15396	15652	15908	16164
0x25	Minus A Limit (ALM)	FP32	14373	14629	14885	15141	15397	15653	15909	16165
0x26	Plus B Limit (BLM)	FP32	14374	14630	14886	15142	15398	15654	15910	16166
0x27	Minus B Limit (BLM)	FP32	14375	14631	14887	15143	15399	15655	15911	16167
0x28	Plus Torque Limit (TLM)	FP32	14376	14632	14888	15144	15400	15656	15912	16168
0x29	Minus Torque Limit (TLM)	FP32	14377	14633	14889	15145	15401	15657	15913	16169
0x2A	Plus Torque Band	FP32	14378	14634	14890	15146	15402	15658	15914	16170
0x2B	Minus Torque Band	FP32	14379	14635	14891	15147	15403	15659	15915	16171
0x2C	Backlash Setting (BKL)	FP32	14380	14636	14892	15148	15404	15660	15916	16172
0x2D	Reserved	FP32	14381	14637	14893	15149	15405	15661	15917	16173
0x2E	Plus Jog Limit (JLM)	FP32	14382	14638	14894	15150	15406	15662	15918	16174
0x2F	Minus Jog Limit (JLM)	FP32	14383	14639	14895	15151	15407	15663	15919	16175

Index	Filter 0 Parameters (NOTCH) Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x30	b2 Coefficient	FP32	14384	14640	14896	15152	15408	15664	15920	16176
0x31	a2 Coefficient	FP32	14385	14641	14897	15153	15409	15665	15921	16177
0x32	b1 Coefficient	FP32	14386	14642	14898	15154	15410	15666	15922	16178
0x33	a1 Coefficient	FP32	14387	14643	14899	15155	15411	15667	15923	16179
0x34	a0 Coefficient	FP32	14388	14644	14900	15156	15412	15668	15924	16180

Index	Filter 1 Parameters (LOPASS) Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x35	b2 Coefficient	FP32	14389	14645	14901	15157	15413	15669	15925	16181
0x36	a2 Coefficient	FP32	14390	14646	14902	15158	15414	15670	15926	16182
0x37	b1 Coefficient	FP32	14391	14647	14903	15159	15415	15671	15927	16183
0x38	a1 Coefficient	FP32	14392	14648	14904	15160	15416	15672	15928	16184
0x39	a0 Coefficient	FP32	14393	14649	14905	15161	15417	15673	15929	16185

Index	Jog Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x3A	Current JOG VEL	FP32	14394	14650	14906	15162	15418	15674	15930	16186
0x3B	Current JOG ACC	FP32	14395	14651	14907	15163	15419	15675	15931	16187
0x3C	JOG VEL Setting	FP32	14396	14652	14908	15164	15420	15676	15932	16188
0x3D	JOG ACC Setting	FP32	14397	14653	14909	15165	15421	15677	15933	16189
0x3E	JOG DEC Setting	FP32	14398	14654	14910	15166	15422	15678	15934	16190
0x3F	JOG JRK Setting	FP32	14399	14655	14911	15167	15423	15679	15935	16191

Index	Servo Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x40	FBVEL Gain Setting	FP32	14400	14656	14912	15168	15424	15680	15936	16192
0x41	FBVEL Term	FP32	14401	14657	14913	15169	15425	15681	15937	16193
0x42	FFVEL Term	FP32	14402	14658	14914	15170	15426	15682	15938	16194
0x43	FFACC Term	FP32	14403	14659	14915	15171	15427	15683	15939	16195
0x44	Reserved	FP32	14404	14660	14916	15172	15428	15684	15940	16196
0x45	Reserved	FP32	14405	14661	14917	15173	15429	15685	15941	16197
0x46	Reserved	FP32	14406	14662	14918	15174	15430	15686	15942	16198
0x47	Reserved	FP32	14407	14663	14919	15175	15431	15687	15943	16199

Index	Reserved Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x48	INVK Input	FP32	14408	14664	14920	15176	15432	15688	15944	16200
0x49	INVK Output	FP32	14409	14665	14921	15177	15433	15689	15945	16201
0x4A	INVK Input Previous	FP32	14410	14666	14922	15178	15434	15690	15946	16202
0x4B	Reserved	FP32	14411	14667	14923	15179	15435	15691	15947	16203
0x4C	Reserved	FP32	14412	14668	14924	15180	15436	15692	15948	16204
0x4D	Reserved	FP32	14413	14669	14925	15181	15437	15693	15949	16205
0x4E	Reserved	FP32	14414	14670	14926	15182	15438	15694	15950	16206
0x4F	Reserved	FP32	14415	14671	14927	15183	15439	15695	15951	16207
0x50	MAXVEL	FP32	14416	14672	14928	15184	15440	15696	15952	16208
0x51	Gear Slip	FP32	14417	14673	14929	15185	15441	15697	15953	16209
0x52	RPM Factor	FP32	14418	14674	14930	15186	15442	15698	15954	16210
0x53	RPM	FP32	14419	14675	14931	15187	15443	15699	15955	16211
0x54	Smooth Encoder Velocity	FP32	14420	14676	14932	15188	15444	15700	15956	16212
0x55	Start Radius	FP32	14421	14677	14933	15189	15445	15701	15957	16213
0x56	End Radius	FP32	14422	14678	14934	15190	15446	15702	15958	16214
0x57	PPU	FP32	14423	14679	14935	15191	15447	15703	15959	16215
0x58	Lock Feedback Gain	FP32	14424	14680	14936	15192	15448	15704	15960	16216
0x59	DIP	FP32	14425	14681	14937	15193	15449	15705	15961	16217
0x5A	DIN	FP32	14426	14682	14938	15194	15450	15706	15962	16218
0x5B	KVF	FP32	14427	14683	14939	15195	15451	15707	15963	16219
0x5C	KVI	FP32	14428	14684	14940	15196	15452	15708	15964	16220
0x5D	KVP	FP32	14429	14685	14941	15197	15453	15709	15965	16221
0x5E	Reserved	FP32	14430	14686	14942	15198	15454	15710	15966	16222
0x5F	Reserved	FP32	14431	14687	14943	15199	15455	15711	15967	16223
0x60	NOTCH Filter Center Frequency	FP32	14432	14688	14944	15200	15456	15712	15968	16224
0x61	NOTCH Filter Width	FP32	14433	14689	14945	15201	15457	15713	15969	16225
0x62	LOPASS Cutoff Frequency	FP32	14434	14690	14946	15202	15458	15714	15970	16226
0x63	Reserved	FP32	14435	14691	14947	15203	15459	15715	15971	16227
0x64	PM Velocity	FP32	14436	14692	14948	15204	15460	15716	15972	16228
0x65	PM ACC	FP32	14437	14693	14949	15205	15461	15717	15973	16229
0x66	Reserved	FP32	14438	14694	14950	15206	15462	15718	15974	16230
0x67	PM SCALE	FP32	14439	14695	14951	15207	15463	15719	15975	16231
0x68	Reserved	LONG	14440	14696	14952	15208	15464	15720	15976	16232
0x69	Reserved	LONG	14441	14697	14953	15209	15465	15721	15977	16233
0x6A	Reserved	LONG	14442	14698	14954	15210	15466	15722	15978	16234
0x6B	Reserved	LONG	14443	14699	14955	15211	15467	15723	15979	16235

Index	Reserved Parameters Code=0x38	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x6C	GEAR ON TRG Offset	LONG	14444	14700	14956	15212	15468	15724	15980	16236
0x6D	GEAR OFF TRG Offset	LONG	14445	14701	14957	15213	15469	15725	15981	16237
0x6E	Reserved	LNG	14446	14702	14958	15214	15470	15726	15982	16238
0x6F	Reserved	LONG	14447	14703	14959	15215	15471	15727	15983	16239
0x70	CAM Cycles	LONG	14448	14704	14960	15216	15472	15728	15984	16240
0x71	CAM Velocity Smooth	LONG	14449	14705	14961	15217	15473	15729	15985	16241
0x72	DGAIN Smooth	LONG	14450	14706	14962	15218	15474	15730	15986	16242
0x73	DZU	LONG	14451	14707	14963	15219	15475	15731	15987	16243
0x74	DZL	LONG	14452	14708	14964	15220	15476	15732	15988	16244
0x75	FFVC	LONG	14453	14709	14965	15221	15477	15733	15989	16245
0x76	Reserved	LONG	14454	14710	14966	15222	15478	15734	15990	16246
0x77	CAM Segment Active	LONG	14455	14711	14967	15223	15479	15735	15991	16247
0x78	PM Deadband (PM DB)	LONG	14456	14712	14968	15224	15480	15736	15992	16248
0x79	PM Current Velocity	LONG	14457	14713	14969	15225	15481	15737	15993	16249
0x7A	Reserved	LONG	14458	14714	14970	15226	15482	15738	15994	16250
0x7B	Reserved	LONG	14459	14715	14971	15227	15483	15739	15995	16251
0x7C	PM Position Error	LONG	14460	14716	14972	15228	15484	15740	15996	16252
0x7D	Cam Cycle Position	LONG	14461	14717	14973	15229	15485	15741	15997	16253
0x7E	Cam Cycle Number	LONG	14462	14718	14974	15230	15486	15742	15998	16254
0x7F	Cam Cycle Length	LONG	14463	14719	14975	15231	15487	15743	15999	16255

Field Description	Read/ Write	Description
Current Position	R/W	This is the current commanded position of the axis.
Target Position	R/W	User programmed target position of the buffered move.
Actual Position	R/W	Current actual position read through feedback.
Following Error	R/W	Current following error in servo control loop.
Hardware Capture	R	Latest hardware-capture register value.
Software Capture	R	Latest software-capture register value.
Primary Setpoint	R/W	See Servo loop block diagram.
Secondary Setpoint	R/W	See servo loop block diagram.
Gear Offset	R/W	Current geared position.
Jog Offset	R/W	Current Jog position.
Cam Offset	R/W	Current Cam position.
Ballscrew Offset	R/W	Current ballscrew position.
Backlash Offset	R/W	Current backlash position.

Field Description	Read/ Write	Description
Proportional Gain	R/W	See servo loop block diagram.
Integral Gain	R/W	See servo loop block diagram.
Integral Limit	R/W	See servo loop block diagram.
Integral Delay	R/W	See servo loop block diagram.
Derivative Gain	R/W	See servo loop block diagram.
Derivative Width	R/W	See servo loop block diagram.
Feedforward Velocity	R/W	See servo loop block diagram.
Feedforward Accel	R/W	See servo loop block diagram.
Proportional Term	R/W	Value after the P Gain block.
Integral Term	R/W	Value after the Integral block.
Derivative Term	R/W	Value after the D-gain block.
Velocity	R/W	Current total velocity of an axis, including any cam and gear velocity etc.
Acceleration	R/W	Current total acceleration of an axes, including any cam and gear acceleration etc.
Summation Point	R	Intermediate servo loop signal, sum of all gain terms, but before filtering.
Filter Output Signal	R	Filtered servo loop signal
Output Signal	R	Servo loop output signal to be fed into the **DAC**s or Stepper
Plus Excess Error	R/W	Excess error positive band value. See **EXC** command.
Minus Excess Error	R/W	Excess error negative band value. See **EXC** command.
Plus In Position	R/W	**IPB** (in-position-band) positive value.
Minus In Position	R/W	**IPB** (in-position-band) negative value.
Plus A Limit	R/W	Parameter set/reported by first argument of **ALM** command
Minus A Limit	R/W	Parameter set/reported by second argument of **ALM** command
Plus B Limit	R/W	Parameter set/reported by first argument of **BLM** command
Minus B Limit	R/W	Parameter set/reported by second argument of **BLM** command
Plus Torque Limit	R/W	Parameter set/reported by first argument of **TLM** command
Minus Torque Limit	R/W	Parameter set/reported by second argument of **TLM** command
Plus Torque Band	R/W	Parameter set/reported by first argument of **ITB** command
Minus Torque Band	R/W	Parameter set/reported by second argument of **ITB** command
Backlash Setting	R/W	Parameter set/reported by **BKL** command

Field Description	Read/ Write	Description
Plus Jog Limit	R/W	Parameter set/reported by first argument of **JLM** command
Minus Jog Limit	R/W	Parameter set/reported by second argument of **JLM** command
NOTCH b2 coefficient	R/W	This parameter sets the b2 coefficient for the notch filter.
NOTCH a2 coefficient	R/W	This parameter sets the a2 coefficient for the notch filter.
NOTCH b1 coefficient	R/W	This parameter sets the b1 coefficient for the notch filter.
NOTCH a1 coefficient	R/W	This parameter sets the a1 coefficient for the notch filter.
NOTCH a0 coefficient	R/W	This parameter sets the a0 coefficient for the notch filter.
LOPASS b2 coefficient	R/W	This parameter sets the b2 coefficient for the lopass filter.
LOPASS a2 coefficient	R/W	This parameter sets the a2 coefficient for the lopass filter.
LOPASS b1 coefficient	R/W	This parameter sets the b1 coefficient for the lopass filter.
LOPASS a1 coefficient	R/W	This parameter sets the a1 coefficient for the lopass filter.
LOPASS a0 coefficient	R/W	This parameter sets the a0 coefficient for the lopass filter.
Current JOG VEL	R	The instantaneous current velocity of a **JOG** move is reported in the parameter.
Current JOG ACC	R	The instantaneous current acceleration of a **JOG** move is reported in the parameter.
JOG VEL Setting	R/W	This parameter sets the target **JOG** velocity.
JOG ACC Setting	R/W	This parameter sets the target **JOG** acceleration.
JOG DEC Setting	R/W	This parameter sets the target **JOG** deceleration.
JOG JRK Setting	R/W	This parameter sets the target **JOG** jerk.
FBVEL Gain Setting	R/W	This parameter sets the **FBVEL** gain value
FBVEL Term	R	Current contribution to control signal from **FBVEL** gain. Established by servo control.
FFVEL Term	R	Current contribution to control signal from **FFVEL** gain. Established by servo control.
FFACC Term	R	Current contribution to control signal from **FFACC** gain. Established by servo control.
INVK Input	R/W	The Cartesian coordinates entered by an end-user. The input is sent to the inverse kinematic algorithms.

Field Description	Read/ Write	Description
INVK Output	R/W	The rotational coordinates computed through inverse kinematics.
INVK Input Previous	R/W	Use this parameter to store the previous input.
Max Velocity Limit	R/W	Parameter set/reported by **MAXVEL** command.
Gear Slip	R/W	If the **GEAR ACC** value is other than zero, then the gear ratio will smoothly ramp up to target Gear Ratio. This will cause the gear to slip during the acceleration ramp. The number of pulses slipped is recorded in this parameter. The user can superimpose a normal move of this gear slip value.
RPM Factor	W	If RPM factor > 0, then the algorithm turns on to calculate the RPM User enter its value according to following formula RPM Factor = 60/(Encoder Pulses per Revolution * Servo Period).
RPM	R	Once the user enters the RPM factor> 0, the revolution per minutes are calculated and stored in this parameter. The axis must be attached to update this parameter.
Smooth Encoder Velocity	R	Intermediate value in calculation of RPM, units are encoder counts/update
Start Radius	R	Internal variable used with Spiral Interpolation. Please refer to the **SINE** command.
End Radius	R	Internal variable used with Spiral Interpolation. Please refer to the **SINE** command.
PPU	R/W	Parameter set/reported by **PPU** command
Lock Feedback Gain	R/W	Optional feedback gain for use with **LOCK** command, default = 0
DIP	R/W	Parameter set/reported by **DIP** command
DIN	R/W	Parameter set/reported by **DIN** command
KVF	R/W	Parameter set/reported by **KVF** command
KVI	R/W	Parameter set/reported by **KVI** command
KVP	R/W	Parameter set/reported by **KVP** command
NOTCH Filter Center Frequency	R/W	Parameter set/reported by first argument of **NOTCH** command
NOTCH Filter Width	R/W	Parameter set/reported by second argument of **NOTCH** command
LOPASS Cutoff Frequency	R/W	Parameter set/reported by **LOPASS** command
Position Maintenance Velocity	R/W	Sets the maximum velocity for a corrective move (**PM VEL**).

Field Description	Read/ Write	Description
Position Maintenance Acceleration	R	Sets the acceleration for the corrective move. Use the **PM ACC** command to set the value.
Position Maintenance Scale	R/W	Sets the value equal to the ratio between stepper pulses and encoder counts per revolution.
Gear Trigger On Offset	R/W	Refer to the **GEAR ON TRG** command.
Gear Trigger Off Offset	R/W	Refer to the **GEAR OFF TRG** command.
CAM Cycles	R/W	The default value is zero, which means that if the **CAM** is turned on, then it will stay on. However, if this value is set to a positive number, then the **CAM** will stay on for that number of **CAM CYCLES**, and then automatically turn itself OFF. This parameter is valid for **CAM** Trigger mode as well.
CAM Velocity Smooth	R/W	Used to smooth out the **CAM** velocity that used for the feed forward control. The default value is “10”, which means that the velocity is averaged across 10 samples, to reduce the jitter in the velocity term. The user can change this value as required by the application. However, this value should be changed before turning the cam on.
DGAIN Smooth	R/W	Used to subdue the humming noise in a torque motor as a result **DGAIN**. The default value is “0”, which means that no smoothing is applied. The user may change this value from “0” to “5”. The **DGAIN** command must be used after changing this parameter, for the change to become effective.
DZU	R/W	Parameter set/reported by **DZU** command
DZL	R/W	Parameter set/reported by **DZL** command
FFVC	R/W	Parameter set/reported by **FFVC** command
CAM Segment Active	R	Indicates the current CAM segment. (Version 1.18.08 Update 13)
Position Maintenance Deadband	R	Sets the deadband zone where, when the axis enters the region, position maintenance stops. The Position Maintenance Active flag clears when an axis enters its assigned deadband range. Use the **PM DB** command to set the range.
Position Maintenance Current Velocity	R	When position maintenance running, reports the current velocity
Position Maintenance Position Error	R	The amount of error between actual and commanded positions (units in stepper pulses).

Field Description	Read/ Write	Description
Cam Cycle Position	R	The current number of **CAM SRC** counts within the current cam cycle.
Cam Cycle Number	R	The number of completed cam cycles assuming cam source is counting positive.
Cam Cycle Length	R	The total cam length equal to the sum of the **CAM SEG** lengths.

P28672 - P30543 Drive Parameters (Axes 0-7)

ACR90x0 only

Index	Drive Configuration Parameters Code=0x70		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				Axis Number							
				0	1	2	3	4	5	6	7
0x00	Communication Device	LONG		28672	28928	29184	29440	29696	29952	30208	30464
0x01	Drive Type	LONG		28673	28929	29185	29441	29697	29953	30209	30465
0x02	Feedback Resolution	LONG		28674	28930	29186	29442	29698	29954	30210	30466
0x03	Number of Pole Pairs	LONG		28675	28931	29187	29443	29699	29955	30211	30467
0x04	Gearbox Ratio	LONG		28676	28932	29188	29444	29700	29956	30212	30468
0x05	Heatsink Value	LONG		28677	28933	29189	29445	29701	29957	30213	30469
0x06	Hall Feedback Control	LONG		28678	28934	29190	29446	29702	29958	30214	30470
0x07	Disable Thermal Switches	LONG		28679	28935	29191	29447	29703	29959	30215	30471
0x08	Mode of Operation	LONG		28680	28936	29192	29448	29704	29960	30216	30472
0x09	PWM Frequency	LONG		28681	28937	29193	29449	29705	29961	30217	30473
0x0A	Motor Switch Type	LONG		28682	28938	29194	29450	29706	29962	30218	30474
0x0B	Commanded Direction	LONG		28683	28939	29195	29451	29707	29963	30219	30475
0x0C	Enable Current Foldback	LONG		28684	28940	29196	29452	29708	29964	30220	30476
0x0D	Fault on Drive Disable	LONG		28685	28941	29197	29453	29709	29965	30221	30477
0x0E	Reserved	LONG		28686	28942	29198	29454	29710	29966	30222	30478
0x0F	Reserved	LONG		28687	28943	29199	29455	29711	29967	30223	30479

Index	Drive Talk Status Parameters Code=0x70		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				Axis Number							
				0	1	2	3	4	5	6	7
0x10	Reserved	LONG		28688	28944	29200	29456	29712	29968	30224	30480
0x11	Reserved	LONG		28689	28945	29201	29457	29713	29969	30225	30481
0x12	Reserved	LONG		28690	28946	29202	29458	29714	29970	30226	30482
0x13	Reserved	LONG		28691	28947	29203	29459	29715	29971	30227	30483
0x14	Custom Product ID	LONG		28692	28948	29204	29460	29716	29972	30228	30484
0x15	Encoder Position	LONG		28693	28949	29205	29461	29717	29973	30229	30485
0x16	Current Hall State	LONG		28694	28950	29206	29462	29718	29974	30230	30486
0x17	Operating Hours	LONG		28695	28951	29207	29463	29719	29975	30231	30487
0x18	Operating Minutes	LONG		28696	28952	29208	29464	29720	29976	30232	30488
0x19	Operating Milliseconds	LONG		28697	28953	29209	29465	29721	29977	30233	30489
0x1A	Reserved	LONG		28698	28954	29210	29466	29722	29978	30234	30490
0x1B	Reserved	LONG		28699	28955	29211	29467	29723	29979	30235	30491
0x1C	Reserved	LONG		28700	28956	29212	29468	29724	29980	30236	30492

Index	Drive Talk Status Parameters Code=0x70	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x1D	Reserved	LONG	28701	28957	29213	29469	29725	29981	30237	30493
0x1E	Reserved	LONG	28702	28958	29214	29470	29726	29982	30238	30494
0x1F	Reserved	LONG	28703	28959	29215	29471	29727	29983	30239	30495

Index	Drive Talk Configuration Parameters Code=0x70	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x20	Continuous Current	FP32	28704	28960	29216	29472	29728	29984	30240	30496
0x21	Continuous Current Derating	FP32	28705	28961	29217	29473	29729	29985	30241	30497
0x22	Peak Current Rating	FP32	28706	28962	29218	29474	29730	29986	30242	30498
0x23	Motor Inductance	FP32	28707	28963	29219	29475	29731	29987	30243	30499
0x24	Motor Inductance Factor	FP32	28708	28964	29220	29476	29732	29988	30244	30500
0x25	Motor Max Temp	FP32	28709	28965	29221	29477	29733	29989	30245	30501
0x26	Motor Resistance	FP32	28710	28966	29222	29478	29734	29990	30246	30502
0x27	Motor Rated Speed	FP32	28711	28967	29223	29479	29735	29991	30247	30503
0x28	Motor Damping	FP32	28712	28968	29224	29480	29736	29992	30248	30504
0x29	Motor Rotor Inertia	FP32	28713	28969	29225	29481	29737	29993	30249	30505
0x2A	Motor Ke	FP32	28714	28970	29226	29482	29738	29994	30250	30506
0x2B	Motor Pitch	FP32	28715	28971	29227	29483	29739	29995	30251	30507
0x2C	Velocity Limit	FP32	28716	28972	29228	29484	29740	29996	30252	30508
0x2D	Torque Limit	FP32	28717	28973	29229	29485	29741	29997	30253	30509
0x2E	Torque Scale	FP32	28718	28974	29230	29486	29742	29998	30254	30510
0x2F	Motor Ambient Temp	FP32	28719	28975	29231	29487	29743	29999	30255	30511
0x30	Motor Thermal Resistance	FP32	28720	28976	29232	29488	29744	30000	30256	30512
0x31	Motor Thermal Time Constant	FP32	28721	28977	29233	29489	29745	30001	30257	30513
0x32	Motor Winding Time Constant	FP32	28722	28978	29234	29490	29746	30002	30258	30514
0x33	Integral Gain	FP32	28723	28979	29235	29491	29747	30003	30259	30515
0x34	Proportional Gain	FP32	28724	28980	29236	29492	29748	30004	30260	30516
0x35	Integral Error Limit	FP32	28725	28981	29237	29493	29749	30005	30261	30517
0x36	Analog Center Deadband	FP32	28726	28982	29238	29494	29750	30006	30262	30518
0x37	Max Startup Voltage	FP32	28727	28983	29239	29495	29751	30007	30263	30519
0x38	Reserved	FP32	28728	28984	29240	29496	29752	30008	30264	30520
0x39	Reserved	FP32	28729	28985	29241	29497	29753	30009	30265	30521
0x3A	Reserved	FP32	28730	28986	29242	29498	29754	30010	30266	30522
0x3B	Reserved	FP32	28731	28987	29243	29499	29755	30011	30267	30523

Index	Drive Talk Configuration Parameters Code=0x70	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x3C	Reserved	FP32	28732	28988	29244	29500	29756	30012	30268	30524
0x3D	Reserved	FP32	28733	28989	29245	29501	29757	30013	30269	30525
0x3E	Reserved	FP32	28734	28990	29246	29502	29758	30014	30270	30526
0x3F	Reserved	FP32	28735	28991	29247	29503	29759	30015	30271	30527

Index	Drive Talk Status Parameters Code=0x70	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			0	1	2	3	4	5	6	7
0x40	Amplifier Cont Current Rating	FP32	28736	28992	29248	29504	29760	30016	30272	30528
0x41	Amplifier Max Current Rating	FP32	28737	28993	29249	29505	29761	30017	30273	30529
0x42	Commanded Current	FP32	28738	28994	29250	29506	29762	30018	30274	30530
0x43	Commanded Torque	FP32	28739	28995	29251	29507	29763	30019	30275	30531
0x44	Actual Torque	FP32	28740	28996	29252	29508	29764	30020	30276	30532
0x45	Actual Velocity	FP32	28741	28997	29253	29509	29765	30021	30277	30533
0x46	±10V Input Signal or Shaft Power in Watts	FP32	28742	28998	29254	29510	29766	30022	30278	30534
0x47	Drive Temperature	FP32	28743	28999	29255	29511	29767	30023	30279	30535
0x48	Motor Temperature	FP32	28744	29000	29256	29512	29768	30024	30280	30536
0x49	Bus Voltage	FP32	28745	29001	29257	29513	29769	30025	30281	30537
0x4A	Reserved	FP32	28746	29002	29258	29514	29770	30026	30282	30538
0x4B	Reserved	FP32	28747	29003	29259	29515	29771	30027	30283	30539
0x4C	Reserved	FP32	28748	29004	29260	29516	29772	30028	30284	30540
0x4D	Reserved	FP32	28749	29005	29261	29517	29773	30029	30285	30541
0x4E	Reserved	FP32	28750	29006	29262	29518	29774	30030	30286	30542
0x4F	Reserved	FP32	28751	29007	29263	29519	29775	30031	30287	30543

Field Description	Read/ Write	Description
Communication Device	R/W	Sets the device number to use for drive talk. This must be the same device number used in the **OPEN DTALK** command.
Drive Type	R/W	Sets the drive type to talk to (Aries = 0)
Feedback Resolution	R/W	Establishes the encoder resolution (post quadrature) in counts/rev or counts/electrical pitch.
Number of Pole Pairs	R/W	Sets the number of motor pole pairs.
Gearbox Ratio	R/W	Sets the gearbox ratio, if using a gearbox.
Heatsink Value	R	Indicates whether the drive is configured with heat sinking for its motor. 0 = no heatsink, 1 = heatsink; default = 0
Hall Feedback Control	R/W	Sets the logic sense of the hall sensors. 0=Do not invert, 1=Invert
Disable Thermal Switches	R/W	Sets drive fault mode when the motor thermal switch opens or is non-existent. 0=Enable, 1=Disable
Mode of Operation	R/W	Sets the drive control mode for your Aries Drive. 1=Autorun, 2=Torque/Force, 4=Velocity, 6=Position, 7=Reversed Position
PWM Frequency	R/W	Sets the drives PWM frequency. 16 = 16 kHz, 32 = 32 kHz
Motor Switch Type	R/W	Sets the type of motor temperature switch used. 0=NC, 1=PTC, 2=NO, 3=NTC
Commanded Direction	R/W	Sets the direction of shaft rotation for positive analog input. 0=CW, 1=CCW
Enable Current Foldback	R/W	Sets the mode for the drive's current foldback protection feature. 0=Disable, 1=Enable
Fault on Drive Disable	R/W	Sets the mode for fault notification on drive disable. 0=Disable, 1=Enable
Custom Product ID	R	Reports the custom product number if a custom winding is used on the motor.
Encoder Position	R	Reports the present feedback device position.
Current Hall State	R	Reports the present hall sensor value from 1-6.
Operating Hours	R	Number of hours the Aries drive has been powered on .
Operating Minutes	R	Number of minutes the Aries drive has been powered on .
Operating Milliseconds	R	Number of milliseconds the Aries drive has been powered on .
Continuous Current	R	Reports the continuous current setting in the drive.

Field Description	Read/ Write	Description
Continuous Current Derating	R	Reports the derating percentage of continuous current at rated speed to account for velocity-related losses in the motor.
Peak Current Rating	R	Reports the peak current setting of the drive.
Motor Inductance	R	Reports the motor inductance in mH.
Motor Inductance Factor	R	Reports the minimum motor inductance divided by the maximum motor inductance.
Motor Max Temp	R	Reports the maximum allowable motor winding temperature.
Motor Resistance	R	Reports the motor winding resistance in ohms.
Motor Rated Speed	R	Reports the motor rated speed in rpm.
Motor Damping	R	Reports the motor damping coefficient.
Motor Rotor Inertia	R	Reports the rotor inertia of the motor.
Motor Ke	R	Reports the motor constant.
Motor Pitch	R	Reports the electrical pitch of the magnets in a linear servo motor.
Velocity Limit	R	Reports the motor velocity limit.
Torque Limit	R	Reports the motor torque limit.
Torque Scale	R	Reports the torque/force scaling of the command input.
Motor Ambient Temp	R	Reports the motor ambient temperature used by the software thermal model.
Motor Thermal Resistance	R	Reports the motor thermal resistance used by the software thermal model.
Motor Thermal Time Constant	R	Reports the motor thermal time constant.
Motor Winding Time Constant	R	Reports the motor winding time constant.
Integral Gain R	R	Reports the drive setting for integral gain.
Proportional Gain	R	Reports the drive setting for proportional gain.
Integral Error Limit	R	Reports the limit of the integral error.
Analog Center Deadband	R	Reports the deadband around the command input. (Aries AE only.)
Max Startup Voltage	R	Reports the maximum allowable voltage at the command input on drive startup. (Aries AE only.)

Field Description	Read/ Write	Description
Amplifier Cont Current Rating	R	Reports the drives continuous current rating.
Amplifier Max Current Rating	R	Reports the drives maximum current rating.
Commanded Current	R	Reports the commanded current from the drive.
Commanded Torque	R	Reports the commanded torque from the drive.
Actual Torque	R	Reports the actual torque from the motor.
Actual Velocity	R	Reports the motor actual velocity.
±10V Input Signal	R	When talking to Aries AE or Aries SE, reports the command signal level.
Shaft Power	R	When talking to Aries EPL, reports the shaft power.
Drive Temperature	R	Reports the current drive temperature.
Motor Temperature	R	Reports the current motor temperature as calculated by the software thermal model.
Bus Voltage	R	Reports the drive bus voltage.

P30720 - P32591 Drive Parameters (Axes 8-15)

ACR90x0 only

Index	Drive Configuration Parameters Code=0x78		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				Axis Number							
				8	9	10	11	12	13	14	15
0x00	Communication Device	LONG		30720	30976	31232	31488	31744	32000	32256	32512
0x01	Drive Type	LONG		30721	30977	31233	31489	31745	32001	32257	32513
0x02	Feedback Resolution	LONG		30722	30978	31234	31490	31746	32002	32258	32514
0x03	Number of Pole Pairs	LONG		30723	30979	31235	31491	31747	32003	32259	32515
0x04	Gearbox Ratio	LONG		30724	30980	31236	31492	31748	32004	32260	32516
0x05	Heatsink Value	LONG		30725	30981	31237	31493	31749	32005	32261	32517
0x06	Hall Feedback Control	LONG		30726	30982	31238	31494	31750	32006	32262	32518
0x07	Disable Thermal Switches	LONG		30727	30983	31239	31495	31751	32007	32263	32519
0x08	Mode of Operation	LONG		30728	30984	31240	31496	31752	32008	32264	32520
0x09	PWM Frequency	LONG		30729	30985	31241	31497	31753	32009	32265	32521
0x0A	Motor Switch Type	LONG		30730	30986	31242	31498	31754	32010	32266	32522
0x0B	Commanded Direction	LONG		30731	30987	31243	31499	31755	32011	32267	32523
0x0C	Enable Current Foldback	LONG		30732	30988	31244	31500	31756	32012	32268	32524
0x0D	Fault on Drive Disable	LONG		30733	30989	31245	31501	31757	32013	32269	32525
0x0E	Reserved	LONG		30734	30990	31246	31502	31758	32014	32270	32526
0x0F	Reserved	LONG		30735	30991	31247	31503	31759	32015	32271	32527

Index	Drive Talk Configuration Parameters Code=0x78		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				Axis Number							
				8	9	10	11	12	13	14	15
0x10	Reserved	LONG		30736	30992	31248	31504	31760	32016	32272	32528
0x11	Reserved	LONG		30737	30993	31249	31505	31761	32017	32273	32529
0x12	Reserved	LONG		30738	30994	31250	31506	31762	32018	32274	32530
0x13	Reserved	LONG		30739	30995	31251	31507	31763	32019	32275	32531
0x14	Custom Product ID	LONG		30740	30996	31252	31508	31764	32020	32276	32532
0x15	Encoder Position	LONG		30741	30997	31253	31509	31765	32021	32277	32533
0x16	Current Hall State	LONG		30742	30998	31254	31510	31766	32022	32278	32534
0x17	Operating Hours	LONG		30743	30999	31255	31511	31767	32023	32279	32535
0x18	Operating Minutes	LONG		30744	31000	31256	31512	31768	32024	32280	32536
0x19	Operating Milliseconds	LONG		30745	31001	31257	31513	31769	32025	32281	32537
0x1A	Reserved	LONG		30746	31002	31258	31514	31770	32026	32282	32538
0x1B	Reserved	LONG		30747	31003	31259	31515	31771	32027	32283	32539
0x1C	Reserved	LONG		30748	31004	31260	31516	31772	32028	32284	32540

Index	Drive Talk Configuration Parameters Code=0x78	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x1D	Reserved	LONG	30749	31005	31261	31517	31773	32029	32285	32541
0x1E	Reserved	LONG	30750	31006	31262	31518	31774	32030	32286	32542
0x1F	Reserved	LONG	30751	31007	31263	31519	31775	32031	32287	32543

Index	Drive Talk Configuration Parameters Code=0x78	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x20	Continuous Current	FP32	30752	31008	31264	31520	31776	32032	32288	32544
0x21	Continuous Current Derating	FP32	30753	31009	31265	31521	31777	32033	32289	32545
0x22	Peak Current Rating	FP32	30754	31010	31266	31522	31778	32034	32290	32546
0x23	Motor Inductance	FP32	30755	31011	31267	31523	31779	32035	32291	32547
0x24	Motor Inductance Factor	FP32	30756	31012	31268	31524	31780	32036	32292	32548
0x25	Motor Max Temp	FP32	30757	31013	31269	31525	31781	32037	32293	32549
0x26	Motor Resistance	FP32	30758	31014	31270	31526	31782	32038	32294	32550
0x27	Motor Rated Speed	FP32	30759	31015	31271	31527	31783	32039	32295	32551
0x28	Motor Damping	FP32	30760	31016	31272	31528	31784	32040	32296	32552
0x29	Motor Rotor Inertia	FP32	30761	31017	31273	31529	31785	32041	32297	32553
0x2A	Motor Ke	FP32	30762	31018	31274	31530	31786	32042	32298	32554
0x2B	Motor Pitch	FP32	30763	31019	31275	31531	31787	32043	32299	32555
0x2C	Velocity Limit	FP32	30764	31020	31276	31532	31788	32044	32300	32556
0x2D	Torque Limit	FP32	30765	31021	31277	31533	31789	32045	32301	32557
0x2E	Torque Scale	FP32	30766	31022	31278	31534	31790	32046	32302	32558
0x2F	Motor Ambient Temp	FP32	30767	31023	31279	31535	31791	32047	32303	32559
0x30	Motor Thermal Resistance	FP32	30768	31024	31280	31536	31792	32048	32304	32560
0x31	Motor Thermal Time Constant	FP32	30769	31025	31281	31537	31793	32049	32305	32561
0x32	Motor Winding Time Constant	FP32	30770	31026	31282	31538	31794	32050	32306	32562
0x33	Integral Gain	FP32	30771	31027	31283	31539	31795	32051	32307	32563
0x34	Proportional Gain	FP32	30772	31028	31284	31540	31796	32052	32308	32564
0x35	Integral Error Limit	FP32	30773	31029	31285	31541	31797	32053	32309	32565
0x36	Analog Center Deadband	FP32	30774	31030	31286	31542	31798	32054	32310	32566
0x37	Max Startup Voltage	FP32	30775	31031	31287	31543	31799	32055	32311	32567
0x38	Reserved	FP32	30776	31032	31288	31544	31800	32056	32312	32568
0x39	Reserved	FP32	30752	31008	31264	31520	31776	32032	32288	32544
0x3A	Reserved	FP32	30753	31009	31265	31521	31777	32033	32289	32545

Index	Drive Talk Configuration Parameters Code=0x78	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x3B	Reserved	FP32	30754	31010	31266	31522	31778	32034	32290	32546
0x3C	Reserved	FP32	30755	31011	31267	31523	31779	32035	32291	32547
0x3D	Reserved	FP32	30756	31012	31268	31524	31780	32036	32292	32548
0x3E	Reserved	FP32	30757	31013	31269	31525	31781	32037	32293	32549
0x3F	Reserved	FP32	30758	31014	31270	31526	31782	32038	32294	32550

Index	Drive Talk Status Parameters Code=0x78	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Axis Number							
			8	9	10	11	12	13	14	15
0x40	Amplifier Cont Current Rating	FP32	30784	31040	31296	31552	31808	32064	32320	32576
0x41	Amplifier Max Current Rating	FP32	30785	31041	31297	31553	31809	32065	32321	32577
0x42	Commanded Current	FP32	30786	31042	31298	31554	31810	32066	32322	32578
0x43	Commanded Torque	FP32	30787	31043	31299	31555	31811	32067	32323	32579
0x44	Actual Torque	FP32	30788	31044	31300	31556	31812	32068	32324	32580
0x45	Actual Velocity	FP32	30789	31045	31301	31557	31813	32069	32325	32581
0x46	±10V Input Signal or Shaft Power in Watts	FP32	30790	31046	31302	31558	31814	32070	32326	32582
0x47	Drive Temperature	FP32	30791	31047	31303	31559	31815	32071	32327	32583
0x48	Motor Temperature	FP32	30792	31048	31304	31560	31816	32072	32328	32584
0x49	Bus Voltage	FP32	30793	31049	31305	31561	31817	32073	32329	32585
0x4A	Reserved	FP32	30794	31050	31306	31562	31818	32074	32330	32586
0x4B	Reserved	FP32	30795	31051	31307	31563	31819	32075	32331	32587
0x4C	Reserved	FP32	30796	31052	31308	31564	31820	32076	32332	32588
0x4D	Reserved	FP32	30797	31053	31309	31565	31821	32077	32333	32589
0x4E	Reserved	FP32	30798	31054	31310	31566	31822	32078	32334	32590
0x4F	Reserved	FP32	30799	31055	31311	31567	31823	32079	32335	32591

Field Description	Read/ Write	Description
Communication Device	R/W	Sets the device number to use for drive talk. This must be the same device number used in the **OPEN DTALK** command.
Drive Type	R/W	Sets the drive type to talk to (Aries = 0)
Feedback Resolution	R/W	Establishes the encoder resolution (post quadrature) in counts/rev or counts/electrical pitch.
Number of Pole Pairs	R/W	Sets the number of motor pole pairs.
Gearbox Ratio	R/W	Sets the gearbox ratio, if using a gearbox.
Heatsink Value	R	Indicates whether the drive is configured with heat sinking for its motor. 0 = no heatsink, 1 = heatsink; default = 0
Hall Feedback Control	R/W	Sets the logic sense of the hall sensors. 0=Do not invert, 1=Invert
Disable Thermal Switches	R/W	Sets drive fault mode when the motor thermal switch opens or is non-existent. 0=Enable, 1=Disable
Mode of Operation	R/W	Sets the drive control mode for your Aries Drive. 1=Autorun, 2=Torque/Force, 4=Velocity, 6=Position, 7=Reversed Position
PWM Frequency	R/W	Sets the drives PWM frequency. 16 = 16 kHz, 32 = 32 kHz
Motor Switch Type	R/W	Sets the type of motor temperature switch used. 0=NC, 1=PTC, 2=NO, 3=NTC
Commanded Direction	R/W	Sets the direction of shaft rotation for positive analog input. 0=CW, 1=CCW
Enable Current Foldback	R/W	Sets the mode for the drive's current foldback protection feature. 0=Disable, 1=Enable
Fault on Drive Disable	R/W	Sets the mode for fault notification on drive disable. 0=Disable, 1=Enable
Custom Product ID	R	Reports the custom product number if a custom winding is used on the motor.
Encoder Position	R	Reports the present feedback device position.
Current Hall State	R	Reports the present hall sensor value from 1-6.
Operating Hours	R	Number of hours the Aries drive has been powered on.
Operating Minutes	R	Number of minutes the Aries drive has been powered on.
Operating Milliseconds	R	Number of milliseconds the Aries drive has been powered on.
Continuous Current	R	Reports the continuous current setting in the drive.

Field Description	Read/ Write	Description
Continuous Current Derating	R	Reports the derating percentage of continuous current at rated speed to account for velocity-related losses in the motor.
Peak Current Rating	R	Reports the peak current setting of the drive.
Motor Inductance	R	Reports the motor inductance in mH.
Motor Inductance Factor	R	Reports the minimum motor inductance divided by the maximum motor inductance.
Motor Max Temp	R	Reports the maximum allowable motor winding temperature.
Motor Resistance	R	Reports the motor winding resistance in ohms.
Motor Rated Speed	R	Reports the motor rated speed in rpm.
Motor Damping	R	Reports the motor damping coefficient.
Motor Rotor Inertia	R	Reports the rotor inertia of the motor.
Motor Ke	R	Reports the motor constant.
Motor Pitch	R	Reports the electrical pitch of the magnets in a linear servo motor.
Velocity Limit	R	Reports the motor velocity limit.
Torque Limit	R	Reports the motor torque limit.
Torque Scale	R	Reports the torque/force scaling of the command input.
Motor Ambient Temp	R	Reports the motor ambient temperature used by the software thermal model.
Motor Thermal Resistance	R	Reports the motor thermal resistance used by the software thermal model.
Motor Thermal Time Constant	R	Reports the motor thermal time constant.
Motor Winding Time Constant	R	Reports the motor winding time constant.
Integral Gain R	R	Reports the drive setting for integral gain.
Proportional Gain	R	Reports the drive setting for proportional gain.
Integral Error Limit	R	Reports the limit of the integral error.
Analog Center Deadband	R	Reports the deadband around the command input. (Aries AE only.)
Max Startup Voltage	R	Reports the maximum allowable voltage at the command input on drive startup. (Aries AE only.)

Field Description	Read/ Write	Description
Amplifier Cont Current Rating	R	Reports the drives continuous current rating.
Amplifier Max Current Rating	R	Reports the drives maximum current rating.
Commanded Current	R	Reports the commanded current from the drive.
Commanded Torque	R	Reports the commanded torque from the drive.
Actual Torque	R	Reports the actual torque from the motor.
Actual Velocity	R	Reports the motor actual velocity.
±10V Input Signal	R	When talking to Aries AE or Aries SE, reports the command signal level.
Shaft Power	R	When talking to Aries EPL, reports the shaft power.
Drive Temperature	R	Reports the current drive temperature.
Motor Temperature	R	Reports the current motor temperature as calculated by the software thermal model.
Bus Voltage	R	Reports the drive bus voltage.

P32768 - P35327 CANopen Parameters

ACR9xx0 only

Master Node Status and Control

CANopen Master Status and Control Code=0x80; Index=0x00; Mask=0xFF		P
Master Node ID	LONG	32768
Bit Rate	LONG	32769
Number of Slave Nodes	LONG	32770
CANopen-Alt. Digital I/O Mapping	LONG	32771
Cyclic Period	LONG	32772
Health Period	LONG	32773
Reserved	LONG	32774
Total Digital Input Bytes	LONG	32775

CANopen Master Status and Control Code=0x80; Index=0x08; Mask=0xFF		P
Total Digital Output Bytes	LONG	32776
Total Analog Input Points	LONG	32777
Total Analog Output Points	LONG	32778
Bus State	LONG	32779
Reserved	LONG	32780
Reserved	LONG	32781
Reserved	LONG	32782
Reserved	LONG	32783
Target Object Node ID	LONG	32784
Object Dictionary Index	LONG	32785
Object Dictionary Sub-Index	LONG	32786
Object Data Type	LONG	32787
SDO Access Timeout (default=100 msec.)	LONG	32788
Integer Object Data (set/get)	LONG	32789
Access Attempt Status	LONG	32790
Access Error Code	LONG	32791
Float Object Data (set/get)	FLOAT	32792

Slave Node Status and Control

Index			0x00	0x02	0x04	0x06
Mask	Limit Parameters Code=0x81		Slave Node Index			
			0	1	2	3
0x01	Node ID	LONG	33024	33040	33056	33072
0x02	Number of Digital Input Bytes	LONG	33025	33041	33057	33073
0x04	Number of Digital Output Points	LONG	33026	33042	33058	33074
0x08	Number of Analog Input Bytes	LONG	33027	33043	33059	33075
0x10	Number of Analog Output Points	LONG	33028	33044	33060	33076
0x20	Health Type*	LONG	33029	33045	33061	33077
0x40	Node State	LONG	33030	33046	33062	33078
0x80	CAN Cycles Per Input Update	LONG	33031	33047	33063	33079

Master Node Status and Control

Field Description	Read/ Write	Description
Master Node ID	R/W	ACR9000 master node ID number have a default of 5
Bit Rate	R/W	CAN slave node bit rate. Default of 125 (kbits / second). Maximum bit rate is 1Mbit / second
Number of Slave nodes	R/W	Number of slave nodes in the CAN network. Maximum of 4 nodes is allowed. Default at 1.
Digital I/O mapping option	R/W	1 = maps CAN digital I/O to the Expansion I/O flags for PLC purpose 0 = disable the mapping
Cyclic Period	R/W	Transmission Cyclic Period. Default of 50
Health Period	R/W	Period for the master to ascertain that all nodes is still alive. Default of 500 milliseconds
Total Digital Input Bytes	R	Total digital input bytes in the CAN network
Total Digital Output Bytes	R	Total digital output bytes in the CAN network
Total Analog Input Points	R	Total analog input points in the CAN network
Total Analog Output Points	R	Total analog output points in the CAN network
Bus State	R	0 = CAN network is pre-initialized 1 = CAN network is pre-operational. Slave node information and bit rate have been verified and ready to

Field Description	Read/ Write	Description
		start network 2 = CAN Network started 3 = Invalid Master node ID, it must be between 1 –127 inclusive 4 = Invalid slave node information 5 = Characterization error 6 = Excess Bus Error. 7 = Health Event 8 = Internal Error 9 = Transmission overflow 10 = Bus off. The CAN controller bus is off and the network must be re-started.
Target Object Node ID	R/W	
Object Dictionary Index	R/W	
Object Dictionary Sub-Index	R/W	
Object Data Type	R/W	
SDO Access Timeout (default=100 msec.)	R/W	
Integer Object Data (set/get)	R/W	
Access Attempt Status	R	
Access Error Code	R	
Float Object Data (set/get)	R/W	

Node Status and Control

Field Description	Read/ Write	Description
Node ID	R/W	Slave Node ID number.
Number of digital input bytes	R	Number of digital input bytes of the slave node.
Number of digital output byte	R	Number of digital output bytes of the slave node.

Field Description	Read/ Write	Description
Number of analog input points	R	Number of analog input points of the slave node.
Number of analog output points	R	Number of analog input points of the slave node.
Health Type*	R/W	0 = Not present, 1 = heartbeat, 2 = lifeguarding (default)
Node State	R	Period for the master to ascertain that all nodes are still alive. Default of 500 milliseconds.
CAN Cycles Per Input Update	R/W	Default – 0: External node will only update the master when its input states have changed. When greater than zero, forces periodic updates even if the input states have not changed. Valid non-zero range is 1-240, and specifies the number of CAN cycles between input updates for that node. Available with OS 1.25 and higher.

Health Type: This parameter determines which method (if any) will be used to ensure the communication between the CANopen controller and the node is intact.

- Heartbeat method requires the node to periodically declare its status to the controller, but the controller does not provide any information to the node.
- Lifeguard method requires the controller to request the health status of each node, and the frequency is expected by both the controller and the node(s). This allows both to become aware of a broken connection, and in that case, the node automatically sets its outputs to a safe state.

The default for this parameter is zero, telling the CANopen controller to choose the best method for the node when it starts the network.

As of ACR9000 firmware version 1.19.0, the preferred choice is lifeguard if the user leaves this parameter at zero. This change in preferred choice was made for safety with respect to the outputs in the case of network disconnection. But if the user makes a choice other than zero, the process is the same as in the prior firmware version.

(Prior to ACR9000 firmware version 1.19.0, the preferred method was heartbeat, which requires only half the network traffic as the lifeguard method, but may not be supported by all nodes. If the user left this parameter at zero or explicitly chose heartbeat, the controller would test the node for support of the heartbeat method, and if present, use this method. The next choice would be lifeguard, and the last choice would be no health monitoring. If the user explicitly chose lifeguard, there is no test for support of heartbeat. After this process was complete, the chosen method was implemented for the node and the health type parameter would be updated to reflect the choice. For example, it might be set at zero before the network is started, but automatically change to 1 (heartbeat) as a result of starting the network.)

Node 0

Index	CANopen Node 0 Analog I/O Parameters Code=0xC2		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				0	1	2	3	4	5	6	7
0x00	DAC Value	FP32		33280	33296	33312	33328	33344	33360	33376	33392
0x01	Reserved	FP32		33281	33297	33313	33329	33345	33361	33377	33393
0x02	DAC Gain	FP32		33282	33298	33314	33330	33346	33362	33378	33394
0x03	DAC Offset	FP32		33283	33299	33315	33331	33347	33363	33379	33395
0x04	Reserved	FP32		33284	33300	33316	33332	33348	33364	33380	33396
0x05	Reserved	FP32		33285	33301	33317	33333	33349	33365	33381	33397
0x06	Reserved	FP32		33286	33302	33318	33334	33350	33366	33382	33398
0x07	Reserved	FP32		33287	33303	33319	33335	33351	33367	33383	33399
0x08	ADC Value	FP32		33288	33304	33320	33336	33352	33368	33384	33400
0x09	Reserved	FP32		33289	33305	33321	33337	33353	33369	33385	33401
0x0A	ADC Gain	FP32		33290	33306	33322	33338	33354	33370	33386	33402
0x0B	ADC Offset	FP32		33291	33307	33323	33339	33355	33371	33387	33403
0x0C	Reserved	FP32		33292	33308	33324	33340	33356	33372	33388	33404
0x0D	Reserved	FP32		33293	33309	33325	33341	33357	33373	33389	33405
0x0E	Reserved	FP32		33294	33310	33326	33342	33358	33374	33390	33406
0x0F	Reserved	FP32		33295	33311	33327	33343	33359	33375	33391	33407

Index	CANopen Node 0 Analog I/O Parameters Code=0xC2		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				8	9	10	11	12	13	14	15
0x80	DAC Value	FP32		33408	33424	33440	33456	33472	33488	33504	33520
0x81	Reserved	FP32		33409	33425	33441	33457	33473	33489	33505	33521
0x82	DAC Gain	FP32		33410	33426	33442	33458	33474	33490	33506	33522
0x83	DAC Offset	FP32		33411	33427	33443	33459	33475	33491	33507	33523
0x84	Reserved	FP32		33412	33428	33444	33460	33476	33492	33508	33524
0x85	Reserved	FP32		33413	33429	33445	33461	33477	33493	33509	33525
0x86	Reserved	FP32		33414	33430	33446	33462	33478	33494	33510	33526
0x87	Reserved	FP32		33415	33431	33447	33463	33479	33495	33511	33527
0x88	ADC Value	FP32		33416	33432	33448	33464	33480	33496	33512	33528
0x89	Reserved	FP32		33417	33433	33449	33465	33481	33497	33513	33529
0x8A	ADC Gain	FP32		33418	33434	33450	33466	33482	33498	33514	33530
0x8B	ADC Offset	FP32		33419	33435	33451	33467	33483	33499	33515	33531
0x8C	Reserved	FP32		33420	33436	33452	33468	33484	33500	33516	33532
0x8D	Reserved	FP32		33421	33437	33453	33469	33485	33501	33517	33533
0x8E	Reserved	FP32		33422	33438	33454	33470	33486	33502	33518	33534
0x8F	Reserved	FP32		33423	33439	33455	33471	33487	33503	33519	33535

Node 0 (continued)

Index	CANopen Node 0 Analog I/O Parameters Code=0xC3		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				16	17	18	19	20	21	22	23
0x00	DAC Value	FP32		33536	33552	33568	33584	33600	33616	33632	33648
0x01	Reserved	FP32		33537	33553	33569	33585	33601	33617	33633	33649
0x02	DAC Gain	FP32		33538	33554	33570	33586	33602	33618	33634	33650
0x03	DAC Offset	FP32		33539	33555	33571	33587	33603	33619	33635	33651
0x04	Reserved	FP32		33540	33556	33572	33588	33604	33620	33636	33652
0x05	Reserved	FP32		33541	33557	33573	33589	33605	33621	33637	33653
0x06	Reserved	FP32		33542	33558	33574	33590	33606	33622	33638	33654
0x07	Reserved	FP32		33543	33559	33575	33591	33607	33623	33639	33655
0x08	ADC Value	FP32		33544	33560	33576	33592	33608	33624	33640	33656
0x09	Reserved	FP32		33545	33561	33577	33593	33609	33625	33641	33657
0x0A	ADC Gain	FP32		33546	33562	33578	33594	33610	33626	33642	33658
0x0B	ADC Offset	FP32		33547	33563	33579	33595	33611	33627	33643	33659
0x0C	Reserved	FP32		33548	33564	33580	33596	33612	33628	33644	33660
0x0D	Reserved	FP32		33549	33565	33581	33597	33613	33629	33645	33661
0x0E	Reserved	FP32		33550	33566	33582	33598	33614	33630	33646	33662
0x0F	Reserved	FP32		33551	33567	33583	33599	33615	33631	33647	33663

Index	CANopen Node 0 Analog I/O Parameters Code=0xC3		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				24	25	26	27	28	29	30	31
0x80	DAC Value	FP32		33664	33680	33696	33712	33728	33744	33760	33776
0x81	Reserved	FP32		33665	33681	33697	33713	33729	33745	33761	33777
0x82	DAC Gain	FP32		33666	33682	33698	33714	33730	33746	33762	33778
0x83	DAC Offset	FP32		33667	33683	33699	33715	33731	33747	33763	33779
0x84	Reserved	FP32		33668	33684	33700	33716	33732	33748	33764	33780
0x85	Reserved	FP32		33669	33685	33701	33717	33733	33749	33765	33781
0x86	Reserved	FP32		33670	33686	33702	33718	33734	33750	33766	33782
0x87	Reserved	FP32		33671	33687	33703	33719	33735	33751	33767	33783
0x88	ADC Value	FP32		33672	33688	33704	33720	33736	33752	33768	33784
0x89	Reserved	FP32		33673	33689	33705	33721	33737	33753	33769	33785
0x8A	ADC Gain	FP32		33674	33690	33706	33722	33738	33754	33770	33786
0x8B	ADC Offset	FP32		33675	33691	33707	33723	33739	33755	33771	33787
0x8C	Reserved	FP32		33676	33692	33708	33724	33740	33756	33772	33788
0x8D	Reserved	FP32		33677	33693	33709	33725	33741	33757	33773	33789
0x8E	Reserved	FP32		33678	33694	33710	33726	33742	33758	33774	33790
0x8F	Reserved	FP32		33679	33695	33711	33727	33743	33759	33775	33791

Node 1

Index	CANopen Node 1 Analog I/O Parameters Code=0xC4		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				0	1	2	3	4	5	6	7
0x00	DAC Value	FP32		33792	33808	33824	33840	33856	33872	33888	33904
0x01	Reserved	FP32		33793	33809	33825	33841	33857	33873	33889	33905
0x02	DAC Gain	FP32		33794	33810	33826	33842	33858	33874	33890	33906
0x03	DAC Offset	FP32		33795	33811	33827	33843	33859	33875	33891	33907
0x04	Reserved	FP32		33796	33812	33828	33844	33860	33876	33892	33908
0x05	Reserved	FP32		33797	33813	33829	33845	33861	33877	33893	33909
0x06	Reserved	FP32		33798	33814	33830	33846	33862	33878	33894	33910
0x07	Reserved	FP32		33799	33815	33831	33847	33863	33879	33895	33911
0x08	ADC Value	FP32		33800	33816	33832	33848	33864	33880	33896	33912
0x09	Reserved	FP32		33801	33817	33833	33849	33865	33881	33897	33913
0x0A	ADC Gain	FP32		33802	33818	33834	33850	33866	33882	33898	33914
0x0B	ADC Offset	FP32		33803	33819	33835	33851	33867	33883	33899	33915
0x0C	Reserved	FP32		33804	33820	33836	33852	33868	33884	33900	33916
0x0D	Reserved	FP32		33805	33821	33837	33853	33869	33885	33901	33917
0x0E	Reserved	FP32		33806	33822	33838	33854	33870	33886	33902	33918
0x0F	Reserved	FP32		33807	33823	33839	33855	33871	33887	33903	33919

Index	CANopen Node 1 Analog I/O Parameters Code=0xC4		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				8	9	10	11	12	13	14	15
0x80	DAC Value	FP32		33920	33936	33952	33968	33984	34000	34016	34032
0x81	Reserved	FP32		33921	33937	33953	33969	33985	34001	34017	34033
0x82	DAC Gain	FP32		33922	33938	33954	33970	33986	34002	34018	34034
0x83	DAC Offset	FP32		33923	33939	33955	33971	33987	34003	34019	34035
0x84	Reserved	FP32		33924	33940	33956	33972	33988	34004	34020	34036
0x85	Reserved	FP32		33925	33941	33957	33973	33989	34005	34021	34037
0x86	Reserved	FP32		33926	33942	33958	33974	33990	34006	34022	34038
0x87	Reserved	FP32		33927	33943	33959	33975	33991	34007	34023	34039
0x88	ADC Value	FP32		33928	33944	33960	33976	33992	34008	34024	34040
0x89	Reserved	FP32		33929	33945	33961	33977	33993	34009	34025	34041
0x8A	ADC Gain	FP32		33930	33946	33962	33978	33994	34010	34026	34042
0x8B	ADC Offset	FP32		33931	33947	33963	33979	33995	34011	34027	34043
0x8C	Reserved	FP32		33932	33948	33964	33980	33996	34012	34028	34044
0x8D	Reserved	FP32		33933	33949	33965	33981	33997	34013	34029	34045
0x8E	Reserved	FP32		33934	33950	33966	33982	33998	34014	34030	34046
0x8F	Reserved	FP32		33935	33951	33967	33983	33999	34015	34031	34047

Node 1 (continued)

Index	CANopen Node 1 Analog I/O Parameters Code=0xC5		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				16	17	18	19	20	21	22	23
0x00	DAC Value	FP32		34048	34064	34080	34096	34112	34128	34144	34160
0x01	Reserved	FP32		34049	34065	34081	34097	34113	34129	34145	34161
0x02	DAC Gain	FP32		34050	34066	34082	34098	34114	34130	34146	34162
0x03	DAC Offset	FP32		34051	34067	34083	34099	34115	34131	34147	34163
0x04	Reserved	FP32		34052	34068	34084	34100	34116	34132	34148	34164
0x05	Reserved	FP32		34053	34069	34085	34101	34117	34133	34149	34165
0x06	Reserved	FP32		34054	34070	34086	34102	34118	34134	34150	34166
0x07	Reserved	FP32		34055	34071	34087	34103	34119	34135	34151	34167
0x08	ADC Value	FP32		34056	34072	34088	34104	34120	34136	34152	34168
0x09	Reserved	FP32		34057	34073	34089	34105	34121	34137	34153	34169
0x0A	ADC Gain	FP32		34058	34074	34090	34106	34122	34138	34154	34170
0x0B	ADC Offset	FP32		34059	34075	34091	34107	34123	34139	34155	34171
0x0C	Reserved	FP32		34060	34076	34092	34108	34124	34140	34156	34172
0x0D	Reserved	FP32		34061	34077	34093	34109	34125	34141	34157	34173
0x0E	Reserved	FP32		34062	34078	34094	34110	34126	34142	34158	34174
0x0F	Reserved	FP32		34063	34079	34095	34111	34127	34143	34159	34175

Index	CANopen Node 1 Analog I/O Parameters Code=0xC5		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				24	25	26	27	28	29	30	31
0x80	DAC Value	FP32		34176	34192	34208	34224	34240	34256	34272	34288
0x81	Reserved	FP32		34177	34193	34209	34225	34241	34257	34273	34289
0x82	DAC Gain	FP32		34178	34194	34210	34226	34242	34258	34274	34290
0x83	DAC Offset	FP32		34179	34195	34211	34227	34243	34259	34275	34291
0x84	Reserved	FP32		34180	34196	34212	34228	34244	34260	34276	34292
0x85	Reserved	FP32		34181	34197	34213	34229	34245	34261	34277	34293
0x86	Reserved	FP32		34182	34198	34214	34230	34246	34262	34278	34294
0x87	Reserved	FP32		34183	34199	34215	34231	34247	34263	34279	34295
0x88	ADC Value	FP32		34184	34200	34216	34232	34248	34264	34280	34296
0x89	Reserved	FP32		34185	34201	34217	34233	34249	34265	34281	34297
0x8A	ADC Gain	FP32		34186	34202	34218	34234	34250	34266	34282	34298
0x8B	ADC Offset	FP32		34187	34203	34219	34235	34251	34267	34283	34299
0x8C	Reserved	FP32		34188	34204	34220	34236	34252	34268	34284	34300
0x8D	Reserved	FP32		34189	34205	34221	34237	34253	34269	34285	34301
0x8E	Reserved	FP32		34190	34206	34222	34238	34254	34270	34286	34302
0x8F	Reserved	FP32		34191	34207	34223	34239	34255	34271	34287	34303

Node 2

Index	CANopen Node 2 Analog I/O Parameters Code=0xC6		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				0	1	2	3	4	5	6	7
0x00	DAC Value	FP32		34304	34320	34336	34352	34368	34384	34400	34416
0x01	Reserved	FP32		34305	34321	34337	34353	34369	34385	34401	34417
0x02	DAC Gain	FP32		34306	34322	34338	34354	34370	34386	34402	34418
0x03	DAC Offset	FP32		34307	34323	34339	34355	34371	34387	34403	34419
0x04	Reserved	FP32		34308	34324	34340	34356	34372	34388	34404	34420
0x05	Reserved	FP32		34309	34325	34341	34357	34373	34389	34405	34421
0x06	Reserved	FP32		34310	34326	34342	34358	34374	34390	34406	34422
0x07	Reserved	FP32		34311	34327	34343	34359	34375	34391	34407	34423
0x08	ADC Value	FP32		34312	34328	34344	34360	34376	34392	34408	34424
0x09	Reserved	FP32		34313	34329	34345	34361	34377	34393	34409	34425
0x0A	ADC Gain	FP32		34314	34330	34346	34362	34378	34394	34410	34426
0x0B	ADC Offset	FP32		34315	34331	34347	34363	34379	34395	34411	34427
0x0C	Reserved	FP32		34316	34332	34348	34364	34380	34396	34412	34428
0x0D	Reserved	FP32		34317	34333	34349	34365	34381	34397	34413	34429
0x0E	Reserved	FP32		34318	34334	34350	34366	34382	34398	34414	34430
0x0F	Reserved	FP32		34319	34335	34351	34367	34383	34399	34415	34431

Index	CANopen Node 2 Analog I/O Parameters Code=0xC6		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				8	9	10	11	12	13	14	15
0x80	DAC Value	FP32		34432	34448	34464	34480	34496	34512	34528	34544
0x81	Reserved	FP32		34433	34449	34465	34481	34497	34513	34529	34545
0x82	DAC Gain	FP32		34434	34450	34466	34482	34498	34514	34530	34546
0x83	DAC Offset	FP32		34435	34451	34467	34483	34499	34515	34531	34547
0x84	Reserved	FP32		34436	34452	34468	34484	34500	34516	34532	34548
0x85	Reserved	FP32		34437	34453	34469	34485	34501	34517	34533	34549
0x86	Reserved	FP32		34438	34454	34470	34486	34502	34518	34534	34550
0x87	Reserved	FP32		34439	34455	34471	34487	34503	34519	34535	34551
0x88	ADC Value	FP32		34440	34456	34472	34488	34504	34520	34536	34552
0x89	Reserved	FP32		34441	34457	34473	34489	34505	34521	34537	34553
0x8A	ADC Gain	FP32		34442	34458	34474	34490	34506	34522	34538	34554
0x8B	ADC Offset	FP32		34443	34459	34475	34491	34507	34523	34539	34555
0x8C	Reserved	FP32		34444	34460	34476	34492	34508	34524	34540	34556
0x8D	Reserved	FP32		34445	34461	34477	34493	34509	34525	34541	34557
0x8E	Reserved	FP32		34446	34462	34478	34494	34510	34526	34542	34558
0x8F	Reserved	FP32		34447	34463	34479	34495	34511	34527	34543	34559

Node 2 (continued)

Index	CANopen Node 2 Analog I/O Parameters Code=0xC7		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				16	17	18	19	20	21	22	23
0x00	DAC Value	FP32		34560	34576	34592	34608	34624	34640	34656	34672
0x01	Reserved	FP32		34561	34577	34593	34609	34625	34641	34657	34673
0x02	DAC Gain	FP32		34562	34578	34594	34610	34626	34642	34658	34674
0x03	DAC Offset	FP32		34563	34579	34595	34611	34627	34643	34659	34675
0x04	Reserved	FP32		34564	34580	34596	34612	34628	34644	34660	34676
0x05	Reserved	FP32		34565	34581	34597	34613	34629	34645	34661	34677
0x06	Reserved	FP32		34566	34582	34598	34614	34630	34646	34662	34678
0x07	Reserved	FP32		34567	34583	34599	34615	34631	34647	34663	34679
0x08	ADC Value	FP32		34568	34584	34600	34616	34632	34648	34664	34680
0x09	Reserved	FP32		34569	34585	34601	34617	34633	34649	34665	34681
0x0A	ADC Gain	FP32		34570	34586	34602	34618	34634	34650	34666	34682
0x0B	ADC Offset	FP32		34571	34587	34603	34619	34635	34651	34667	34683
0x0C	Reserved	FP32		34572	34588	34604	34620	34636	34652	34668	34684
0x0D	Reserved	FP32		34573	34589	34605	34621	34637	34653	34669	34685
0x0E	Reserved	FP32		34574	34590	34606	34622	34638	34654	34670	34686
0x0F	Reserved	FP32		34575	34591	34607	34623	34639	34655	34671	34687

Index	CANopen Node 2 Analog I/O Parameters Code=0xC7		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				24	25	26	27	28	29	30	31
0x80	DAC Value	FP32		34688	34704	34720	34736	34752	34768	34784	34800
0x81	Reserved	FP32		34689	34705	34721	34737	34753	34769	34785	34801
0x82	DAC Gain	FP32		34690	34706	34722	34738	34754	34770	34786	34802
0x83	DAC Offset	FP32		34691	34707	34723	34739	34755	34771	34787	34803
0x84	Reserved	FP32		34692	34708	34724	34740	34756	34772	34788	34804
0x85	Reserved	FP32		34693	34709	34725	34741	34757	34773	34789	34805
0x86	Reserved	FP32		34694	34710	34726	34742	34758	34774	34790	34806
0x87	Reserved	FP32		34695	34711	34727	34743	34759	34775	34791	34807
0x88	ADC Value	FP32		34696	34712	34728	34744	34760	34776	34792	34808
0x89	Reserved	FP32		34697	34713	34729	34745	34761	34777	34793	34809
0x8A	ADC Gain	FP32		34698	34714	34730	34746	34762	34778	34794	34810
0x8B	ADC Offset	FP32		34699	34715	34731	34747	34763	34779	34795	34811
0x8C	Reserved	FP32		34700	34716	34732	34748	34764	34780	34796	34812
0x8D	Reserved	FP32		34701	34717	34733	34749	34765	34781	34797	34813
0x8E	Reserved	FP32		34702	34718	34734	34750	34766	34782	34798	34814
0x8F	Reserved	FP32		34703	34719	34735	34751	34767	34783	34799	34815

Node 3

Index	CANopen Node 3 Analog I/O Parameters Code=0xC8		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				0	1	2	3	4	5	6	7
0x00	DAC Value	FP32		34816	34832	34848	34864	34880	34896	34912	34928
0x01	Reserved	FP32		34817	34833	34849	34865	34881	34897	34913	34929
0x02	DAC Gain	FP32		34818	34834	34850	34866	34882	34898	34914	34930
0x03	DAC Offset	FP32		34819	34835	34851	34867	34883	34899	34915	34931
0x04	Reserved	FP32		34820	34836	34852	34868	34884	34900	34916	34932
0x05	Reserved	FP32		34821	34837	34853	34869	34885	34901	34917	34933
0x06	Reserved	FP32		34822	34838	34854	34870	34886	34902	34918	34934
0x07	Reserved	FP32		34823	34839	34855	34871	34887	34903	34919	34935
0x08	ADC Value	FP32		34824	34840	34856	34872	34888	34904	34920	34936
0x09	Reserved	FP32		34825	34841	34857	34873	34889	34905	34921	34937
0x0A	ADC Gain	FP32		34826	34842	34858	34874	34890	34906	34922	34938
0x0B	ADC Offset	FP32		34827	34843	34859	34875	34891	34907	34923	34939
0x0C	Reserved	FP32		34828	34844	34860	34876	34892	34908	34924	34940
0x0D	Reserved	FP32		34829	34845	34861	34877	34893	34909	34925	34941
0x0E	Reserved	FP32		34830	34846	34862	34878	34894	34910	34926	34942
0x0F	Reserved	FP32		34831	34847	34863	34879	34895	34911	34927	34943

Index	CANopen Node 3 Analog I/O Parameters Code=0xC8		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				8	9	10	11	12	13	14	15
0x80	DAC Value	FP32		34944	34960	34976	34992	35008	35024	35040	35056
0x81	Reserved	FP32		34945	34961	34977	34993	35009	35025	35041	35057
0x82	DAC Gain	FP32		34946	34962	34978	34994	35010	35026	35042	35058
0x83	DAC Offset	FP32		34947	34963	34979	34995	35011	35027	35043	35059
0x84	Reserved	FP32		34948	34964	34980	34996	35012	35028	35044	35060
0x85	Reserved	FP32		34949	34965	34981	34997	35013	35029	35045	35061
0x86	Reserved	FP32		34950	34966	34982	34998	35014	35030	35046	35062
0x87	Reserved	FP32		34951	34967	34983	34999	35015	35031	35047	35063
0x88	ADC Value	FP32		34952	34968	34984	35000	35016	35032	35048	35064
0x89	Reserved	FP32		34953	34969	34985	35001	35017	35033	35049	35065
0x8A	ADC Gain	FP32		34954	34970	34986	35002	35018	35034	35050	35066
0x8B	ADC Offset	FP32		34955	34971	34987	35003	35019	35035	35051	35067
0x8C	Reserved	FP32		34956	34972	34988	35004	35020	35036	35052	35068
0x8D	Reserved	FP32		34957	34973	34989	35005	35021	35037	35053	35069
0x8E	Reserved	FP32		34958	34974	34990	35006	35022	35038	35054	35070
0x8F	Reserved	FP32		34959	34975	34991	35007	35023	35039	35055	35071

Node 3 (continued)

Index	CANopen Node 3 Analog I/O Parameters Code=0xC9		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				16	17	18	19	20	21	22	23
0x00	DAC Value	FP32		35072	35088	35104	35120	35136	35152	35168	35184
0x01	Reserved	FP32		35073	35089	35105	35121	35137	35153	35169	35185
0x02	DAC Gain	FP32		35074	35090	35106	35122	35138	35154	35170	35186
0x03	DAC Offset	FP32		35075	35091	35107	35123	35139	35155	35171	35187
0x04	Reserved	FP32		35076	35092	35108	35124	35140	35156	35172	35188
0x05	Reserved	FP32		35077	35093	35109	35125	35141	35157	35173	35189
0x06	Reserved	FP32		35078	35094	35110	35126	35142	35158	35174	35190
0x07	Reserved	FP32		35079	35095	35111	35127	35143	35159	35175	35191
0x08	ADC Value	FP32		35080	35096	35112	35128	35144	35160	35176	35192
0x09	Reserved	FP32		35081	35097	35113	35129	35145	35161	35177	35193
0x0A	ADC Gain	FP32		35082	35098	35114	35130	35146	35162	35178	35194
0x0B	ADC Offset	FP32		35083	35099	35115	35131	35147	35163	35179	35195
0x0C	Reserved	FP32		35084	35100	35116	35132	35148	35164	35180	35196
0x0D	Reserved	FP32		35085	35101	35117	35133	35149	35165	35181	35197
0x0E	Reserved	FP32		35086	35102	35118	35134	35150	35166	35182	35198
0x0F	Reserved	FP32		35087	35103	35119	35135	35151	35167	35183	35199

Index	CANopen Node 3 Analog I/O Parameters Code=0xC9		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
				DAC/ADC Number							
				24	25	26	27	28	29	30	31
0x80	DAC Value	FP32		35200	35216	35232	35248	35264	35280	35296	35312
0x81	Reserved	FP32		35201	35217	35233	35249	35265	35281	35297	35313
0x82	DAC Gain	FP32		35202	35218	35234	35250	35266	35282	35298	35314
0x83	DAC Offset	FP32		35203	35219	35235	35251	35267	35283	35299	35315
0x84	Reserved	FP32		35204	35220	35236	35252	35268	35284	35300	35316
0x85	Reserved	FP32		35205	35221	35237	35253	35269	35285	35301	35317
0x86	Reserved	FP32		35206	35222	35238	35254	35270	35286	35302	35318
0x87	Reserved	FP32		35207	35223	35239	35255	35271	35287	35303	35319
0x88	ADC Value	FP32		35208	35224	35240	35256	35272	35288	35304	35320
0x89	Reserved	FP32		35209	35225	35241	35257	35273	35289	35305	35321
0x8A	ADC Gain	FP32		35210	35226	35242	35258	35274	35290	35306	35322
0x8B	ADC Offset	FP32		35211	35227	35243	35259	35275	35291	35307	35323
0x8C	Reserved	FP32		35212	35228	35244	35260	35276	35292	35308	35324
0x8D	Reserved	FP32		35213	35229	35245	35261	35277	35293	35309	35325
0x8E	Reserved	FP32		35214	35230	35246	35262	35278	35294	35310	35326
0x8F	Reserved	FP32		35215	35231	35247	35263	35279	35295	35311	35327

Field Description	Read/ Write	Description
DAC Value	R	DAC output value
DAC Gain	R/W	DAC output gain
DAC Offset	R/W	DAC output offset
ADC Value	R	ADC input value
ADC Gain	R/W	ADC input gain
ADC Offset	R/W	ADC input offset

P36864 - P37353 Event Counter Parameters

Version 1.18.13 & Up - ACR9000 only

Field Description Code=0xD0	Mask Bit Index	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
		Object Number							
		0	1	2	3	4	5	6	7
Master Move Started	0	36864	36896	36928	36960	36992	37024	37056	37088
Master Move Ended	1	36865	36897	36929	36961	36993	37025	37057	37089
Enable Input Lost	2	36866	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drive Faulted	3	36867	36899	36931	36963	36995	37027	37059	37091
Limit Hit	4	36868	36900	36932	36964	36996	37028	37060	37092
Stall Detect	5	36869	36901	36933	36965	36997	37029	37061	37093
Program Complete	6	36870	36902	36934	36966	36998	37030	37062	37094
Encoder Disconnect	7	36871	36903	36935	36967	36999	37031	37063	37095
Encoder Phase Error	8	36872	36904	36936	36968	37000	37032	37064	37096
CANopen Node Failure	9	36873	36905	36937	36969	N/A	N/A	N/A	N/A

Field Description Code=0xD1	Mask Bit Index	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
		Object Number							
		8	9	10	11	12	13	14	15
Master Move Started	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Master Move Ended	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Enable Input Lost	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drive Faulted	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Limit Hit	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stall Detect	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Program Complete	6	37126	37158	37190	37222	37254	37286	37318	37350
Encoder Disconnect	7	37127	37159	N/A	N/A	N/A	N/A	N/A	N/A
Encoder Phase Error	8	37128	37160	N/A	N/A	N/A	N/A	N/A	N/A
CANopen Node Failure	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Field Descriptions	Read/ Write	Event Counter(s) Update
Master Move Started	R/W	Per master counters updated when master move starts if “master int pending” bit set in master flags.
Master Move Ended	R/W	Per master counters updated in “master end move” when master move ends. To enable the alarm, set the Master Move Ended Alarm bit (bit 12) in the Quaternary Master Flags.
Enable Input Lost	R/W	Single counter updated in Enable Input Service
Drive Faulted	R/W	Periodic task that checks for new drive fault will also update per slave counters. To enable the alarm, set the Drive Faulted Alarm bit (bit 0) in the Quaternary Axis Flags.
Limit Hit	R/W	TBD limit service will also update per slave counters To enable the alarm, set the Limit Hit Alarm bit (bit 1) in the Quaternary Axis Flags.
Stall Detect	R/W	TBD stall service will also update per slave counters To enable the alarm, set the Stall Detect Alarm bit (bit 2) in the Quaternary Axis Flags.
Program Complete	R/W	Per program counters updated in “Prog Task” and “Multi-task” To enable the alarm, set the Program Complete Alarm bit (bit 13) in the Program Flags.
Encoder Disconnect	R/W	Encoder periodic function will update per encoder event counters.
Encoder Phase Error	R/W	Encoder periodic function will update per encoder event counters.
CANopen Node Failure	R/W	Mailbox node state and node failure commands update per node counters

P37376 - P37391 EPL Network Parameters

EPL Network Control Parameters Code=0xD2, Index=0x00		P
Number of Controlled Nodes (CN)	LONG	37376
Reserved	LONG	37377
Reserved	LONG	37378
Reserved	LONG	37379
Reserved	LONG	37380
Reserved	LONG	37381
Reserved	LONG	37382
Reserved	LONG	37383

EPL Network Status Parameters Code=0xD2, Index=0x01		P
Network State	LONG	37384
Non-Operating Nodes Bit Reports	LONG	37385
EPL Operation Error Code	LONG	37386
EPLD Object OPENed	LONG	37387
OPENed EPLD Device Number	LONG	37388
Operation Duration in Seconds	LONG	37389
Downloading or Resetting Nodes Bits (started)	LONG	37390
Downloading or Resetting Nodes Bits (current)	LONG	37391

Field Description	Read/ Write	Description
Number of Controlled Nodes (CN)	R/W	Sets the number EPL drives (called controlled nodes) in the network.
Network State	R	Indicates the state of the EPL LED on the controller. 0= Reset or not active. The Managing Node (MN) is off, initializing, or in the reset state. 1= Basic Ethernet. The node is operating as a basic Ethernet device, and not as an EPL device. 2= Pre-operational 1. The MN is asking for node status and is configuring CNs. EPL cycles are reduced cycles, and do not contain poll requests or poll responses. 3= Pre-operational 2. EPL cycles contain poll requests and poll responses, but not all node configuration has finished. The exchanged data is ignored. 4= Ready to Operate. The Controlled Node (CN) has responded to a request from MN to enter this state, but exchanged data is still ignored. 5= Operational. The EPL network is exchanging valid data.

Field Description	Read/ Write	Description
		6= Stopped. The EPL network has stopped.
Non-Operating Nodes Bit Reports	R	0= EPLD0, 1= EPLD1, etc. If the bit is set, the node is not operating as expected.
EPL Operation Error Code	R	Indicates an EPL error has occurred. 0= No error. 1= Management Node (MN) encountered an Object Dictionary error during start. 2= Invalid user-supplied node count. The number of nodes provided in P37376 does not match the number of nodes found. 3= Error in user-supplied external node data. 4= Eternal node encountered an Object Dictionary error during start. 5= Unexpected external node found during start. 6= Error in Service Data Object (SDO). 7= Internal Error in EPL cycle start.
EPLD Object OPENed	R	-1= No objects are open for communication. See **OPEN** command. 0-15= The identity of an Ethernet Powerlink drive. For example EPLD0 as described by P37632-P37647.
OPENed EPLD Device Number	R	Indicates the device number of the EPL Drive that is open for communication. See **OPEN** command.
Operational Duration in Seconds	R	The time the network has been operating since the most recent network start (bit 16640 or **EPLC ON**).
Downloading or Resetting Nodes Bits (started)	R	Bit 0 = EPLD0, bit 1 = EPLD1, etc. The collection of nodes targeted by the most recent Aries EPL OS download or reset function.
Downloading or Resetting Nodes Bits (current)	R	Bit 0 = EPLD0, bit 1 = EPLD1, etc. The collection of nodes still underway by the most recent Aries EPL OS download or reset function

P37632 - P37887 EPLD Status & Control Parameters

Mask	EPLD Control Parameters Code=0xD3	Index	0x00	0x02	0x04	0x06	0x08	0x0A	0x0C	0x0E
			EPLD Number							
			0	1	2	3	4	5	6	7
0x01	Node ID	LONG	37632	37648	37664	37680	37696	37712	37728	37744
0x02	Reserved	LONG	37633	37649	37665	37681	37697	37713	37729	37745
0x04	Drive Mode	LONG	37634	37650	37666	37682	37698	37714	37730	37746
0x08	TCP/IP Port Number	LONG	37635	37651	37667	37683	37699	37715	37731	37747
0x10	OS Download or Reset Progress or Status	LONG	37636	37652	37668	37684	37700	37716	37732	37748
0x20	EPL Operation Error Code	LONG	37637	37653	37669	37685	37701	37717	37733	37749
0x40	Attached Axis Number	LONG	37638	37654	37670	37686	37702	37718	37734	37750
0x80	Node Status	LONG	37639	37655	37671	37687	37703	37719	37735	37751

Mask	EPLD Status Parameters Code=0xD3	Index	0x01	0x03	0x05	0x07	0x09	0x0B	0x0D	0x0F
			EPLD Number							
			0	1	2	3	4	5	6	7
0x01	Operational Duration in Seconds	LONG	37640	37656	37672	37688	37704	37720	37736	37752
0x02	Node Failure Count	LONG	37641	37657	37673	37689	37705	37721	37737	37753
0x04	Vendor ID	LONG	37642	37658	37674	37690	37706	37722	37738	37754
0x08	Compax3 Drive Error Code	LONG	37643	37659	37675	37691	37707	37723	37739	37755
0x10	Compax3 Tracking Filter	LONG	37644	37660	37676	37692	37708	37724	37740	37756
0x20	Extended Drive Data	LONG	37645	37661	37677	37693	37709	37725	37741	37757
0x40	Reserved	LONG	37646	37662	37678	37694	37710	37726	37742	37758
0x80	Reserved	LONG	37647	37663	37679	37695	37711	37727	37743	37759

Mask	EPLD Control Parameters Code=0XD3	Index	0x10	0x12	0x14	0x16	0x18	0x1A	0x1C	0x1E
			EPLD Number							
			8	9	10	11	12	13	14	15
0x01	Node ID	LONG	37760	37776	37792	37808	37824	37840	37856	37872
0x02	Reserved	LONG	37761	37777	37793	37809	37825	37841	37857	37873
0x04	Drive Mode	LONG	37762	37778	37794	37810	37826	37842	37858	37874
0x08	TCP/IP Port Number	LONG	37763	37779	37795	37811	37827	37843	37859	37875
0x10	OS Download or Reset Progress or Status	LONG	37764	37780	37796	37812	37828	37844	37860	37876
0x20	EPL Operation Error Code	LONG	37765	37781	37797	37813	37829	37845	37861	37877
0x40	Attached Axis Number	LONG	37766	37782	37798	37814	37830	37846	37862	37878
0x80	Node Status	LONG	37767	37783	37799	37815	37831	37847	37863	37879

Mask	EPLD Status Parameters Code=0xD3	Index	0x11	0x13	0x15	0x17	0x19	0x1B	0x1D	0x1F
			EPLD Number							
			8	9	10	11	12	13	14	15
0x01	Operational Duration in Seconds	LONG	37768	37784	37800	37816	37832	37848	37864	37880
0x02	Node Failure Count	LONG	37769	37785	37801	37817	37833	37849	37865	37881
0x04	Vendor ID	LONG	37770	37786	37802	37818	37834	37850	37866	37882
0x08	Compax3 Drive Error Code	LONG	37771	37787	37803	37819	37835	37851	37867	37883
0x10	Compax3 Tracking Filter	LONG	37772	37788	37804	37820	37836	37852	37868	37884
0x20	Extended Drive Data	LONG	37773	37789	37805	37821	37837	37853	37869	37885
0x40	Reserved	LONG	37774	37790	37806	37822	37838	37854	37870	37886
0x80	Reserved	LONG	37775	37791	37807	37823	37839	37855	37871	37887

Field Description	Read/ Write	Description
Node ID	R/W	On each drive, rotary switches assign an external device address. Default value is 1. Range is 1-99 (the value of the rotary switches on the Aries EPL drive)
Drive Mode	R/W	Sets the drive mode. Currently, only mode 7 exists (Aries EPL). The default value is 7.
TCP/IP Port Number	R/W	Sets the TCP/IP port number. The default port number is 5002, required for Aries EPL drives.
OS Download or Reset Progress or Status	R	Indicates the current progress, or final status of an OS download or reset initiated by ACR-View. -1 = Operation pending (this node has not started yet). 1-100 = Percentage download complete (downloads only). 0 = Download or reset successful. -5 = CRC failure at drive (downloads only). -6 = Flash save failure at drive (downloads only). -8 = Failure with TCP connection to drive.
EPL Operation Error Code	R	Indicates an EPL error has occurred. 0 = No error 1 = Management Node (MN) encountered an Object Dictionary error during start. 2 = Invalid user-supplied node count. The number of nodes provided in P37376 does not match the number of nodes found. 3 = Error in user-supplied external node data. 4 = External node encountered an Object Dictionary error during start. 5 = Unexpected external node found during start. 6 = Error in Service Data Object (SDO). 7 = Internal Error in EPL cycle start.
Attached Axis Number	R	Reports the axis number to which the EPL drive is attached. See the **ATTACH AXIS** command. -1 = No attachment present.

Field Description	Read/ Write	Description
Node Status	R	0 = Never found 1 = Found 2 = Found, then lost
Operational Duration in Seconds	R	Indicates how long a node has been operating, either from the start time of the original network operation, or since being restarted by the controller.
Node Failure Count	R	Indicates the number of times the controller has tried to restart a controlled node that stopped being operational (since the overall network became operational).
Vendor ID	R	Vendor ID is issued by EPSG and is part of a node identity object. An Aries EPL drive will report vendor 137 (0x0089). A Compax3 will report vendor ID 33554569 (0x02000089).
Compax3 Drive Error Code	R	If the connected node is a Compax3, and a fault occurs, the C3 error code will be reported. See Compax3 User Guide for complete error descriptions.
Compax3 Tracking Filter	R/W	If this value is zero, then ACR9000 generated command acceleration and velocity are sent to the Compax3. If a non-zero value is used, then this corresponds to the Compax3 object Tracking filter (2110.1) and controls the filtering to create Compax3 derived values. ACR9000 cam and gearing generate a commanded velocity, but not a commanded acceleration. If a cam or gearing application needs acceleration and velocity Feedforward, this parameter should be used.
Extended Drive Data	R/W	Default=0: Aries EPL drive will alternate updates to actual torque and following error every other EPL cycle. If set to 1, then an Aries EPL drive will cycle through updates to the parameters listed below, updating one parameter each EPL cycle. Extended Drive Data parameters are: • Custom Product ID • Encoder Position • Current Hall State • Operating Hours • Operating Minutes • Operating Milliseconds • Amplifier Cont Current Rating • Amplifier Max Current Rating • Commanded Current • Commanded Torque • Actual Torque • Actual Velocity • Shaft Power in Watts • Drive Temperature • Motor Temperature • Bus Voltage See P28672 - P30543 Drive Parameters (Axes 0-7) and P30720 - P32591 Drive Parameters (Axes 8-15).

P38144 - P38391 EPLD Position Parameters

Index	EPLD Position Parameters Code=0xD5	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			EPLD Number							
			0	1	2	3	4	5	6	7
0x00	EPLD Position	LONG	38144	38160	38176	38192	38208	38224	38240	38256
0x01	EPLD Velocity	LONG	38145	38161	38177	38193	38209	38225	38241	38257
0x02	EPLE Position	LONG	38146	38162	38178	38194	38210	38226	38242	38258
0x03	EPLE Velocity	LONG	38147	38163	38179	38195	38211	38227	38243	38259
0x04	Reserved	LONG	38148	38164	38180	38196	38212	38228	38244	38260
0x05	Reserved	LONG	38149	38165	38181	38197	38213	38229	38245	38261
0x06	Reserved	LONG	38150	38166	38182	38198	38214	38230	38246	38262
0x07	Reserved	LONG	38151	38167	38183	38199	38215	38231	38247	38263

Index	EPLD Position Parameters Code=0xD5	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			EPLD Number							
			8	9	10	11	12	13	14	15
0x80	EPLD Position	LONG	38272	38288	38304	38320	38336	38352	38368	38384
0x81	EPLD Velocity	LONG	38273	38289	38305	38321	38337	38353	38369	38385
0x82	EPLE Position	LONG	38274	38290	38306	38322	38338	38354	38370	38386
0x83	EPLE Velocity	LONG	38275	38291	38307	38323	38339	38355	38371	38387
0x84	Reserved	LONG	38276	38292	38308	38324	38340	38356	38372	38388
0x85	Reserved	LONG	38277	38293	38309	38325	38341	38357	38373	38389
0x86	Reserved	LONG	38278	38294	38310	38326	38342	38358	38374	38390
0x87	Reserved	LONG	38279	38295	38311	38327	38343	38359	38375	38391

Field Description	Read/ Write	Description
EPLD Position	R	Current position of the EPL drive's encoder in counts, updated every servo period.
EPLD Velocity	R	Signed change in EPL drive's encoder counts since the previous servo period.
EPLE Position	R	Current position of the EPL drive's secondary encoder in counts, updated every servo period.
EPLE Velocity	R	Signed change in EPL drive's secondary encoder counts since the pervious servo period.

P38656 - P38665 IEC Status & Control Parameters

Index	IEC PLC Control Parameters Code=0xD5	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Task Number							
			0	1	2	3	4	5	6	7
0x00	Periodic Task Scan Period	LONG	38656	38672	38688	38704	38720	38736	38752	38768
0x01	Reserved	LONG	38657	38673	38689	38705	38721	38737	38753	38769
0x02	Reserved	LONG	38658	38674	38690	38706	38722	38738	38754	38770
0x03	Reserved	LONG	38659	38675	38691	38707	38723	38739	38755	38771

Index	IEC PLC Status Parameters Code=0xD5	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Task Number							
			0	1	2	3	4	5	6	7
0x80	Task Type	LONG	38660	38676	38692	38708	38724	38740	38756	38772
0x81	Task Priority	LONG	38661	38677	38693	38709	38725	38741	38757	38773
0x82	Timer Task Minimum Scan Time	LONG	38662	38678	38694	38710	38726	38742	38758	38774
0x83	Timer Task Maximum Scan Time	LONG	38663	38679	38695	38711	38727	38743	38759	38775
0x84	Timer Task Current Scan Time	LONG	38664	38680	38696	38712	38728	38744	38760	38776
0x85	Number of Tasks Total	LONG	38665	38681	38697	38713	38729	38745	38761	38777

Index	IEC PLC Control Parameters Code=0xD5	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Task Number							
			8	9	10	11	12	13	14	15
0x00	Periodic Task Scan Period	LONG	38784	38800	38816	38832	38848	38864	38880	38896
0x01	Reserved	LONG	38785	38801	38817	38833	38849	38865	38881	38897
0x02	Reserved	LONG	38786	38802	38818	38834	38850	38866	38882	38898
0x03	Reserved	LONG	38787	38803	38819	38835	38851	38867	38883	38899

Index	IEC PLC Status Parameters Code=0xD5	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			Task Number							
			8	9	10	11	12	13	14	15
0x80	Task Type	LONG	38788	38804	38820	38836	38852	38868	38884	38900
0x81	Task Priority	LONG	38789	38805	38821	38837	38853	38869	38885	38901
0x82	Timer Task Minimum Scan Time	LONG	38790	38806	38822	38838	38854	38870	38886	38902
0x83	Timer Task Maximum Scan Time	LONG	38791	38807	38823	38839	38855	38871	38887	38903
0x84	Timer Task Current Scan Time	LONG	38792	38808	38824	38840	38856	38872	38888	38904
0x85	Number of Tasks Total	LONG	38793	38809	38825	38841	38857	38873	38889	38905

Field Description	Read/ Write	Description
Periodic Task Scan Period	R/W	Assigned scan period in milliseconds, 0=disabled
Task Type	R/W	Period or interrupt task type code
Task Priority	R/W	2-18, 2 is highest
Timer Task Minimum Scan Time	R/W	Shortest scan since run start (msec.)
Timer Task Maximum Scan Time	R/W	Longest scan since run start (msec.)
Timer Task Current Scan Time	R	Most recent scan time (msec.)
Number of Tasks Total	R	IEC task count, in task0 only

Bit Reference

Bit Overview

The following is an outline of the bits detailed in this guide:

Description	Bit Range	Index
Opto-isolated Inputs	**Bit0 – Bit31**	**0x00**
Opto-isolated Outputs	**Bit32 – Bit63**	**0x00**
Miscellaneous Inputs	**Bit64 – Bit95**	**0x00**
Miscellaneous Outputs	**Bit96 – Bit127**	**0x00**
User Flags Group 1-4	**Bit128 – Bit255**	**0x00**
Expansion I/O Flags	**Bit256 – Bit511**	**0x01**
Master Flags (0-7)	**Bit512 – Bit767**	**0x02**
Axis Flags (0-7)	**Bit768 – Bit1023**	**0x03**
Program Flags	**Bit1024 – Bit1535**	**0x04**
PLC Flags	**Bit1536 – Bit1791**	**0x06**
FIFO/Stream 1 Stream Flags	**Bit1792 – Bit1823**	**0x07**
LPT1 Stream Flags	**Bit1824 – Bit1855**	**0x07**
COM1 Stream Flags	**Bit1856 – Bit1887**	**0x07**
COM2 Stream Flags	**Bit1888 – Bit1919**	**0x07**
User Flags Group 5-8	**Bit1920 – Bit2047**	**0x07**
Secondary Master Flags (0-7)	**Bit2048 – Bit2303**	**0x08**
Secondary Axis Flags (0-7)	**Bit2304 – Bit2559**	**0x09**
Encoder Flags (0-15)	**Bit2560 – Bit3071**	**0x0A**
Encoder Flags (16-23)	**Bit3072 – Bit3327**	**0x0C**
EPLD Digital Inputs	**Bit3328 – Bit3455**	**0x0D**
EPLD Digital Outputs	**Bit3840 – Bit3967**	**0x0F**
DAC Flags	**Bit4096 – Bit4607**	**0x10**
ADC Flags	**Bit4608 – Bit5119**	**0x12**
Tertiary Master Flags	**Bit5120 – Bit5631**	**0x14**
Miscellaneous Control Flags Groups 1-4	**Bit5632 – Bit5759**	**0x16**
Stream 2 Flags	**Bit5760 – Bit5791**	**0x16**
DPCB/Stream 3 Flags	**Bit5792 – Bit5823**	**0x16**
FSTAT Flags	**Bit5824 – Bit5855**	**0x16**
Quaternary Master Flag	**Bit5888 – Bit6399**	**0x17**
Tertiary Axis Flag	**Bit6400 – Bit6911**	**0x19**
Reserved	**Bit6912 – Bit7167**	**0x1B**
PLC Flags (8-15)	**Bit7168 – Bit7423**	**0x1C**

Description	Bit Range	Index
Master Axes Flag (8-15)	**Bit7424 – Bit7679**	**0x1D**
Axis Flag (8-15)	**Bit7680 – Bit7935**	**0x1E**
Secondary Master Flag (8-15)	**Bit7936 – Bit8191**	**0x1F**
Secondary Axis Flag (8-15)	**Bit8192 – Bit8447**	**0x20**
Quaternary Axis Flag (0-7)	**Bit8448 – Bit8703**	**0x21**
Quaternary Axis Flag (8-15)	**Bit8704 – Bit8959**	**0x22**
Drive Status 1 Flags (0-7)	**Bit9472 – Bit9727**	**0x25**
Drive Status 1 Flags (8-15)	**Bit9728 – Bit9983**	**0x26**
Drive Status 2 Flags (0-7)	**Bit9984 – Bit10239**	**0x27**
Drive Status 2 Flags (8-15)	**Bit10240 – Bit10495**	**0x28**
Stream Flags for Drive Talk	**Bit11008 – Bit11263**	**0x2B**
Quinary Axis Flag (0-7)	**Bit16128 – Bit16383**	**0x3F**
Quinary Axis Flag (8-15)	**Bit16384 – Bit16639**	**0x40**
EPL Network Flags	**Bit16640 – Bit16660**	**0x41**
IEC Control and Status Flags	**Bit16896 – Bit16923**	**0x42**
Senary Axis Flags ((0-7)	**Bit17153 – Bit17407**	**0x43**
Senary Axis Flags (8-15)	**Bit17408 – Bit17663**	**0x44**

Bit0 - Bit31 Opto-isolated Inputs

Flag Parameter Code=0x10; Index=0x00; Mask=0x01			4096
Flag Description	**Physical Pinout**	**Bit Index**	**Bit Number**
INP 00	P4-1	0	0
INP 01	P4-2	1	1
INP 02	P4-3	2	2
INP 03	P4-4	3	3
INP 04	P4-5	4	4
INP 05	P4-6	5	5
INP 06	P4-7	6	6
INP 07	P4-8	7	7
INP 08	P4-9	8	8
INP 09	P4-10	9	9
INP 10	P4-11	10	10
INP 11	P4-12	11	11
INP 12	P4-13	12	12
INP 13	P4-14	13	13
INP 14	P4-15	14	14
INP 15	P4-16	15	15
INP 16	P4-17	16	16
INP 17	P4-18	17	17
INP 18	P4-19	18	18
INP 19	P4-20	19	19
INP 20	P4-21	20	20
INP 21	P4-22	21	21
INP 22	P4-23	22	22
INP 23	P4-24	23	23
INP 24	P4-25	24	24
INP 25	P4-26	25	25
INP 26	P4-27	26	26
INP 27	P4-28	27	27
INP 28	P4-29	28	28
INP 29	P4-20	29	29
INP 30	P4-31	30	30
INP 31	P4-32	31	31

Field Description	Read/ Write	Description
Input	R	Indicates the state of the physical input.

Bit32 - Bit63 Opto-isolated Outputs

Flag Parameter Code=0x10; Index=0x00; Mask=0x02			4097
Flag Description	**Physical Pinout**	**Bit Index**	**Bit Number**
OUT 32	P3-1	0	32
OUT 33	P3-2	1	33
OUT 34	P3-3	2	34
OUT 35	P3-4	3	35
OUT 36	P3-5	4	36
OUT 37	P3-6	5	37
OUT 38	P3-7	6	38
OUT 39	P3-8	7	39
OUT 40	P3-9	8	40
OUT 41	P3-10	9	41
OUT 42	P3-11	10	42
OUT 43	P3-12	11	43
OUT 44	P3-13	12	44
OUT 45	P3-14	13	45
OUT 46	P3-15	14	46
OUT 47	P3-16	15	47
OUT 48	P3-17	16	48
OUT 49	P3-18	17	49
OUT 50	P3-19	18	50
OUT 51	P3-20	19	51
OUT 52	P3-21	20	52
OUT 53	P3-22	21	53
OUT 54	P3-23	22	54
OUT 55	P3-24	23	55
OUT 56	P3-25	24	56
OUT 57	P3-26	25	57
OUT 58	P3-27	26	58
OUT 59	P3-28	27	59
OUT 60	P3-29	28	60
OUT 61	P3-20	29	61
OUT 62	P3-31	30	62
OUT 63	P3-32	31	63

Field Description	Read/ Write	Description
Output	R	Indicates the state of the physical output.

Bit32 - Bit63 Opto-isolated Outputs (ACR9000)

Flag Parameter Code=0x10; Index=0x00; Mask=0x02			4097
Flag Description	**Physical Pinout**	**Bit Index**	**Bit Number**
OUT 32	P3-1	0	32
OUT 33	P3-2	1	33
OUT 34	P3-3	2	34
OUT 35	P3-4	3	35
OUT 36	P3-5	4	36
OUT 37	P3-6	5	37
OUT 38	P3-7	6	38
OUT 39	P3-8	7	39
Drive Enable Output 0	P3-9	8	40
Drive Enable Output 1	P3-10	9	41
Drive Enable Output 2	P3-11	10	42
Drive Enable Output 3	P3-12	11	43
Drive Enable Output 4	P3-13	12	44
Drive Enable Output 5	P3-14	13	45
Drive Enable Output 6	P3-15	14	46
Drive Enable Output 7	P3-16	15	47
Drive Reset Output 0	P3-17	16	48
Drive Reset Output 1	P3-18	17	49
Drive Reset Output 2	P3-19	18	50
Drive Reset Output 3	P3-20	19	51
Drive Reset Output 4	P3-21	20	52
Drive Reset Output 5	P3-22	21	53
Drive Reset Output 6	P3-23	22	54
Drive Reset Output 7	P3-24	23	55
LED 0 Green	P3-25	24	56
LED 0 Red	P3-26	25	57
LED 1 Green	P3-27	26	58
LED 1 Red	P3-28	27	59
LED 2 Green	P3-29	28	60
LED 2 Red	P3-20	29	61
LED 3 Green	P3-31	30	62
LED 3 Red	P3-32	31	63

Field Description	Read/ Write	Description
Output	R	Indicates the state of the physical output.
Drive Enable Output	R/W	If the Enable Drive I/O bit (bit index 20) in the Quaternary Axis flags is clear, you can then control the state of the Drive Enable Output.
Drive Reset Output	R/W	If the Enable Drive I/O bit (bit index 20) in the Quaternary Axis flags is clear, you can then control the state of the Drive Enable Output.
LED Green	R/W	If the Enable Drive I/O bit (bit index 20) in the Quaternary Axis flags is clear, you can then control the state of the Drive Enable Output.
LED Red	R/W	If the Enable Drive I/O bit (bit index 20) in the Quaternary Axis flags is clear, you can then control the state of the Drive Enable Output.

Bit64 - Bit95 Miscellaneous Inputs

Flag Parameter Code=0x10; Index=0x00; Mask=0x04		4098
Flag Description	**Bit Index**	**Bit Number**
DIP Switch Input 0 (SW1-8)	0	64
DIP Switch Input 1 (SW1-7)	1	65
DIP Switch Input 2 (SW1-6)	2	66
DIP Switch Input 3 (SW1-5)	3	67
DIP Switch Input 4 (SW1-4)	4	68
DIP Switch Input 5 (SW1-3)	5	69
DIP Switch Input 6 (SW1-2)	6	70
DIP Switch Input 7 (SW1-1)	7	71
Reserved	8	72
Reserved	9	73
Reserved	10	74
Reserved	11	75
Reserved	12	76
Reserved	13	77
Reserved	14	78
Reserved	15	79
20 ms Clock Pulse	16	80
100 ms Clock Pulse	17	81
1 Sec Clock Pulse	18	82
1 Minute Clock Pulse	19	83
Reserved	20	84
Reserved	21	85
Reserved	22	86
Reserved	23	87
PLS0 On	24	88
PLS1 On	25	89
PLS2 On	26	90
PLS3 On	27	91
PLS4 On	28	92
PLS5 On	29	93
PLS6 On	30	94
PLS7 On	31	95

Field Description	Read/ Write	Description
DIP Switch Input	R	Indicates the physical state of the DIP switch (not applicable to ACR9000).
20 ms Clock Pulse	R	Provides a real-time clock. The bit state changes every one-half clock pulse.
100 ms Clock Pulse	R	Provides a real-time clock. The bit state changes every one-half clock pulse.
1 Second Clock Pulse	R	Provides a real-time clock. The bit state changes every one-half clock pulse.
1 Minute Clock Pulse	R	Provides a real-time clock. The bit state changes every one-half clock pulse.
PLS On	R	The bit is set when the programmable limit switch is enabled. For more information, see the PLS ON command.

Bit64 - Bit95 Miscellaneous Inputs (ACR9000)

ACR9000 only

Flag Parameter Code=0x10; Index=0x00; Mask=0x04		4098
Flag Description	**Bit Index**	**Bit Number**
Drive Fault Input 0	0	64
Drive Fault Input 1	1	65
Drive Fault Input 2	2	66
Drive Fault Input 3	3	67
Drive Fault Input 4	4	68
Drive Fault Input 5	5	69
Drive Fault Input 6	6	70
Drive Fault Input 7	7	71
Trigger Input INP72	8	72
Trigger Input INP73	9	73
Trigger Input INP74	10	74
Trigger Input INP75	11	75
Trigger Input INP76	12	76
Trigger Input INP77	13	77
Trigger Input INP78	14	78
Trigger Input INP79	15	79
20 ms Clock Pulse	16	80
100 ms Clock Pulse	17	81
1 Sec Clock Pulse	18	82
1 Minute Clock Pulse	19	83
Reserved	20	84
Reserved	21	85
Reserved	22	86
Reserved	23	87
PLS0 On	24	88
PLS1 On	25	89
PLS2 On	26	90
PLS3 On	27	91
PLS4 On	28	92
PLS5 On	29	93
PLS6 On	30	94
PLS7 On	31	95

Field Description	Read/ Write	Description
Drive Fault Input	R	Indicates the physical state of the drive's fault input.
Trigger Input	R	Indicates the physical state of the drives high-speed input.
20 ms Clock Pulse	R	Provides a real-time clock. The bit state changes every one-half clock pulse.
100 ms Clock Pulse	R	Provides a real-time clock. The bit state changes every one-half clock pulse.
1 Second Clock Pulse	R	Provides a real-time clock. The bit state changes every one-half clock pulse.
1 Minute Clock Pulse	R	Provides a real-time clock. The bit state changes every one-half clock pulse.
PLS On	R	The bit is set when the programmable limit switch is enabled. For more information, see the PLS ON command.

Bit96 - Bit127 Miscellaneous Outputs (ACR1505 and ACR8020)

Flag Parameter Code=0x10; Index=0x00; Mask=0x08		4099
Flag Description	**Bit Index**	**Bit Number**
LED Bank Output 0 (D34)	0	96
LED Bank Output 1 (D35)	1	97
LED Bank Output 2 (D36)	2	98
LED Bank Output 3 (D37)	3	99
LED Bank Output 4 (D38)	4	100
LED Bank Output 5 (D39)	5	101
LED Bank Output 6 (D40)	6	102
LED Bank Output 7 (D41)	7	103
Sample Trigger Armed	8	104
Sample In Progress	9	105
Sample Mode Select	10	106
Sample Trigger Latched	11	107
Reserved	12	108
Reserved	13	109
Reserved	14	110
Reserved	15	111
Trigger AT Bus Interrupt	16	112
Trigger Software Capture	17	113
Reserved	18	114
Reserved	19	115
Expansion I/O Enable 0	20	116
Expansion I/O Enable 1	21	117
Expansion I/O Enable 2	22	118
Expansion I/O Enable 3	23	119
Reserved	24	120
Reserved	25	121
Reserved	26	122
Reserved	27	123
Reserved	28	124
Reserved	29	125
Reserved	30	126
Reserved	31	127

Field Description	Read/ Write	Description
LED Bank Output	R/W	Controls the state of the LED bank's output.
Sample Trigger Armed	R	Controls the monitoring of the data sample trigger, which sets the Sample in Progress bit. The bit clears when all sample channels are filled, thereby indicating the sample is complete.
Sample In Progress	R/W	Controls sampling, and is normally set by a sample trigger condition. In addition, this bit can be set manually. The bit clears when all sample channels are filled. If the Sample Mode Select is set to edge trigger mode, the bit clears after every sample. This prevents the controller from taking multiple samples on the edge trigger condition.
Sample Mode Select	R/W	Controls the sample mode: Continuous—Bit is clear. In continuous mode, a trigger event sets the Sample In Progress bit, and the controller takes a sample ever servo interrupt (or sample period) until all sample channels are filled. Edge Trigger—Bit is set. In the edge trigger mode, a trigger edge sets the Sample In Progress bit. After a sample is taken, the controller clears the Sample In Progress bit.
Sample Trigger Latched	R	Indicates the previous state of the trigger event for detecting trigger edges. If the trigger event is detected and the previous trigger condition was clear, the controller takes a sample.
Trigger AT Bus Interrupt	R/W	Controls the bus interrupt for bus based controllers. When set, a bus interrupt is sent. In the ACR9000 controller, the interrupt causes an Ethernet User Alarm.
Trigger Software Capture	R/W	Controls a software encoder capture of all axes. When set, a software capture is taken and stored in the Axis Parameters (bit index 5).
Expansion I/O Enable	R	Indicates expansion I/O is present for bus based controllers. When the controller detects expansion I/O is present it sets the Expansion I/O Enable bit. When set, controller checks the bit and subsequently the expansion I/O each servo period.

Bit96 - Bit127 Miscellaneous Outputs (ACR90x0 and Aries Controller)

ACR90x0 and Aries Controller only

Flag Parameter Code=0x10; Index=0x00; Mask=0x08		4099
Flag Description	**Bit Index**	**Bit Number**
LED 4 Green	0	96
LED 4 Red	1	97
LED 5 Green	2	98
LED 5 Red	3	99
LED 6 Green	4	100
LED 6 Red	5	101
LED 7 Green	6	102
LED 7 Red	7	103
Sample Trigger Armed	8	104
Sample In Progress	9	105
Sample Mode Select	10	106
Sample Trigger Latched	11	107
Reserved	12	108
Reserved	13	109
Reserved	14	110
Reserved	15	111
Trigger AT Bus Interrupt	16	112
Trigger Software Capture	17	113
Trigger EPLD Soft Capture	18	114
Trigger EPLE Soft Capture	19	115
Expansion I/O Enable 0	20	116
Expansion I/O Enable 1	21	117
Expansion I/O Enable 2	22	118
Expansion I/O Enable 3	23	119
Reserved	24	120
Reserved	25	121
Reserved	26	122
Reserved	27	123
Reserved	28	124
Reserved	29	125
Reserved	30	126

Flag Parameter Code=0x10; Index=0x00; Mask=0x08		4099
Flag Description	**Bit Index**	**Bit Number**
Reserved	31	127

Field Description	Read/ Write	Description
LED Bank Output	R/W	Controls the state of the LED bank's output.
Sample Trigger Armed	R	Controls the monitoring of the data sample trigger, which sets the Sample in Progress bit. The bit clears when all sample channels are filled, thereby indicating the sample is complete.
Sample In Progress	R/W	Controls sampling, and is normally set by a sample trigger condition. In addition, this bit can be set manually. The bit clears when all sample channels are filled. If the Sample Mode Select is set to edge trigger mode, the bit clears after every sample. This prevents the controller from taking multiple samples on the edge trigger condition.
Sample Mode Select	R/W	Controls the sample mode: Continuous—Bit is clear. In continuous mode, a trigger event sets the Sample In Progress bit, and the controller takes a sample ever servo interrupt (or sample period) until all sample channels are filled. Edge Trigger—Bit is set. In the edge trigger mode, a trigger edge sets the Sample In Progress bit. After a sample is taken, the controller clears the Sample In Progress bit.
Sample Trigger Latched	R	Indicates the previous state of the trigger event for detecting trigger edges. If the trigger event is detected and the previous trigger condition was clear, the controller takes a sample.
Trigger AT Bus Interrupt	R/W	Controls the bus interrupt for bus based controllers. When set, a bus interrupt is sent. In the ACR9000 controller, the interrupt causes an Ethernet User Alarm.
Trigger Software Capture	R/W	Controls a software encoder capture of all axes. When set, a software capture is taken and stored in the Axis Parameters (bit index 5. For example, P12293 for Axis0.)
Trigger EPLD Soft Capture	R/W	Controls a software encoder capture of all EPL axes primary encoders. When set, a software capture is taken and stored in the Axis Parameters, Software Capture (parameter index 5. For example P12293 for Axis0.)
Trigger EPLE Soft Capture	R/W	Controls a software encoder of all EPL axes secondary encoders. When set, a software capture is taken and stored in the Axis Parameters, Software Capture (parameter index 5. For example P12293 for Axis0.)
Expansion I/O Enable	R	Indicates expansion I/O is present for bus based controllers. When the controller detects expansion I/O is present it sets the Expansion I/O Enable bit. When set, controller checks the bit and subsequently the expansion I/O each servo period.

Bit128 - Bit255 User Flags Group 1-4

	Mask	0x10	0x20	0x40	0x80
Flag Parameters Code=0x10; Index=0x00		**4100**	**4101**	**4102**	**4103**
Flag Description	**Bit Index**	**User Group**			
		0	**1**	**2**	**3**
User defined	0	128	160	192	224
User defined	1	129	161	193	225
User defined	2	130	162	194	226
User defined	3	131	163	195	227
User defined	4	132	164	196	228
User defined	5	133	165	197	229
User defined	6	134	166	198	230
User defined	7	135	167	199	231
User defined	8	136	168	200	232
User defined	9	137	169	201	233
User defined	10	138	170	202	234
User defined	11	139	171	203	235
User defined	12	140	172	204	236
User defined	13	141	173	205	237
User defined	14	142	174	206	238
User defined	15	143	175	207	239
User defined	16	144	176	208	240
User defined	17	145	177	209	241
User defined	18	146	178	210	242
User defined	19	147	179	211	243
User defined	20	148	180	212	244
User defined	21	149	181	213	245
User defined	22	150	182	214	246
User defined	23	151	183	215	247
User defined	24	152	184	216	248
User defined	25	153	185	217	249
User defined	26	154	186	218	250
User defined	27	155	187	219	251
User defined	28	156	188	220	252
User defined	29	157	189	221	253
User defined	30	158	190	222	254
User defined	31	159	191	223	255

Field Description	Read/ Write	Description
User Defined	R/W	Controls the bit for user application purposes only. It does not affect controller functions.

Bit256 - Bit511 Expansion I/O Flags

Flag Parameter Code=0x10; Index=0x01		Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
			4104	4105	4106	4107	4108	4109	4110	4111
			Expansion I/O Board Number							
I/O Number		Bit Index	0		1		2		3	
INP	OUT		INP	OUT	INP	OUT	INP	OUT	INP	OUT
00	32	0	256	288	320	352	384	416	448	480
01	33	1	257	289	321	353	385	417	449	481
02	34	2	258	290	322	354	386	418	450	482
03	35	3	259	291	323	355	387	419	451	483
04	36	4	260	292	324	356	388	420	452	484
05	37	5	261	293	325	357	389	421	453	485
06	38	6	262	294	326	358	390	422	454	486
07	39	7	263	295	327	359	391	423	455	487
08	40	8	264	296	328	360	392	424	456	488
09	41	9	265	297	329	361	393	425	457	489
10	42	10	266	298	330	362	394	426	458	490
11	43	11	267	299	331	363	395	427	459	491
12	44	12	268	300	332	364	396	428	460	492
13	45	13	269	301	333	365	397	429	461	493
14	46	14	270	302	334	366	398	430	462	494
15	47	15	271	303	335	367	399	431	463	495
16	48	16	272	304	336	368	400	432	464	496
17	49	17	273	305	337	369	401	433	465	497
18	50	18	274	306	338	370	402	434	466	498
19	51	19	275	307	339	371	403	435	467	499
20	52	20	276	308	340	372	404	436	468	500
21	53	21	277	309	341	373	405	437	469	501
22	54	22	278	310	342	374	406	438	470	502
23	55	23	279	311	343	375	407	439	471	503
24	56	24	280	312	344	376	408	440	472	504
25	57	25	281	313	345	377	409	441	473	505
26	58	26	282	314	346	378	410	442	474	506
27	59	27	283	315	347	379	411	443	475	507
28	60	28	284	316	348	380	412	444	476	508
29	61	29	285	317	349	381	413	445	477	509
30	62	30	286	318	350	382	414	446	478	510
31	63	31	287	319	351	383	415	447	479	511

Bit512 - Bit767 Master Flags (Masters 0-7)

Warning — The function of the “Kill All Moves” and “Stop All Moves” flags has changed in Firmware Versions 1.17.05 and above.

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x02		**4112**	**4113**	**4114**	**4115**	**4116**	**4117**	**4118**	**4119**
Status Flags	**Bit Index**	**MASTER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Accelerating	0	512	544	576	608	640	672	704	736
Decelerating	1	513	545	577	609	641	673	705	737
Stopping	2	514	546	578	610	642	674	706	738
Jerking	3	515	547	579	611	643	675	707	739
In Motion	4	516	548	580	612	644	676	708	740
Move Buffered	5	517	549	581	613	645	677	709	741
Feedholding	6	518	550	582	614	646	678	710	742
In Feedhold	7	519	551	583	615	647	679	711	743

Control Flags	**Bit Index**	**MASTER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Feedhold Request	8	520	552	584	616	648	680	712	744
Cycle Start Request	9	521	553	585	617	649	681	713	745
Kill All Moves	10	522	554	586	618	650	682	714	746
Stop All Moves	11	523	555	587	619	651	683	715	747
FVEL Zero Pending	12	524	556	588	620	652	684	716	748
FVEL Zero Active	13	525	557	589	621	653	685	717	749
FOV/ROV Lock Pending	14	526	558	590	622	654	686	718	750
FOV/ROV Lock Active	15	527	559	591	623	655	687	719	751

Limit Flags	**Bit Index**	**MASTER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Not In Position (IPB)	16	528	560	592	624	656	688	720	752
Not Excess Error (EXC)	17	529	561	593	625	657	689	721	753
Within A Limit (ALM)	18	530	562	594	626	658	690	722	754
Not Within B Limit (BLM)	19	531	563	595	627	669	691	723	755
Not Torque Limit (TLM)	20	532	564	596	628	660	692	724	756
Not In Torque Band (ITB)	21	533	565	597	629	661	693	725	757
Reserved	22	534	566	598	630	662	694	726	758
Reserved	23	535	567	599	631	663	695	727	759

Sequence Flags	Bit Index	MASTER Number							
		0	1	2	3	4	5	6	7
Increment Count	24	536	568	600	632	664	696	728	760
Decrement Count	25	537	569	601	633	665	697	729	761
Interrupt On Move	26	538	570	602	634	666	698	730	762
TRG Pending	27	539	571	603	635	667	699	731	763
Start Move Inhibit	28	540	572	604	636	668	700	732	764
REN Request Flag	29	541	573	605	637	669	701	733	765
Cycle Start Lockout	30	542	574	606	638	670	702	734	766
Reserved	31	543	575	607	639	671	703	735	767

Status Flags

Field Description	Read/ Write	Description
Accelerating	R (f)	Flag will be set if the master is currently accelerating using the ACC ramp.
Decelerating	R (f)	Flag will be set if the master is currently decelerating using the DEC ramp.
Stopping	R (f)	Flag will be set if the master is currently decelerating to a complete stop using STP ramp.
Jerking	R (f)	Flag will be set if the master acceleration is changing using the JRK ramp.
In Motion	R (f)	Flag set if the master is currently in a move, this Flag will also stay activated when the master is in feedhold.
Move Buffered	R (f)	Flag set if the master currently has a move pending (buffered) while a previous move is in progress. This Flag will clear when there are no moves pending.
Feedholding	R (f)	Flag set if the master has received a feedhold request. The attached axes are decelerating or stopped. This Flag will clear when a Cycle Start request is received.
In Feedhold	R (f)	Flag set if the master has received a feedhold request and the attached axes have stopped. This Flag will clear when a Cycle Start request is received.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Control Flags

Field Description	Read/ Write	Description
Feedhold Request	R/W (s)	This Flag will cause the current move to decelerate to zero and set the Feedholding status flag. Processor acknowledgment clears the Flag.
Cycle Start Request	R/W (s)	This Flag will cause the move in progress when a Feedhold Request was processed to accelerate and continue the moves. Processor acknowledgment clears the Flag.
Kill All Moves	R/W (s)	See Flag description on following page.
Stop All Moves	R/W (s)	See Flag description on following page.
FVEL Zero Pending	R/W (s)	State of "FVEL zero" flag at start of next move.
FVEL Zero Active	R/W (s)	When this flag is set, use 0 for FVEL instead of FVEL setting.
FOV/ROV Lock Pending	R/W (s)	State of "FOV/ROV lock" flag at start of next move.
FOV/ROV Lock	R/W (s)	When this flag is set:

Field Description	Read/ Write	Description
Active		Use 1.0 for FOV instead of FOV setting, during feed moves. Use 1.0 for ROV instead of ROV setting during rapid moves.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

The Kill All Moves and Stop All Moves flag functions are user selectable via the Secondary Master Flags Bit Index 4 control flag, Enable Clear Request, as follows:

Secondary Master Flag Enable Clear Request – Cleared (DEFAULT – Compatible with Firmware Version 1.17.05 and above)		
Field Description	Read/ Write	Description
Kill All Moves	R/W (s)	Setting this Flag will stop all moves without using any acceleration or deceleration ramps. This flag does not halt any programs or PLCs. The user is responsible for clearing this Flag.
Stop All Moves	R/W (s)	Setting this Flag will cause the master to respond the same as receiving a Feedhold Request, wait for "In Feedhold" flag, and then follow with a Kill All Moves. Processor acknowledgment clears the Kill All Moves Flag. The user is responsible for clearing the Kill All Moves Flag.

Secondary Master Flag Enable Clear Request – Set (Compatible with Firmware Version 1.17.04 and below)		
Field Description	Read/ Write	Description
Kill All Moves	R/W (s)	Setting this Flag will stop all moves without using any acceleration or deceleration ramps. This flag does not halt any programs or PLCs. Processor acknowledgment clears the Kill All Moves Flag.
Stop All Moves	R/W (s)	Setting this Flag will cause the master to respond the same as receiving a Feedhold Request, wait for "In Feedhold" flag, and then follow with a Kill All Moves. Processor acknowledgment clears the Kill All Moves Flag.

Limit Flags

Field Description	Read/ Write	Description
Not In Position	R (s)	Flag will be set whenever any attached axes has a following error that is outside of its In-Position Band (IPB), or the axis is in motion.
Not Excess Error	R (s)	Flag will be set if all of the attached axes has a following error that is within their Excess Error bands (EXC)
Within A Limit	R (s)	Flag will be set if all attached axes have a command position that is within the values set by Stroke Limit `A' (ALM)
Not Within B Limit	R (s)	Flag will be set if any attached axes has a command position that is outside of values set by Stroke Limit `B' (BLM)
Not Torque Limit	R (s)	Flag will be set if none of the attached DAC outputs is being torque limited. This is set by the value of Torque Limit. (TLM)
Not in Torque Band	R (s)	Flag will be set if any attached DAC output is outside of the torque band. This is set by the value of In-Torque Band. (ITB)

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Sequence Flags

Field Description	Read/ Write	Description
Increment Count	R/W (f)	When this flag is set, the move counter increments when a move starts.
Decrement Count	R/W (f)	When this flag is set, the move counter decrements when a move starts.
Interrupt On Move	R/W (f)	When this flag is set, an interrupt is sent to the AT Bus when a move is fetched from FIFO and buffered.
TRG Pending	R/W (f)	This flag is set when the master is waiting for TRG condition to become true.
Start Move Inhibit	R/W (f)	When this flag is set, buffered moves are prevented from starting. This flag is used internally by the BLK/STEP sequence.
REN Request Flag	R/W (s)	When This flag is set, the attached axes will perform a REN command. Flag is cleared on operation.
Cycle Start Lockout	R/W (f)	When this f lag is set, the master will ignore cycle start requests.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Bit7424 - Bit7679 Master Flags (Masters 8-15)

Warning — The function of the “Kill All Moves” and “Stop All Moves” flags has changed in Firmware Versions 1.17.05 and above.

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x1D		**4328**	**4329**	**4330**	**4331**	**4332**	**4333**	**4334**	**4335**
Status Flags	**Bit Index**	**MASTER Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Accelerating	0	7424	7456	7488	7520	7552	7584	7616	7648
Decelerating	1	7425	7457	7489	7521	7553	7585	7617	7649
Stopping	2	7426	7458	7490	7522	7554	7586	7618	7650
Jerking	3	7427	7459	7491	7523	7555	7587	7619	7651
In Motion	4	7428	7460	7492	7524	7556	7588	7620	7652
Move Buffered	5	7429	7461	7493	7525	7557	7589	7621	7653
Feedholding	6	7430	7462	7494	7526	7558	7590	7622	7654
In Feedhold	7	7431	7463	7495	7527	7559	7591	7623	7655

Control Flags	**Bit Index**	**MASTER Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Feedhold Request	8	7432	7464	7496	7528	7560	7592	7624	7656
Cycle Start Request	9	7433	7465	7497	7529	7561	7593	7625	7657
Kill All Moves	10	7434	7466	7498	7530	7562	7594	7626	7658
Stop All Moves	11	7435	7467	7499	7531	7563	7595	7627	7659
FVEL Zero Pending	12	7436	7468	7500	7532	7564	7596	7628	7660
FVEL Zero Active	13	7437	7469	7501	7533	7565	7597	7629	7661
FOV/ROV Lock Pending	14	7438	7470	7502	7534	7566	7598	7630	7662
FOV/ROV Lock Active	15	7439	7471	7503	7535	7567	7599	7631	7663

Limit Flags	**Bit Index**	**MASTER Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Not In Position (IPB)	16	7440	7472	7504	7536	7568	7600	7632	7664
Not Excess Error (EXC)	17	7441	7473	7505	7537	7569	7601	7633	7665
Within A Limit (ALM)	18	7442	7474	7506	7538	7570	7602	7634	7666
Not Within B Limit (BLM)	19	7443	7475	7507	7539	7571	7603	7635	7667
Not Torque Limit (TLM)	20	7444	7476	7508	7540	7572	7604	7636	7668
Not In Torque Band (ITB)	21	7445	7477	7509	7541	7573	7605	7637	7669
Reserved	22	7446	7478	7510	7542	7574	7606	7638	7670
Reserved	23	7447	7479	7511	7543	7575	7607	7639	7671

Sequence Flags	Bit Index	MASTER Number							
		8	9	10	11	12	13	14	15
Increment Count	24	7448	7480	7512	7544	7576	7608	7640	7672
Decrement Count	25	7449	7481	7513	7545	7577	7609	7641	7673
Interrupt On Move	26	7450	7482	7514	7546	7578	7610	7642	7674
TRG Pending	27	7451	7483	7515	7547	7579	7611	7643	7675
Start Move Inhibit	28	7452	7484	7516	7548	7580	7612	7644	7676
REN Request Flag	29	7453	7485	7517	7549	7581	7613	7645	7677
Cycle Start Lockout	30	7454	7486	7518	7550	7582	7614	7646	7678
Reserved	31	7455	7487	7519	7551	7583	7615	7647	7679

Status Flags

Field Description	Read/ Write	Description
Accelerating	R (f)	Flag will be set if the master is currently accelerating using the ACC ramp.
Decelerating	R (f)	Flag will be set if the master is currently decelerating using the DEC ramp.
Stopping	R (f)	Flag will be set if the master is currently decelerating to a complete stop using STP ramp.
Jerking	R (f)	Flag will be set if the master acceleration is changing using the JRK ramp.
In Motion	R (f)	Flag set if the master is currently in a move, this Flag will also stay activated when the master is in feedhold.
Move Buffered	R (f)	Flag set if the master currently has a move pending (buffered) while a previous move is in progress. This Flag will clear when there are no moves pending.
Feedholding	R (f)	Flag set if the master has received a feedhold request. The attached axes are decelerating or stopped. This Flag will clear when a Cycle Start request is received.
In Feedhold	R (f)	Flag set if the master has received a feedhold request and the attached axes have stopped. This Flag will clear when a Cycle Start request is received.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Control Flags

Field Description	Read/ Write	Description
Feedhold Request	R/W (s)	This Flag will cause the current move to decelerate to zero and set the Feedholding status flag. Processor acknowledgment clears the Flag.
Cycle Start Request	R/W (s)	This Flag will cause the move in progress when a Feedhold Request was processed to accelerate and continue the moves. Processor acknowledgment clears the Flag.
Kill All Moves	R/W (s)	See Flag description on following page.
Stop All Moves	R/W (s)	See Flag description on following page.
FVEL Zero Pending	R/W (s)	State of "FVEL zero" flag at start of next move.
FVEL Zero Active	R/W (s)	When this flag is set, use 0 for FVEL instead of FVEL setting.
FOV/ROV Lock Pending	R/W (s)	State of "FOV/ROV lock" flag at start of next move.
FOV/ROV Lock Active	R/W (s)	When this flag is set, use 1.0 for FOV instead of FOV setting, during feed moves. When this flag is set, use 1.0 for ROV instead of ROV setting during rapid moves.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

The Kill All Moves and Stop All Moves flag functions are user selectable via the Secondary Master Flags Bit Index 4 control flag, Enable Clear Request, as follows:

Secondary Master Flag Enable Clear Request – Cleared (DEFAULT – Compatible with Firmware Version 1.17.05 and above)		
Field Description	Read/ Write	Description
Kill All Moves	R/W (s)	Setting this Flag will stop all moves without using any acceleration or deceleration ramps. This flag does not halt any programs or PLCs. The user is responsible for clearing this Flag.
Stop All Moves	R/W (s)	Setting this Flag will cause the master to respond the same as receiving a Feedhold Request, wait for "In Feedhold" flag, and then follow with a Kill All Moves. Processor acknowledgment clears the Kill All Moves Flag. The user is responsible for clearing the Kill All Moves Flag.

Secondary Master Flag Enable Clear Request – Set (Compatible with Firmware Version 1.17.04 and below)		
Field Description	Read/ Write	Description
Kill All Moves	R/W (s)	Setting this Flag will stop all moves without using any acceleration or deceleration ramps. This flag does not halt any programs or PLCs. Processor acknowledgment clears the Kill All Moves Flag.
Stop All Moves	R/W (s)	Setting this Flag will cause the master to respond the same as receiving a Feedhold Request, wait for "In Feedhold" flag, and then follow with a Kill All Moves. Processor acknowledgment clears the Kill All Moves Flag.

Limit Flags

Field Description	Read/ Write	Description
Not In Position	R (s)	Flag will be set whenever any attached axes has a following error that is outside of its In-Position Band (IPB)
Not Excess Error	R (s)	Flag will be set if all of the attached axes has a following error that is within their Excess Error bands (EXC)
Within A Limit	R (s)	Flag will be set if all attached axes have a command position that is within the values set by Stroke Limit 'A' (ALM)
Not Within B Limit	R (s)	Flag will be set if any attached axes has a command position that is outside of values set by Stroke Limit 'B' (BLM)
Not Torque Limit	R (s)	Flag will be set if none of the attached DAC outputs is being torque limited. This is set by the value of Torque Limit. (TLM)
Not in Torque Band	R (s)	Flag will be set if any attached DAC output is outside of the torque band. This is set by the value of In-Torque Band. (ITB)

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Sequence Flags

Field Description	Read/ Write	Description
Increment Count	R/W (f)	When this flag is set, the move counter increments when a move starts.
Decrement Count	R/W (f)	When this flag is set, the move counter decrements when a move starts.
Interrupt On Move	R/W (f)	When this flag is set, an interrupt is sent to the AT Bus when a move is fetched from FIFO and buffered.
TRG Pending	R/W (f)	This flag is set when the master is waiting for TRG condition to become true.
Start Move Inhibit	R/W (f)	When this flag is set, buffered moves are prevented from starting. This flag is used internally by the BLK/STEP sequence.
REN Request Flag	R/W (s)	When This flag is set, the attached axes will perform a REN command. Flag is cleared on operation.
Cycle Start Lockout	R/W (f)	When this flag is set, the master will ignore cycle start requests.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Bit768 - Bit1023 Axis Flags (Axes 0-7)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=-0x03		**4120**	**4121**	**4122**	**4123**	**4124**	**4125**	**4126**	**4127**
Limit Flags	**Bit Index**	**AXIS Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Not In Position (IPB)	0	768	800	832	864	896	928	960	992
Not Excess Error (EXC)	1	769	801	833	865	897	929	961	993
Within A Limit (ALM)	2	770	802	834	866	898	930	962	994
Not Within B Limit (BLM)	3	771	803	835	867	899	931	963	995
Not Torque Limit (TLM)	4	772	804	836	868	900	932	964	996
Not In Torque Band (ITB)	5	773	805	837	869	901	933	965	997
Reserved	6	774	806	838	870	902	934	966	998
Reserved	7	775	807	839	871	903	935	967	999

Status Flags	**Bit Index**	**AXIS Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Not Marker	8	776	808	840	872	904	936	968	1000
Capture Complete (INTCAP)	9	777	809	841	873	905	937	969	1001
HSINT Registered	10	778	810	842	874	906	938	970	1002
HSINT Aborted	11	779	811	843	875	907	939	971	1003
Sinusoidal Mode (SINE)	12	780	812	844	876	908	940	972	1004
Gear Lock (GEAR)	13	781	813	845	877	909	941	973	1005
Gear At Speed (GEAR)	14	782	814	846	878	910	942	974	1006
Gear Stopping (GEAR)	15	783	815	847	879	911	943	975	1007

Control Flags	Bit Index	**AXIS Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Clamp Output Signal	16	784	816	848	880	912	944	976	1008
Open Servo Loop (AXIS)	17	785	817	849	881	913	945	977	1009
Biquad Filter Activate	18	786	818	850	882	914	946	978	1010
REN Request Flag	19	787	819	851	883	915	947	979	1011
Gear Activate (GEAR OFF, GEAR ON)	20	788	820	852	884	916	948	980	1012
Gear Active	21	789	821	853	885	917	949	981	1013
Cam Activate	22	790	822	854	886	918	950	982	1014
Ballscrew Activate (BSC)	23	791	823	855	887	919	951	983	1015

Jog Flags (JOG)	Bit Index	AXIS Number							
		0	1	2	3	4	5	6	7
Jog Active	24	792	824	856	888	920	952	984	1016
Jog Direction	25	793	825	857	889	921	953	985	1017
Jog At Speed	26	794	826	858	890	922	954	986	1018
Jog Stopping	27	795	827	859	891	923	955	987	1019
Jog Forward (JOG_FWD)	28	796	828	860	892	924	956	988	1020
Jog Reverse (JOG_REV)	29	797	829	861	893	925	957	989	1021
Jog Limit Check	30	798	830	862	894	926	958	990	1022
Jog Lockout	31	799	831	863	895	927	959	991	1023

Limit Flags

Field Description	Read/ Write	Description
Not in Position	R (s)	Flag will be set when following error is outside of In-Position Band (IPB), or the axis is in motion.
Not Excess Error	R (s)	Flag will be set when following error is within Excess Error band (EXC)
Within A Limit	R (s)	Flag will be set if command position is within the values set by Stroke Limit 'A' (ALM)
Not Within B Limit	R (s)	Flag will be set if command position is outside of values set by Stroke Limit 'B' (BLM)
Not Torque Limit	R (s)	Flag will be set if attached DAC output is being torque limited. This is set by the value of Torque Limit. (TLM)
Not in Torque Band	R (s)	Flag will be set if attached DAC output is outside of the torque band. This is set by the value of In-torque Band. (ITB)

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Status Flags

Field Description	Read/ Write	Description
Not Marker	R (s)	Flag will be set when encoder marker of attached encoder is not present
Capture Complete	R (f)	Flag will be set on completion of an encoder capture using the INTCAP command. Flag will clear when the next INTCAP is issued.
HSINT Registered	R	Cleared by the start of the HSINT command. Set when a hardware capture is detected within the HSINT capture window and the "incmov" starts.
HSINT Aborted	R	Cleared by the start of the HSINT command. Set when the optional HSINT "abort bit" is detected and the sequence is aborted.
Sinusoidal Mode	R/W (f)	When this bit is set, linear moves are converted into SINE commands.
Gear Lock	R/W	Set this bit to disable GEAR ACC and GEAR DEC and force gear ratio to the programmed setting.
Gear At Speed	R	This bit is set when the internal gear ratio is equal to the programmed gear ratio. This bit is cleared during GEAR ACC and GEAR DEC ramps.
Gear Stopping	R	This bit is set during the final GEAR DEC ramp after a GEAR OFF command is issued.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Control Flags

Field Description	Read/ Write	Description
Clamp Output Signal	R/W (f)	When this flag is set, the axis “Output Signal” parameter is forced to zero.
Open Servo Loop	R/W (f)	When this flag is set, the axis does not execute servo loop.
Biquad Filter Activate	R/W (f)	When this flag is set, the axis executes digital filters.
REN Request Flag	R/W (s)	When this flag is set, the axis executes a REN command. Flag is cleared on operation
Gear Lock	R/W	Overrides the gearing ramp mechanism. Locks the current gear ratio to the target gear ratio regardless of the current GEAR ACC and GEAR DEC settings.
Gear At Speed	R	Set when gearing is active and the current gear ratio is equal to the target gear ratio. Cleared if executing a gear acc/dec ramp.
Gear Stopping	R	Set when gearing is active and the gear activation bit is clear. When the current gear ratio reaches zero, the gear active bit is cleared.
Gearing Activate	R/W (f)	Flag is set by GEAR ON and cleared by GEAR OFF. Can be used to manually control gearing.
Gearing Active	R	Flag is set when gearing is active. If GEAR DEC is enabled, this bit will remain set after a GEAR OFF until the gear ratio ramps down to zero.
Cam Activate	R/W (f)	Flag is set by CAM ON and cleared by CAM OFF. Can be used to manually control camming.
Ballscrew Activate	R/W (f)	Flag is set by BSC ON and cleared by BSC OFF. Can be used to manually control ballscrew.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Jog Flags

Field Description	Read/ Write	Description
Jog Active	R (f)	Flag is set when the axis is in any jog mode.
Jog Direction	R (f)	Flag is set when the axis is jogging negative and off when jogging positive or not jogging.
Jog at Speed	R (f)	Flag is set when the axis speed is at the velocity set by JOG VEL command.
Jog Stopping	R (f)	Flag is set when axis is ramping to zero jog velocity.
Jog Forward	R/W (f)	Flag is set when axis is jogging forward. Can be used to start jog forward by setting the flag or stopping jog forward by clearing the flag. The JOG FWD command sets this bit. The JOG OFF command clears this bit.
Jog Reverse	R/W (f)	Flag is set when axis is jogging in reverse. Can be used to start jog reverse by setting the flag or stopping jog reverse by clearing the flag. The JOG REV command sets this bit. The JOG OFF command clears this bit.
Jog Limit Check	R/W (f)	When this flag is set the jog limits are checked when the JOG FWD and JOG REV commands are used. The value of jog limits is set using the JLM command.
Jog Lockout	R/W (f)	When this flag is set a JOG FWD or JOG REV command will set the appropriate flag but not produce motion. If this flag is cleared and the Jog Forward or Jog Reverse flag is set the Jog will start. If this flag is set while in a jog mode it will not take effect until the present jog is stopped.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Bit7680 - Bit7935 Axis Flags (Axes 8-15)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=-0x1E		**4336**	**4337**	**4338**	**4339**	**4340**	**4341**	**4342**	**4343**
Limit Flags	**Bit Index**	**AXIS Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Not In Position (IPB)	0	7680	7712	7744	7776	7808	7840	7872	7904
Not Excess Error (EXC)	1	7681	7713	7745	7777	7809	7841	7873	7905
Within A Limit (ALM)	2	7682	7714	7746	7778	7810	7842	7874	7906
Not Within B Limit (BLM)	3	7683	7715	7747	7779	7811	7843	7875	7907
Not Torque Limit (TLM)	4	7684	7716	7748	7780	7812	7844	7876	7908
Not In Torque Band (ITB)	5	7685	7717	7749	7781	7813	7845	7877	7909
Reserved	6	7686	7718	7750	7782	7814	7846	7878	7910
Reserved	7	7687	7719	7751	7783	7815	7847	7879	7911

Status Flags	**Bit Index**	**AXIS Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Not Marker	8	7688	7720	7752	7784	7816	7848	7880	7912
Capture Complete (INTCAP)	9	7689	7721	7753	7785	7817	7849	7881	7913
HSINT Registered	10	7690	7722	7754	7786	7818	7850	7882	7914
HSINT Aborted	11	7691	7723	7755	7787	7819	7851	7883	7915
Sinusoidal Mode (SINE)	12	7692	7724	7756	7788	7820	7852	7884	7916
Gear Lock (GEAR)	13	7693	7725	7757	7789	7821	7853	7885	7917
Gear At Speed (GEAR)	14	7694	7726	7758	7790	7822	7854	7886	7918
Gear Stopping (GEAR)	15	7695	7727	7759	7791	7823	7855	7887	7919

Control Flags	**Bit Index**	**AXIS Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Clamp Output Signal	16	7696	7728	7760	7792	7824	7856	7888	7920
Open Servo Loop (AXIS)	17	7697	7729	7761	7793	7825	7857	7889	7921
Biquad Filter Activate	18	7698	7730	7762	7794	7826	7858	7890	7922
REN Request Flag	19	7699	7731	7763	7795	7827	7859	7891	7923
Gear Activate (GEAR OFF, GEAR ON)	20	7700	7732	7764	7796	7828	7860	7892	7924
Gear Active	21	7701	7733	7765	7797	7829	7861	7893	7925
Cam Activate	22	7702	7734	7766	7798	7830	7862	7894	7926
Ballscrew Activate (BSC)	23	7703	7735	7767	7799	7831	7863	7895	7927

Jog Flags (JOG)	Bit Index	AXIS Number							
		8	9	10	11	12	13	14	15
Jog Active	24	7704	7736	7768	7800	7832	7864	7896	7928
Jog Direction	25	7705	7737	7769	7801	7833	7865	7897	7929
Jog At Speed	26	7706	7738	7770	7802	7834	7866	7898	7930
Jog Stopping	27	7707	7739	7771	7803	7835	7867	7899	7931
Jog Forward (JOG_FWD)	28	7708	7740	7772	7804	7836	7868	7900	7932
Jog Reverse (JOG_REV)	29	7709	7741	7773	7805	7837	7869	7901	7933
Jog Limit Check	30	7710	7742	7774	7806	7838	7870	7902	7934
Jog Lockout	31	7711	7743	7775	7807	7839	7871	7903	7935

Limit Flags

Field Description	Read/ Write	Description
Not in Position	R (s)	Flag will be set when following error is outside of In-Position Band (IPB)
Not Excess Error	R (s)	Flag will be set when following error is within Excess Error band (EXC)
Within A Limit	R (s)	Flag will be set if command position is within the values set by Stroke Limit 'A' (ALM)
Not Within B Limit	R (s)	Flag will be set if command position is outside of values set by Stroke Limit 'B' (BLM)
Not Torque Limit	R (s)	Flag will be set if attached DAC output is being torque limited. This is set by the value of Torque Limit. (TLM)
Not in Torque Band	R (s)	Flag will be set if attached DAC output is outside of the torque band. This is set by the value of In-torque Band. (ITB)

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Status Flags

Field Description	Read/ Write	Description
Not Marker	R (s)	Flag will be set when encoder marker of attached encoder is not present
Capture Complete	R (f)	Flag will be set on completion of an encoder capture using the INTCAP command. Flag will clear when the next INTCAP is issued.
HSINT Registered	R	Cleared by the start of the HSINT command. Set when a hardware capture is detected within the HSINT capture window and the "incmov" starts.
HSINT Aborted	R	Cleared by the start of the HSINT command. Set when the optional HSINT "abort bit" is detected and the sequence is aborted.
Sinusoidal Mode	R/W (f)	When this bit is set, linear moves is converted into SINE commands.
Gear Lock	R/W	Set this bit to disable GEAR ACC and GEAR DEC and force gear ratio to the programmed setting.
Gear At Speed	R	This bit is set when the internal gear ratio is equal to the programmed gear ratio. This bit is cleared during GEAR ACC and GEAR DEC ramps.
Gear Stopping	R	This bit is set during the final GEAR DEC ramp after a GEAR OFF command is issued.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Control Flags

Field Description	Read/ Write	Description
Clamp Output Signal	R/W (f)	When this flag is set, the axis “Output Signal” parameter is forced to zero.
Open Servo Loop	R/W (f)	When this flag is set, the axis does not execute servo loop.
Biquad Filter Activate	R/W (f)	When this flag is set, the axis executes digital filters.
REN Request Flag	R/W (s)	When this flag is set, the axis executes a REN command. Flag is cleared on operation
Gear Lock	R/W	Overrides the gearing ramp mechanism. Locks the current gear ratio to the target gear ratio regardless of the current GEAR ACC and GEAR DEC settings.
Gear At Speed	R	Set when gearing is active and the current gear ratio is equal to the target gear ratio. Cleared if executing a gear acc/dec ramp.
Gear Stopping	R	Set when gearing is active and the gear activation bit is clear. When the current gear ratio reaches zero, the gear active bit is cleared.
Gearing Activate	R/W (f)	Flag is set by GEAR ON and cleared by GEAR OFF. Can be used to manually control gearing.
Gearing Active	R	Flag is set when gearing is active. If GEAR DEC is enabled, this bit will remain set after a GEAR OFF until the gear ratio ramps down to zero.
Cam Activate	R/W (f)	Flag is set by CAM ON and cleared by CAM OFF. Can be used to manually control camming.
Ballscrew Activate	R/W (f)	Flag is set by BSC ON and cleared by BSC OFF. Can be used to manually control ballscrew.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Jog Flags

Field Description	Read/ Write	Description
Jog Active	R (f)	Flag is set when the axis is in any jog mode.
Jog Direction	R (f)	Flag is set when the axis is jogging negative and off when jogging positive or not jogging.
Jog at Speed	R (f)	Flag is set when the axis speed is at the velocity set by JOG VEL command.
Jog Stopping	R (f)	Flag is set when axis is ramping to zero.
Jog Forward	R/W (f)	Flag is set when axis is jogging forward. Can be used to start jog forward by setting the flag or stopping jog forward by clearing the flag. The JOG FWD command sets this bit. The JOG OFF command clears this bit.
Jog Reverse	R/W (f)	Flag is set when axis is jogging in reverse. Can be used to start jog reverse by setting the flag or stopping jog reverse by clearing the flag. The JOG REV command sets this bit. The JOG OFF command clears this bit.
Jog Limit Check	R/W (f)	When this flag is set the jog limits are checked when the JOG FWD and JOG REV commands are used. The value of jog limits is set using the JLM command.
Jog Lockout	R/W (f)	When this flag is set a JOG FWD or JOG REV command will set the appropriate flag but not produce motion. If this flag is cleared and the Jog Forward or Jog Reverse flag is set the Jog will start. If this flag is set while in a jog mode it will not take effect until the present jog is stopped.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Bit1024 - Bit1279 Program Flags (Programs 0-7)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x04		**4128**	**4129**	**4130**	**4131**	**4132**	**4133**	**4134**	**4135**
Status Flags	**Bit Index**	**PROG Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Program Running	0	1024	1056	1088	1120	1152	1184	1216	1248
Program Dwelling	1	1025	1057	1089	1121	1153	1185	1217	1249
Program Inhibited	2	1026	1058	1090	1122	1154	1186	1218	1250
Move Pending	3	1027	1059	1091	1123	1155	1187	1219	1251
Program Timeout	4	1028	1060	1092	1124	1156	1188	1220	1252
Program Modified	5	1029	1061	1093	1125	1157	1189	1221	1253
Reserved	6	1030	1062	1094	1126	1158	1190	1222	1254
Reserved	7	1031	1063	1095	1127	1159	1191	1223	1255

Control Flags	**Bit Index**	**PROG Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Run Request Flag	8	1032	1064	1096	1128	1160	1192	1224	1256
Halt Request Flag	9	1033	1065	1097	1129	1161	1193	1225	1257
Reserved	10	1034	1066	1098	1130	1162	1194	1226	1258
Reserved	11	1035	1067	1099	1131	1163	1195	1227	1259
Trace Mode Enable	12	1036	1068	1100	1132	1164	1196	1228	1260
Program Complete Alarm	13	1037	1069	1101	1133	1165	1197	1229	1261
Reserved	14	1038	1070	1102	1134	1166	1198	1230	1262
Reserved	15	1039	1071	1103	1135	1167	1199	1231	1263

Block Flags	**Bit Index**	**PROG Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Block Control	16	1040	1072	1104	1136	1168	1200	1232	1264
Block Edge Detect	17	1041	1073	1105	1137	1169	1201	1233	1265
Block Mode	18	1042	1074	1106	1138	1170	1202	1234	1266
Block Mode Waiting	19	1043	1075	1107	1139	1171	1203	1235	1267
Step First Block	20	1044	1076	1108	1140	1172	1204	1236	1268
Step Request Flag	21	1045	1077	1109	1141	1173	1205	1237	1269
Step Control	22	1046	1078	1110	1142	1174	1206	1238	1270
Step Edge Detect	23	1047	1079	1111	1143	1175	1207	1239	1271

Pause Flags	Bit Index	PROG Number							
		0	1	2	3	4	5	6	7
Pause Control	24	1048	1080	1112	1144	1176	1208	1240	1272
Pause Edge Detect	25	1049	1081	1113	1145	1177	1209	1241	1273
Pause Mode	26	1050	1082	1114	1146	1178	1210	1242	1274
Pause Mode Waiting	27	1051	1083	1115	1147	1179	1211	1243	1275
Reserved	28	1052	1084	1116	1148	1180	1212	1244	1276
Reserved	29	1053	1085	1117	1149	1181	1213	1245	1277
Reserved	30	1054	1086	1118	1150	1182	1214	1246	1278
Reserved	31	1055	1087	1119	1151	1183	1215	1247	1279

Status Flags

Field Description	Read/ Write	Description
Program Running	R (f)	Flag is set when the program is running.
Program Dwelling	R (f)	Flag is set when a program operation is executing a DWL command.
Program Inhibited	R (f)	Flag is set when the program operation is suspended during an INH or IHPOS command.
Move Pending	R	This flag is used internally to indicate that the current block being processed contains a move that will begin when the block ends.
Program Time-out	R (f)	Flag is set if IHPOS command times out Cleared by IHPOS command.
Program Modified	R (f)	This flag is set when program is modified (add, delete, or edit program lines) Flag is cleared when program is run.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Control Flags

Field Description	Read/ Write	Description
Run Request Flag	R/W (s)	If this flag is set, program is RUN when detected. Flag is cleared automatically
Halt Request Flag	R/W (s)	If this flag is set, program is Halted when detected. Flag is cleared automatically
Trace Mode Enable	R/W (f)	Flag is set by TRON command, cleared with TROFF command. Can be used to enable or disable trace mode.
Program Complete Alarm	R/W (s)	Setting this flag will enable the controller-invoked alarm when program is completed.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Block Flags

Field Description	Read/ Write	Description
Block Control	R/W (s)	Flag is set when a block command is issued for this program. Flag is cleared by AUT command. Can be used to initiate or cancel block mode by setting or clearing the flag.
Block Edge Detect	R (s)	This flag reflects previous state of “Block Control” flag. It is used for detecting edges.
Block Mode	R (f)	Flag is set as soon as block control is detected if no master is attached. If attached to a master the program will feedhold and flag will be set when the master “In Feedhold” flag is detected.
Block Mode Waiting	R (f)	Flag is set when program is waiting for a STEP command.
Step First Block	R (f)	Flag is set by entering block mode operation. Flag is cleared after first step.
Step Request Flag	R/W (s)	This flag is set when a STEP command is issued, this executes the next line of a program is block mode.
Step Control	R/W (s)	Rising edge of this flag causes the “Step Request” flag to be set.
Step Edge Detect	R (s)	This flag reflects previous state of “Step Control” flag. It is used for detecting edges.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Pause Flags

Field Description	Read/ Write	Description
Pause Control	R/W (s)	Flag is set when a pause command is issued for this program. Flag is cleared by RESUME command. Can be used to initiate or cancel pause mode by setting or clearing the flag.
Pause Edge Detect	R (s)	This flag reflects previous state of “Pause Control” flag. It is used for detecting edges.
Pause Mode	R (f)	Flag is set as soon as pause control is detected if no master is attached. If attached to a master the program will feedhold and flag will be set when the master “In Feedhold” flag is detected.
Pause Mode Waiting	R (f)	This flag is set when the program is waiting for RESUME command.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Bit1280 - Bit1535 Program Flags (Programs 8-15)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x05		**4136**	**4137**	**4138**	**4139**	**4140**	**4141**	**4142**	**4143**
Status Flags	**Bit Index**	**PROG Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Program Running	0	1280	1312	1344	1376	1408	1440	1472	1504
Program Dwelling	1	1281	1313	1345	1377	1409	1441	1473	1505
Program Inhibited	2	1282	1314	1346	1378	1410	1442	1474	1506
Move Pending	3	1283	1315	1347	1379	1411	1443	1475	1507
Program Timeout	4	1284	1316	1348	1380	1412	1444	1476	1508
Program Modified	5	1285	1317	1349	1381	1413	1445	1477	1509
Reserved	6	1286	1318	1350	1382	1414	1446	1478	1510
Reserved	7	1287	1319	1351	1383	1415	1447	1479	1511

Control Flags	**Bit Index**	**PROG Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Run Request Flag	8	1288	1320	1352	1384	1416	1448	1480	1512
Halt Request Flag	9	1289	1321	1353	1385	1417	1449	1481	1513
Reserved	10	1290	1322	1354	1386	1418	1450	1482	1514
Reserved	11	1291	1323	1355	1387	1419	1451	1483	1515
Trace Mode Enable	12	1292	1324	1356	1388	1420	1452	1484	1516
Program Complete Alarm	13	1293	1325	1357	1389	1421	1453	1485	1517
Reserved	14	1294	1326	1358	1390	1422	1454	1486	1518
Reserved	15	1295	1327	1359	1391	1423	1455	1487	1519

Block Flags	**Bit Index**	**PROG Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Block Control	16	1296	1328	1360	1392	1424	1456	1488	1520
Block Edge Detect	17	1297	1329	1361	1393	1425	1457	1489	1521
Block Mode	18	1298	1330	1362	1394	1426	1458	1490	1522
Block Mode Waiting	19	1299	1331	1363	1395	1427	1459	1491	1523
Step First Block	20	1300	1332	1364	1396	1428	1460	1492	1524
Step Request Flag	21	1301	1333	1365	1397	1429	1461	1493	1525
Step Control	22	1302	1334	1366	1398	1430	1462	1494	1526
Step Edge Detect	23	1303	1335	1367	1399	1431	1463	1495	1527

Pause Flags	Bit Index	PROG Number							
		8	9	10	11	12	13	14	15
Pause Control	24	1304	1336	1368	1400	1432	1464	1496	1528
Pause Edge Detect	25	1305	1337	1369	1401	1433	1465	1497	1529
Pause Mode	26	1306	1338	1370	1402	1434	1466	1498	1530
Pause Mode Waiting	27	1307	1339	1371	1403	1435	1467	1499	1531
Reserved	28	1308	1340	1372	1404	1436	1468	1500	1532
Reserved	29	1309	1341	1373	1405	1437	1469	1501	1533
Reserved	30	1310	1342	1374	1406	1438	1470	1502	1534
Reserved	31	1311	1343	1375	1407	1439	1471	1503	1535

Status Flags

Field Description	Read/ Write	Description
Program Running	R (f)	Flag is set when the program is running.
Program Dwelling	R (f)	Flag is set when a program operation is executing a DWL command.
Program Inhibited	R (f)	Flag is set when the program operation is suspended during an INH or IHPOS command.
Move Pending	R	This flag is used internally to indicate that the current block being processed contains a move that will begin when the block ends.
Program Time-out	R (f)	Flag is set if IHPOS command times out Cleared by IHPOS command.
Program Modified	R (f)	This flag is set when program is modified (add, delete, or edit program lines) Flag is cleared when program is run.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Control Flags

Field Description	Read/ Write	Description
Run Request Flag	R/W (s)	If this flag is set, program is RUN when detected. Flag is cleared automatically.
Halt Request Flag	R/W (s)	If this flag is set, program is Halted when detected. Flag is cleared automatically.
Trace Mode Enable	R/W (f)	Flag is set by TRON command, cleared with TROFF command. Can be used to enable or disable trace mode.
Program Complete Alarm	R/W (s)	Setting this flag will enable the controller-invoked alarm when program is completed.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Block Flags

Field Description	Read/ Write	Description
Block Control	R/W (s)	Flag is set when a block command is issued for this program. Flag is cleared by AUT command. Can be used to initiate or cancel block mode by setting or clearing the flag.
Block Edge Detect	R (s)	This flag reflects previous state of “Block Control” flag. It is used for detecting edges.
Block Mode	R (f)	Flag is set as soon as block control is detected if no master is attached. If attached to a master the program will feedhold and flag will be set when the master “In Feedhold” flag is detected.
Block Mode Waiting	R (f)	Flag is set when program is waiting for a STEP command.
Step First Block	R (f)	Flag is set by entering block mode operation. Flag is cleared after first step.
Step Request Flag	R/W (s)	This flag is set when a STEP command is issued, this executes the next line of a program is block mode.
Step Control	R/W (s)	Rising edge of this flag causes the “Step Request” flag to be set.
Step Edge Detect	R (s)	This flag reflects previous state of “Step Control” flag. It is used for detecting edges.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Pause Flags

Field Description	Read/ Write	Description
Pause Control	R/W (s)	Flag is set when a pause command is issued for this program. Flag is cleared by RESUME command. Can be used to initiate or cancel pause mode by setting or clearing the flag.
Pause Edge Detect	R (s)	This flag reflects previous state of “Pause Control” flag. It is used for detecting edges.
Pause Mode	R (f)	Flag is set as soon as pause control is detected if no master is attached. If attached to a master the program will feedhold and flag will be set when the master “In Feedhold” flag is detected.
Pause Mode Waiting	R (f)	This flag is set when the program is waiting for RESUME command.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Bit1536 - Bit1791 PLC Flags (PLC 0-7)

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x06		**4144**	**4145**	**4146**	**4147**	**4148**	**4149**	**4150**	**4151**
PLC Flags	**Bit Index**	**PLC Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
PLC Running	0	1536	1568	1600	1632	1664	1696	1728	1760
First Scan	1	1537	1569	1601	1633	1665	1697	1729	1761
Run Request	2	1538	1570	1602	1634	1666	1698	1730	1762
Halt Request	3	1539	1571	1603	1635	1667	1699	1731	1763
Reserved	4	1540	1572	1604	1636	1668	1700	1732	1764
Reserved	5	1541	1573	1605	1637	1669	1701	1733	1765
Reserved	6	1542	1574	1606	1638	1670	1702	1734	1766
Reserved	7	1543	1575	1607	1639	1671	1703	1735	1767

Stepper Flags	**Bit Index**	**STEPPER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Stepper Direction	8	1544	1576	1608	1640	1672	1704	1736	1768
Stepper Low Power	9	1545	1577	1609	1641	1673	1705	1737	1769
Reserved	10	1546	1578	1610	1642	1674	1706	1738	1770
Reserved	11	1547	1579	1611	1643	1675	1707	1739	1771
Reserved	12	1548	1580	1612	1644	1676	1708	1740	1772
Reserved	13	1549	1581	1613	1645	1677	1709	1741	1773
Reserved	14	1550	1582	1614	1646	1678	1710	1742	1774
Reserved	15	1551	1583	1615	1647	1679	1711	1743	1775

TIM / CNT Flags	**Bit Index**	**TIM / CNT Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Timer Output (TIM)	16	1552	1584	1616	1648	1680	1712	1744	1776
Timer Input (TIM)	17	1553	1585	1617	1649	1681	1713	1745	1777
Reserved	18	1554	1586	1618	1650	1682	1714	1746	1778
Reserved	19	1555	1587	1619	1651	1683	1715	1747	1779
Counter Output (CNT)	20	1556	1588	1620	1652	1684	1716	1748	1780
Counter Clock (CNT)	21	1557	1589	1621	1653	1685	1717	1749	1781
Counter Reset (CNT)	22	1558	1590	1622	1654	1686	1718	1750	1782
Reserved	23	1559	1591	1623	1655	1687	1719	1751	1783

KR Flags	Bit Index	KR Number							
		0	1	2	3	4	5	6	7
Reserved	24	1560	1592	1624	1656	1688	1720	1752	1784
Reserved	25	1561	1593	1625	1657	1689	1721	1753	1785
Reserved	26	1562	1594	1626	1658	1690	1722	1754	1786
Reserved	27	1563	1595	1627	1659	1691	1723	1755	1787
Latch Output (KR)	28	1564	1596	1628	1660	1692	1724	1756	1788
Latch Set (KR)	29	1565	1597	1629	1661	1693	1725	1757	1789
Latch Reset (KR)	30	1566	1598	1630	1662	1694	1726	1758	1790
Reserved	31	1567	1599	1631	1663	1695	1727	1759	1791

PLC Flags

Field Description	Read/ Write	Description
PLC Running	R (f)	Flag is set when the PLC is running a program.
First Scan	R (f)	Flag is set when the PLC program is run, clears after first scan.
Run Request	R/W (s)	If this flag is set, PLC is run when detected. Flag is cleared automatically
Halt Request	R/W (s)	If this flag is set, plc is Halted when detected. Flag is cleared automatically

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Stepper Flags

Field Description	Read/ Write	Description
Stepper Direction	R/W (f)	Set this flag to invert the polarity of the stepper direction output on the optional stepper module.
Stepper Low Power	R/W (f)	Set this flag to activate the low power output signal on the optional stepper module.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

TIM Flags

Field Description	Read/ Write	Description
Timer Output	R (f)	Flag is set when the timer count is zero. The flag will remain set until the Timer input is cleared.
Timer Input	R/W (f)	Setting the flag will cause the timer count to decrement. When the flag is cleared the timer is reset to its preset value and the timer output flag is cleared.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

CNT Flags

Field Description	Read/ Write	Description
Counter Output	R (f)	Flag is set when the count is zero. The flag will remain set until the counter reset flag is set.
Counter Clock	R/W (f)	Counter will decrement once on each rising edge of this flag.
Counter Reset	R/W (f)	When flag is set the counter output is cleared and counter clock inputs are ignored.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

KR Flags

Field Description	Read/ Write	Description
Latch Output	R (f)	Flag will be set when the latch set flag is set. Flag will remain set after latch set is removed. Flag will clear when latch reset flag is set.
Latch Set	R/W (f)	Setting this flag will set latch output flag.
Latch Reset	R/W (f)	Setting this flag will clear latch output flag, latch set will not function as long as this flag is set.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Bit7168 - Bit7423 PLC Flags (PLC 8-15)

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x1C		**4320**	**4321**	**4322**	**4323**	**4324**	**4325**	**4326**	**4327**
PLC Flags	**Bit Index**	**PLC Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Reserved	0	7168	7200	7232	7264	7296	7328	7360	7392
Reserved	1	7169	7201	7233	7265	7297	7329	7361	7393
Reserved	2	7170	7202	7234	7266	7298	7330	7362	7394
Reserved	3	7171	7203	7235	7267	7299	7331	7363	7395
Reserved	4	7172	7204	7236	7268	7300	7332	7364	7396
Reserved	5	7173	7205	7237	7269	7301	7333	7365	7397
Reserved	6	7174	7206	7238	7270	7302	7334	7366	7398
Reserved	7	7175	7207	7239	7271	7303	7335	7367	7399

Stepper Flags	**Bit Index**	**STEPPER Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Stepper Direction	8	7176	7208	7240	7272	7304	7336	7368	7400
Stepper Low Power	9	7177	7209	7241	7273	7305	7337	7369	7401
Reserved	10	7178	7210	7242	7274	7306	7338	7370	7402
Reserved	11	7179	7211	7243	7275	7307	7339	7371	7403
Reserved	12	7180	7212	7244	7276	7308	7340	7372	7404
Reserved	13	7181	7213	7245	7277	7309	7341	7373	7405
Reserved	14	7182	7214	7246	7278	7310	7342	7374	7406
Reserved	15	7183	7215	7247	7279	7311	7343	7375	7407

TIM / CNT Flags	**Bit Index**	**TIM / CNT Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Reserved	16	7184	7216	7248	7280	7312	7344	7376	7408
Reserved	17	7185	7217	7249	7281	7313	7345	7377	7409
Reserved	18	7186	7218	7250	7282	7314	7346	7378	7410
Reserved	19	7187	7219	7251	7283	7315	7347	7379	7411
Reserved	20	7188	7220	7252	7284	7316	7348	7380	7412
Reserved	21	7189	7221	7253	7285	7317	7349	7381	7413
Reserved	22	7190	7222	7254	7286	7318	7350	7382	7414
Reserved	23	7191	7223	7255	7287	7319	7351	7383	7415

KR Flags	Bit Index	KR Number							
		8	9	10	11	12	13	14	15
Reserved	24	7192	7224	7256	7288	7320	7352	7384	7416
Reserved	25	7193	7225	7257	7289	7321	7353	7385	7417
Reserved	26	7194	7226	7258	7290	7322	7354	7386	7418
Reserved	27	7195	7227	7259	7291	7323	7355	7387	7419
Reserved	28	7196	7228	7260	7292	7324	7356	7388	7420
Reserved	29	7197	7229	7261	7293	7325	7357	7389	7421
Reserved	30	7198	7230	7262	7294	7326	7358	7390	7422
Reserved	31	7199	7231	7263	7295	7327	7359	7391	7423

PLC Flags

Field Description	Read/ Write	Description
PLC Running	R (f)	Flag is set when the PLC is running a program.
First Scan	R (f)	Flag is set when the PLC program is run, clears after first scan.
Run Request	R/W (s)	If this flag is set, PLC is run when detected. Flag is cleared automatically
Halt Request	R/W (s)	If this flag is set, plc is Halted when detected. Flag is cleared automatically

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Stepper Flags

Field Description	Read/ Write	Description
Stepper Direction	R/W (f)	Set this flag to invert the polarity of the stepper direction output on the optional stepper module.
Stepper Low Power	R/W (f)	Set this flag to activate the low power output signal on the optional stepper module.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

TIM Flags

Field Description	Read/ Write	Description
Timer Output	R (f)	Flag is set when the timer count is zero. The flag will remain set until the Timer input is cleared.
Timer Input	R/W (f)	Setting the flag will cause the timer count to decrement. When the flag is cleared the timer is reset to its preset value and the timer output flag is cleared.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

CNT Flags

Field Description	Read/ Write	Description
Counter Output	R (f)	Flag is set when the count is zero. The flag will remain set until the counter reset flag is set
Counter Clock	R/W (f)	Counter will decrement once on each rising edge of this flag.
Counter Reset	R/W (f)	When flag is set the counter output is cleared and counter clock inputs are ignored.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

KR Flags

Field Description	Read/ Write	Description
Latch Output	R (f)	Flag will be set when the latch set flag is set. Flag will remain set after latch set is removed. Flag will clear when latch reset flag is set.
Latch Set	R/W (f)	Setting this flag will set latch output flag.
Latch Reset	R/W (f)	Setting this flag will clear latch output flag, latch set will not function as long as this flag is set.

f = fast flag, sampled once each servo interrupt
s = slow flag, sample rate of approximately 50 ms (independent of servo interrupt rate)

Bit1792 - Bit1823 FIFO/Stream 1 Stream Flags

Flag Parameter Code=0x10; Index=0x07; Mask=0x01		4152
Flag Description	**Bit Index**	**Bit Number**
Enable Character Echo	0	1792
Disable Error Reporting	1	1793
Disable Command Prompt	2	1794
Stream XON/XOFF	3	1795
Stream acknowledge binary write	4	1796
Reserved	5	1797
Reserved	6	1798
Reserved	7	1799
FIFO/Stream 1 Active	8	1800
FIFO/Stream 1 Waiting	9	1801
FIFO/Stream 1 Opened	10	1802
FIFO/Stream 1 Disabled	11	1803
FIFO/Stream 1 Echoing	12	1804
FIFO/Stream 1 Re-dimensioned	13	1805
Reserved	14	1806
Reserved	15	1807
FIFO/Stream 1 Open Request	16	1808
FIFO/Stream 1 Escape Request	17	1809
Reserved	18	1810
Reserved	19	1811
FIFO/Stream 1 Control Prefixing	20	1812
FIFO/Stream 1 High Bit Stripping	21	1813
Reserved	22	1814
Reserved	23	1815
Reserved	24	1816
Reserved	25	1817
Reserved	26	1818
Reserved	27	1819
Reserved	28	1820
Reserved	29	1821
Reserved	30	1822
Reserved	31	1823

FIFO / Stream1 Configuration Flags

Field Description	Read/ Write	Description
Enable Character Echo	R/W	Enable or disable the character echo after a command is sent. If flag is set, ACR command will be echoed back as it is received. The flag is set as default.
Disable Error Reporting	R/W	Enable or disable the error reporting. If flag is set, no error message is returned if an invalid command is entered. The flag is cleared as default.
Disable Command Prompt	R/W	Enable or disable the command prompt. If flag is set, prompt such as <sys> or <PROG> will not return after a command is entered. The flag is cleared as default
Stream XON/XOFF	R/W	Turn on or off XON/XOFF. If flag is set, XON/XOFF is disabled. The flag is cleared as default
Stream acknowledge binary write	R/W	Enable or disable binary write acknowledgement. If flag is set, controller will sent an acknowledgement after receives a binary write packet. The flag is cleared as default.
FIFO/Stream1 Active	R	This flag is set once the FIFO/Stream1 is connected. At power up, this flag is cleared until communication is established through COM1
FIFO/Stream1 waiting	R	This flag is set when the stream has no traffic and waiting for coming characters.
FIFO/Stream1 Opened	R	This flag is set when COM1 is opened to allow incoming characters to be used by program, see OPEN command for more details. This flag is cleared when COM1 stream is Closed, see CLOSE command for more details.
FIFO/Stream1 Disabled	R/W	Enable or disable the COM1 Stream communication. If flag is set, COM1 stream is disabled, command is no longer able to communicate through COM1. The flag is cleared as default.
FIFO/Stream1 Echoing	R	This flag is set when COM1 stream is ready for echo.
FIFO/Stream1 Re-dimensioned	R	This flag is set when COM1 is re-dimensioned by the DIM command.
FIFO/Stream1 open Request	R	This flag is set when this stream is opened to allow incoming character to be used by a program instead of being interpreted as commands. See OPEN command for more details. The default state is off.
FIFO/Stream1 Escape Request	R	This flag is set when an ESCAPE key is pressed, this bit is self-cleared.
FIFO/Stream1 Control Prefixing	R	This flag is set when MODE is set to 1 or 3. See MODE command for more details. The default state for COM1 is set.
FIFO/Stream1 High Bit Stripping	R/W	This flag is set when MODE is set to 0 or 2. See MODE command for more details. The default state for COM1 is off.

Bit1824 - Bit1855 LPT1 Stream Flags

Flag Parameter Code=0x10; Index=0x07; Mask=0x02			4153
Flag Description	**Physical Pinout**	**Bit Index**	**Bit Number**
PD0	P5-23	0	1824
PD1	P5-24	1	1825
PD2	P5-25	2	1826
PD3	P5-26	3	1827
PD4	P5-27	4	1828
PD5	P5-28	5	1829
PD6	P5-29	6	1830
PD7	P5-30	7	1831
Reserved	—	8	1832
Reserved	—	9	1833
PRINT	—	10	1834
ERR	P5-19	11	1835
SLCT	P5-34	12	1836
PE	P5-33	13	1837
ACK	P5-31	14	1838
BUSY	P5-32	15	1839
STB	P5-17	16	1840
AFD	P5-18	17	1841
INIT	P5-20	18	1842
SLIN	P5-21	19	1843
INT2 EN	—	20	1844
DIR	—	21	1845
Reserved	—	22	1846
Reserved	—	23	1847
Reserved	—	24	1848
Reserved	—	25	1849
Reserved	—	26	1850
Reserved	—	27	1851
Reserved	—	28	1852
Reserved	—	29	1853
Reserved	—	30	1854
Reserved	—	31	1855

LPT1 Stream Flags

Field Description	Read/ Write	Description
PD0 – PD7	W	Data registers use for outputting data on the parallel port LPT1. For example clear PD0 & PD1 flags will set the data to “3”. The default states are set.
PRINT	W	If flag is set, sent data to the printer
ERR	R	If flag is clear, it indicates a print error
SLCT	R	If flag is clear, it indicates the parallel port is selected
PE	R	If flag is clear, it indicates there is paper out error
ACK	R	parallel port acknowledge status flag
BUSY	R	If flag is clear, it indicates the parallel port is busy
STB	R/W	Strobe output on LPT1 parallel port
AFD	R/W	Setting this flag will perform auto linefeed
INIT	R/W	Setting this flag will initialize the printer
SLIN	R/W	LPT1 port select input.
INT2 EN	R/W	Enable / disable the parallel port LTPS interrupt
DIR	R/W	Setting this flag will enable the bi-directional function on LPT1 port

Bit1856 - Bit1887 COM1 Stream Flags

Flag Parameter Code=0x10; Index=0x7; Mask=0x04		4154
COM1 Stream Flags	**Bit Index**	**Bit Number**
Enable Character Echo	0	1856
Disable Error Reporting	1	1857
Disable Command Prompt	2	1858
Stream XON/XOFF	3	1859
Stream acknowledge binary write	4	1860
Reserved	5	1861
Reserved	6	1862
Reserved	7	1863
COM1 Stream Active	8	1864
COM1 Stream Waiting	9	1865
COM1 Stream Opened	10	1866
COM1 Stream Disabled	11	1867
COM1 Stream Echoing	12	1868
COM1 Re-dimensioned	13	1869
Reserved	14	1870
Reserved	15	1871
COM1 Open Request	16	1872
COM1 Escape Request	17	1873
Reserved	18	1874
Reserved	19	1875
COM1 Control Prefixing	20	1876
COM1 High Bit Stripping	21	1877
Reserved	22	1878
Reserved	23	1879

COM1 Configuration Flags	Bit Index	Bit Number
Serial Input MUX0 *	24	1880
Serial input MUX1 *	25	1881
Receive Flag *	26	1882
Transmit Flag *	27	1883
Reserved	28	1884
Reserved	29	1885
Reserved	30	1886
Reserved	31	1887

* ACR1200/ ACR2000/ ACR8010 serial communications control bits.

COM1 Configuration Flags

Field Description	Read/ Write	Description
Enable Character Echo	R/W	Enable or disable the character echo after a command is sent. If flag is set, ACR command will be echoed back as it is received. The flag is set as default.
Disable Error Reporting	R/W	Enable or disable the error reporting. If flag is set, no error message is returned if an invalid command is entered. The flag is cleared as default.
Disable Command Prompt	R/W	Enable or disable the command prompt. If flag is set, prompt such as <SYS> or <PROG> will not return after a command is entered. The flag is cleared as default
Stream XON/XOFF	R/W	Turn on or off XON/XOFF. If flag is set, XON/XOFF is disabled. The flag is cleared as default
Stream acknowledge binary write	R/W	Enable or disable binary write acknowledgement. If flag is set, controller will sent an acknowledgement after receives a binary write packet. The flag is cleared as default.
COM1 Stream Active	R	This flag is set once the COM1 is connected. At power up, this flag is cleared until communication is established through COM1
COM1 Stream waiting	R	This flag is set when the stream has no traffic and waiting for coming characters.
COM1 Stream Opened	R	This flag is set when COM1 is opened to allow incoming characters to be used by program. This flag is cleared when COM1 stream is closed. For more information, see the `OPEN` and `CLOSE` commands.
COM1 Stream Disabled	R/W	Enable or disable the COM1 Stream communication. If flag is set, COM1 stream is disabled, command is no longer able to communicate through COM1. The flag is cleared as default.
COM1 Stream Echoing	R	This flag is set when COM1 stream is ready for echo.
COM1 Re-dimensioned	R	This flag is set when COM1 is re-dimensioned by the **DIM** command.
COM1 open Request	R	This flag is set when this stream is opened to allow incoming character to be used by a program instead of being interpreted as commands. The default state is off. For more information, see the OPEN command.
COM1 Escape Request	R	This flag is set when an escape key is pressed. The bit clears itself.
COM1 Control Prefixing	R	This flag is set when MODE is set to 1 or 3. The default state for COM1 is set. For more information, see the MODE command.
COM1 High Bit Stripping	R/W	This flag is set when MODE is set to 0 or 2. The default state for COM1 is off. For more information, see the `MODE` command.

COM1 Configuration Flags

Field Description	Read/ Write	Description
Serial Input MUX0	R/W	Flag is used in conjunction with the Serial Input MUX1 flag to set the COM1 serial communication protocol for the ACR1200/ACR2000/ACR8010 boards. Refer to appropriate hardware manual for set-up details.
Serial Input MUX1	R/W	Flag is used in conjunction with the Serial Input MUX0 flag to set the COM1 serial communication protocol for the ACR1200/ACR2000/ACR8010 boards. Refer to appropriate hardware manual for set-up details.
Receive Flag	R/W	Flag is used in conjunction with the Transmit Flag to set the COM1 RS-422/RS485 hardware interface for the ACR1200/ACR2000/ACR8010 boards. Refer to appropriate hardware manual for set-up details.
Transmit Flag	R/W	Flag is used in conjunction with the Receive Flag to set the COM1 RS-422/RS485 hardware interface for the ACR1200/ACR2000/ACR8010 boards. Refer to appropriate hardware manual for set-up details.

Bit1888 - Bit1919 COM2 Stream Flags

Flag Parameter Code=0x10; Index=0x07; Mask=0x08		4155
COM2 Stream Flags	**Bit Index**	**Bit Number**
Enable Character Echo	0	1888
Disable Error Reporting	1	1889
Disable Command Prompt	2	1890
Stream XON/XOFF	3	1891
Stream acknowledge binary write	4	1892
Reserved	5	1893
Reserved	6	1894
Reserved	7	1895
COM2 Stream Active	8	1896
COM2 Stream Waiting	9	1897
COM2 Stream Opened	10	1898
COM2 Stream Disabled	11	1899
COM2 Stream Echoing	12	1900
COM2 Re-dimensioned	13	1901
Reserved	14	1902
Reserved	15	1903
COM2 Open Request	16	1904
COM2 Escape Request	17	1905
Reserved	18	1906
Reserved	19	1907
COM2 Control Prefixing	20	1908
COM2 High Bit Stripping	21	1909
Reserved	22	1910
Reserved	23	1911

COM2 Configuration Flags	Bit Index	Bit Number
Serial Input MUX0 *	24	1912
Serial input MUX1 *	25	1913
Receive Flag *	26	1914
Transmit Flag *	27	1915
Reserved	28	1916
Reserved	29	1917
Reserved	30	1918
Reserved	31	1919

* ACR1200/ ACR2000/ ACR8010 serial communications control bits.

COM1 Configuration Flags

Field Description	Read/ Write	Description
Enable Character Echo	R/W	Enable or disable the character echo after a command is sent. If flag is set, ACR command will be echoed back as it is received. The flag is set as default.
Disable Error Reporting	R/W	Enable or disable the error reporting. If flag is set, no error message is returned if an invalid command is entered. The flag is cleared as default.
Disable Command Prompt	R/W	Enable or disable the command prompt. If flag is set, prompt such as <SYS> or <PROG> will not return after a command is entered. The flag is cleared as default
Stream XON/XOFF	R/W	Turn on or off XON/XOFF. If flag is set, XON/XOFF is disabled. The flag is cleared as default
Stream acknowledge binary write	R/W	Enable or disable binary write acknowledgement. If flag is set, controller will sent an acknowledgement after receives a binary write packet. The flag is cleared as default.
COM2 Stream Active	R	This flag is set once the COM2 is connected. At power up, this flag is cleared until communication is established through COM2
COM2 Stream waiting	R	This flag is set when the stream has no traffic and waiting for coming characters.
COM2 Stream Opened	R	This flag is set when COM1 is opened to allow incoming characters to be used by program. This flag is cleared when COM1 stream is closed. For more information, see the `OPEN` and `CLOSE` commands.
COM2 Stream Disabled	R/W	Enable or disable the COM1 Stream communication. If flag is set, COM1 stream is disabled, command is no longer able to communicate through COM1. The flag is cleared as default.
COM2 Stream Echoing	R	This flag is set when COM1 stream is ready for echo.
COM2 Re-dimensioned	R	This flag is set when COM1 is re-dimensioned by the **DIM** command.
COM2 open Request	R	This flag is set when this stream is opened to allow incoming character to be used by a program instead of being interpreted as commands. The default state is off. For more information, see the OPEN command.
COM2 Escape Request	R	This flag is set when an escape key is pressed. The bit clears itself.
COM2 Control Prefixing	R	This flag is set when MODE is set to 1 or 3. The default state for COM1 is set. For more information, see the MODE command.
COM2 High Bit Stripping	R/W	This flag is set when MODE is set to 0 or 2. The default state for COM1 is off. For more information, see the `MODE` command.

COM2 Configuration Flags

Field Description	Read/ Write	Description
Serial Input MUX0	R/W	Flag is used in conjunction with the Serial Input MUX1 flag to set the COM2 serial communication protocol for the ACR1200/ACR2000/ACR8010 boards. Refer to appropriate hardware manual for set-up details.
Serial Input MUX1	R/W	Flag is used in conjunction with the Serial Input MUX0 flag to set the COM2 serial communication protocol for the ACR1200/ACR2000/ACR8010 boards. Refer to appropriate hardware manual for set-up details.
Receive Flag	R/W	Flag is used in conjunction with the Transmit Flag to set the COM2 RS-422/RS485 hardware interface for the ACR1200/ACR2000/ACR8010 boards. Refer to appropriate hardware manual for set-up details.
Transmit Flag	R/W	Flag is used in conjunction with the Receive Flag to set the COM2 RS-422/RS485 hardware interface for the ACR1200/ACR2000/ACR8010 boards. Refer to appropriate hardware manual for set-up details.

Bit1920 - Bit2047 User Flags Group 4-7

	Mask	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x07		**4156**	**4157**	**4158**	**4159**
Flag Description	**Bit Index**	**User Group**			
		4	**5**	**6**	**7**
User defined	0	1920	1952	1984	2016
User defined	1	1921	1953	1985	2017
User defined	2	1922	1954	1986	2018
User defined	3	1923	1955	1987	2019
User defined	4	1924	1956	1988	2020
User defined	5	1925	1957	1989	2021
User defined	6	1926	1958	1990	2022
User defined	7	1927	1959	1991	2023
User defined	8	1928	1960	1992	2024
User defined	9	1929	1961	1993	2025
User defined	10	1930	1962	1994	2026
User defined	11	1931	1963	1995	2027
User defined	12	1932	1964	1996	2028
User defined	13	1933	1965	1997	2029
User defined	14	1934	1966	1998	2030
User defined	15	1935	1967	1999	2031
User defined	16	1936	1968	2000	2032
User defined	17	1937	1969	2001	2033
User defined	18	1938	1970	2002	2034
User defined	19	1939	1971	2003	2035
User defined	20	1940	1972	2004	2036
User defined	21	1941	1973	2005	2037
User defined	22	1942	1974	2006	2038
User defined	23	1943	1975	2007	2039
User defined	24	1944	1976	2008	2040
User defined	25	1945	1977	2009	2041
User defined	26	1946	1978	2010	2042
User defined	27	1947	1979	2011	2043
User defined	28	1948	1980	2012	2044
User defined	29	1949	1981	2013	2045
User defined	30	1950	1982	2014	2046
User defined	31	1951	1983	2015	2047

Bit2048 - Bit2303 Secondary Master Flags (Masters 0-7)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x08		**4160**	**4161**	**4162**	**4163**	**4164**	**4165**	**4166**	**4167**
Control Flags	**Bit Index**	**MASTER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Block Skip Check	0	2048	2080	2112	2144	2176	2208	2240	2272
Block Skip Input	1	2049	2081	2113	2145	2177	2209	2241	2273
Rapid Pending	2	2050	2082	2114	2146	2178	2210	2242	2274
Rapid Active (ROV)	3	2051	2083	2115	2147	2179	2211	2243	2275
Enable Clear Request	4	2052	2084	2116	2148	2180	2212	2244	2276
Enable Rapid Move Modes	5	2053	2085	2117	2149	2181	2213	2245	2277
Master Short Time	6	2054	2086	2118	2150	2182	2214	2246	2278
Master in TMOV	7	2055	2087	2119	2151	2183	2215	2247	2279
Reserved	8	2056	2088	2120	2152	2184	2216	2248	2280
Master TOV	9	2057	2089	2121	2153	2185	2217	2249	2281
Reserved	10	2058	2090	2122	2154	2188	2218	2250	2282
Reserved	11	2059	2091	2123	2155	2187	2219	2251	2283
Reserved	12	2060	2092	2124	2156	2188	2220	2252	2284
Reserved	13	2061	2093	2125	2157	2189	2221	2253	2285
Reserved	14	2062	2094	2126	2158	2190	2222	2254	2286
Reserved	15	2063	2095	2127	2159	2191	2223	2255	2287
Sync Mode (SYNC OFF, SYNC ON)	16	2064	2096	2128	2160	2192	2224	2256	2288
Sync Manual (SYNC)	17	2065	2097	2129	2161	2193	2225	2257	2289
Reserved	18	2066	2098	2130	2162	2194	2226	2258	2290
Sync Manual Loaded	19	2067	2099	2131	2163	2195	2227	2259	2291
Reserved	20	2068	2100	2132	2164	2196	2228	2260	2292
Reserved	21	2069	2101	2133	2165	2197	2229	2261	2293
Reserved	22	2070	2102	2134	2166	2198	2230	2262	2294
Reserved	23	2071	2103	2135	2167	2199	2231	2263	2295
Spiral mode	24	2072	2104	2136	2168	2200	2232	2264	2296
Reserved	25	2073	2105	2137	2169	2201	2233	2265	2297
TANG mode (TANG OFF, TANG ON)	26	2074	2106	2138	2170	2202	2234	2266	2298
Reserved	27	2075	2107	2139	2171	2203	2235	2267	2299

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x08		**4160**	**4161**	**4162**	**4163**	**4164**	**4165**	**4166**	**4167**
Control Flags	**Bit Index**	**MASTER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Axis MAXVEL	28	2076	2108	2140	2172	2204	2236	2268	2300
TARC Mode (TARC OFF, TARC ON)	29	2077	2109	2141	2173	2205	2237	2269	2301
Reserved	30	2078	2110	2142	2174	2206	2238	2270	2302
Reserved	31	2079	2111	2143	2175	2207	2239	2271	2303

Control Flags

Field Description	Read/ Write	Description
Block Skip Check	R/W	If this flag and the “Block Skip Input” flag are set, the next move command will be ignored. Otherwise moves are processed normally. This flag is cleared after the move is either started or ignored.
Block Skip Input	R/W	This flag must be set for the “Block Skip Check” flag to cause a move to be ignored.
Rapid Pending	R/W	State of “Rapid Active” flag at start of next move.
Rapid Active	R/W	When this flag is set, use **ROV** instead of **FOV** setting.
Enable Clear Request	R/W	When this flag is set, use Master Kill All Moves and Master Stop All Moves definition compatible with Firmware Version 1.17.04 and below. When this flag is cleared (default), use Master Kill All Moves and Master Stop All Moves definition compatible with Firmware Version 1.17.05 and above. Refer to Master Flags.
Enable Rapid Move Modes	R/W	When this flag is set, use Binary Header Code 0 definition compatible with Firmware Version 1.17.05 and above. When this flag is clear (default), use Binary Header Code 0 definition compatible with Firmware Version 1.17.04 and below. Refer to Binary Move Command.
Master Short Time	R/W	When the **TMOV** is ON, this flag will be set if the move is too big to be completed in the time specified by the **TMOV** command. This flag will be cleared by a move, which can be done with in the time set by **TMOV** command.
Master in TMOV	R/W	This flag must be set for the time base moves. The **TMOV ON** command sets it and the **TMOV OFF** command clears it.
Master TOV	R/W	This flag is set when the master is using a **TOV** move. This flag must be cleared to exit from **TOV** mode. Exiting from **TOV** mode reduces load on the CPU and is recommended when not required.
Sync Mode	R	This flag is set to indicate that the master is in the sync mode. It is set by the **SYNC ON** command and cleared by **SYNC OFF** command.
Sync Manual	R/W	When set, means that the moves should be loaded and started manually for the synchronized masters. The **SYNC MDI** command sets this flag and **SYNC PROG** command clears this flag.
Sync Manual Loaded	R	This flag is set when the move has been issued to the synchronized master. When the masters in sync start the move, this flag is self-cleared.
Spiral mode	R/W	This flag is set/cleared by the user to enable/disable the spiral motion. See **SPINE** command and spiral interpolation.
TANG mode	R	TANG ON and OFF will set and clear this flag respectively
Axis MAXVEL	R	When this flag is set, axis velocity limit mode is enabled. See MAXVEL command.
TARC mode	R	TARC ON and OFF will set and clear this flag respectively

Bit7936 - Bit8191 Secondary Master Flags (Masters 8-15)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x1F		**4344**	**4345**	**4346**	**4347**	**4348**	**4349**	**4350**	**4351**
Control Flags	**Bit Index**	**MASTER Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Block Skip Check	0	7936	7968	8000	8032	8064	8096	8128	8160
Block Skip Input	1	7937	7969	8001	8033	8065	8097	8129	8161
Rapid Pending	2	7938	7970	8002	8034	8066	8098	8130	8162
Rapid Active (ROV)	3	7939	7971	8003	8035	8067	8099	8131	8163
Enable Clear Request	4	7940	7972	8004	8036	8068	8100	8132	8164
Enable Rapid Move Modes	5	7941	7973	8005	8037	8069	8101	8133	8165
Master Short Time	6	7942	7974	8006	8038	8070	8102	8134	8166
Master in TMOV	7	7943	7975	8007	8039	8071	8103	8135	8167
Reserved	8	7944	7976	8008	8040	8072	8104	8136	8168
Master TOV	9	7945	7977	8009	8041	8073	8105	8137	8169
Reserved	10	7946	7978	8010	8042	8074	8106	8138	8170
Reserved	11	7947	7979	8011	8043	8075	8107	8139	8171
Reserved	12	7948	7980	8012	8044	8076	8108	8140	8172
Reserved	13	7949	7981	8013	8045	8077	8109	8141	8173
Reserved	14	7950	7982	8014	8046	8078	8110	8142	8174
Reserved	15	7951	7983	8015	8047	8079	8111	8143	8175
Sync Mode (SYNC OFF, SYNC ON)	16	7952	7984	8016	8048	8080	8112	8144	8176
Sync Manual (SYNC)	17	7953	7985	8017	8049	8081	8113	8145	8177
Reserved	18	7954	7986	8018	8050	8082	8114	8146	8178
Sync Manual Loaded	19	7955	7987	8019	8051	8083	8115	8147	8179
Reserved	20	7956	7988	8020	8052	8084	8116	8148	8180
Reserved	21	7957	7989	8021	8053	8085	8117	8149	8181
Reserved	22	7958	7990	8022	8054	8086	8118	8150	8182
Reserved	23	7959	7991	8023	8055	8087	8119	8151	8183
Spiral mode	24	7960	7992	8024	8056	8088	8120	8152	8184
Reserved	25	7961	7993	8025	8057	8089	8121	8153	8185
TANG mode (TANG OFF, TANG ON)	26	7962	7994	8026	8058	8090	8122	8154	8186
Reserved	27	7963	7995	8027	8059	8091	8123	8155	8187
Axis MAXVEL	28	7964	7996	8028	8060	8092	8124	8156	8188
TARC Mode (TARC OFF, TARC ON)	29	7965	7997	8029	8061	8093	8125	8157	8189

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x1F		**4344**	**4345**	**4346**	**4347**	**4348**	**4349**	**4350**	**4351**
Control Flags	**Bit Index**	**MASTER Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Reserved	30	7966	7998	8030	8062	8094	8126	8158	8190
Reserved	31	7967	7999	8031	8063	8095	8127	8159	8191

Control Flags

Field Description	Read/ Write	Description
Block Skip Check	R/W	If this flag and the “Block Skip Input” flag are set, the next move command will be ignored. Otherwise moves are processed normally. This flag is cleared after the move is either started or ignored.
Block Skip Input	R/W	This flag must be set for the “Block Skip Check” flag to cause a move to be ignored.
Rapid Pending	R/W	State of “Rapid Active” flag at start of next move.
Rapid Active	R/W	When this flag is set, use **ROV** instead of **FOV** setting.
Enable Clear Request	R/W	When this flag is set, use Master Kill All Moves and Master Stop All Moves definition compatible with Firmware Version 1.17.04 and below. When this flag is cleared (default), use Master Kill All Moves and Master Stop All Moves definition compatible with Firmware Version 1.17.05 and above. Refer to Master Flags.
Enable Rapid Move Modes	R/W	When this flag is set, use Binary Header Code 0 definition compatible with Firmware Version 1.17.05 and above. When this flag is clear (default), use Binary Header Code 0 definition compatible with Firmware Version 1.17.04 and below. Refer to Binary Move Command.
Master Short Time	R/W	When the **TMOV** is ON, this flag will be set, if the move is too big to be completed in the time specified by the **TMOV** command. This flag will be cleared by a move, which can be done with in the time set by **TMOV** command.
Master in TMOV	R/W	This flag must be set for the time base moves. The **TMOV ON** command sets it and the **TMOV OFF** command clears it.
Master TOV	R/W	This flag is set when the master is using a **TOV** move. This flag must be cleared to exit from **TOV** mode. Exiting from **TOV** mode reduces load on the CPU and is recommended when not required.
Sync Mode	R	This flag is set to indicate that the master is in the sync mode. It is set by the **SYNC ON** command and cleared by **SYNC OFF** command.
Sync Manual	R/W	When set, means that the moves should be loaded and started manually for the synchronized masters. The **SYNC MDI** command sets this flag and **SYNC PROG** command clears this flag.
Sync Manual Loaded	R	This flag is set when the move has been issued to the synchronized master. When the masters in sync start the move, this flag is self-cleared.
Spiral mode	R/W	
TANG mode	R	TANG ON and OFF will set and clear this flag respectively
Axis MAXVEL	R	When this flag is set, axis velocity limit mode is enabled. See **MAXVEL** command.
TARC mode	R	TARC ON and OFF will set and clear this flag respectively

Bit2304 - Bit2559 Secondary Axis Flags (Axes 0-7)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x09		**4168**	**4169**	**4170**	**4171**	**4172**	**4173**	**4174**	**4175**
Control Flags	**Bit Index**	**AXIS Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Positive Dir Limit (ALM, BLM)	0	2304	2336	2368	2400	2432	2464	2496	2528
Negative Dir Limit (ALM, BLM)	1	2305	2337	2369	2401	2433	2465	2497	2529
Dir Limit Activate (ALM, BLM)	2	2306	2338	2370	2402	2434	2466	2498	2530
Dir Limit Tripped (ALM, BLM)	3	2307	2339	2371	2403	2435	2467	2499	2531
CAM Trigger Mode	4	2308	2340	2372	2404	2436	2468	2500	2532
CAM Trigger Started	5	2309	2341	2373	2405	2437	2469	2501	2533
CAM SRC Zero	6	2310	2342	2374	2406	2438	2470	2502	2534
Reserved	7	2311	2343	2375	2407	2439	2471	2503	2535
GEAR On Trig Armed	8	2312	2344	2376	2408	2440	2472	2504	2536
GEAR On Position	9	2313	2345	2377	2409	2441	2473	2505	2537
GEAR Trigger Started	10	2314	2346	2378	2410	2442	2474	2506	2538
SRC Based Accel (GEAR)	11	2315	2347	2379	2411	2443	2475	2507	2539
GEAR Off Armed	12	2316	2348	2380	2412	2444	2476	2508	2540
GEAR Off Position	13	2317	2349	2381	2413	2445	2477	2509	2541
GEAR Max	14	2318	2350	2382	2414	2446	2478	2510	2542
GEAR Min	15	2319	2351	2383	2415	2447	2479	2511	2543
Reserved	16	2320	2352	2384	2416	2448	2480	2512	2544
3D ARC (TARC)	17	2321	2353	2385	2417	2449	2481	2513	2545
Reserved	18	2322	2354	2386	2418	2450	2482	2514	2546
Reserved	19	2323	2355	2387	2419	2451	2483	2515	2547
Reserved	20	2324	2356	2388	2420	2452	2484	2516	2548
Reserved	21	2325	2357	2389	2421	2453	2485	2517	2549
Don’t Use Capture Register	22	2326	2358	2390	2422	2454	2486	2518	2550
Stepper Feedback	23	2327	2359	2391	2423	2455	2487	2519	2551

Fast Axis Limit Flags	Bit Index	AXIS Number							
		0	1	2	3	4	5	6	7
Fast EXC Flags	24	2328	2360	2392	2424	2456	2488	2520	2552
Fast IPB Flags	25	2329	2361	2393	2425	2457	2489	2521	2553
Fast ALM Flags	26	2330	2362	2394	2426	2458	2490	2522	2554
Fast BLM Flags	27	2331	2363	2395	2427	2459	2491	2523	2555
Fast TLM Flags	28	2332	2364	2396	2428	2460	2492	2524	2556
Fast TIB Flags	29	2333	2365	2397	2429	2461	2493	2525	2557
Reserved	30	2334	2366	2398	2430	2462	2494	2526	2558
Fast Master Flags	31	2335	2367	2399	2431	2463	2495	2527	2559

Control Flags

Field Description	Read/ Write	Description
Positive Dir Limit	R/W	If this flag and the “Dir Limit Active” flag are set, the “Dir Limit Tripped” flag will be set and a feedhold will be issued if the axis moves in the positive direction.
Negative Dir Limit	R/W	Same as “Positive Dir Limit” except in the negative direction.
Dir Limit Active	R/W	Set this flag to activate directional limit checking.
Dir Limit Tripped	R/W	Set if a directional limit condition caused a master feedhold to be issued.
CAM Trigger Mode	R	CAM Trigger mode will set this bit and will clear itself when CAM turns OFF.
CAM Trigger Started	R	Set when the CAM is in trigger mode and the external input has enabled the CAM. **CAM OFF** will clear this flag.
CAM SRC Zero	R/W	Causes subsequent **CAM ON** command to clear index into cam table. This bit is self-cleaning.
Gear ON Trig Armed	R	Set when the Gear Trigger Mode is set by the user. The processor will clear this flag when the gear has started.
Gear ON Position	R	Set when the Gear Offset position is reached to start gearing. Gear Offset is the number of pulses after the trigger is received.
Gear Trigger Started	R	Set when the gear is in trigger mode and the external input has enabled the gear. **GEAR OFF** will clear this flag.
SRC Based Accel	R/W	This flag will cause the **GEAR ACC** and **GEAR DEC** values to be interpreted as output units / input unit / input unit.
Gear Off Trigger Armed	R	Set when the Gear Off Trigger Mode is set by the user. The processor will clear this flag.
Gear Off Position	R	Set when the Gear Offset position is reached to turn off gearing. Gear Offset is the number of pulses after the trigger is received.
Gear Max	R	When the gear max limit is hit this flag is automatically set. It self clears when gear comes back within the max limit
Gear Min	R	When the gear min limit is hit this flag is automatically set. It self clears when gear goes out of the min limit
3D ARC (TARC)	R/W	Setting this flag enables the axis as part of a 3D Arc move. Clearing this flag removes the axis from a 3D Arc move.
Don’t Use Capture Register	R/W	This flag is set by the user to tell that there is no feedback encoder attached to the stepper motor. In this case the when the interrupt comes the capture register value is not used rather current commanded position value is used. (INTCAP)
Stepper Feedback for HSINT	R/W	This flag will ensure open loop stepper and still feedback the encoder counts for **HSINT**, **INTCAP** and **MSEEK** commands

Fast Axis Limit Flags

The default update rate for the following Axis Flags (Bit768 – Bit1023) is 50 milliseconds:

Axis Limit Flags

Not In Position (**IPB**)

Not Excess Error (**EXC**)

Within A Limit (**ALM**)

Not Within B Limit (**BLM**)

Not Torque Limit (**TLM**)

Not In Torque Band (**ITB**)

The user can select these flag groups to be updated at a higher rate using the Fast Axis Limit Flags and the corresponding 'Enable Fast Flags Update Mode' flag, Bit5632 of the Misc. Control Group 1 flags.

When this mode is enabled (Bit5632), up to eight (8) axis in one group of Axis Limit flags are updated each servo period, depending on the individual axes that are selected. When more than one group of Fast Axis Limit Flags are selected, only one group of Axis Limit Flags will be updated every servo period. All axes for the selected group will be updated in the same servo period.

For example, if both Fast EXC Flags Axis 0-3 and Fast ALM Flags Axis 2-3 are selected, and Enable Fast Flags Update Mode is set, Not Excess Error flags for axes 0-3 will be updated in one servo period. The next servo period, Within A Limit flags for axes 2 and 3 will be updated. It takes two (2) servo periods to update both sets of flags. If all six groups of flags are selected, it will take six (6) servo periods to update all flags.

Only the axes required for fast flag update should be enabled, to prevent unnecessary burden on the CPU load during the servo period.

Fast Master Limit Flags

The default update rate for the Master Limit Flags (Bit512 – Bit767) is 50 milliseconds. When this mode is selected, all master limit flags for the selected axes will be updated in the servo period.

This mode works in conjunction with the Fast Axis Limit Flags. When Fast Axis Limit Flags and Fast Master Limit Flags are both enabled, only one group of limit flags will be updated in a single servo period. However, unlike the Axis Limit Flags, which update only group of limit flags in a single servo period, all of the Master Limit Flags are updated in a single servo period.

Bit8192 - Bit8447 Secondary Axis Flags (Axes 8-15)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x20		**4352**	**4353**	**4354**	**4355**	**4356**	**4357**	**4358**	**4359**
Control Flags	**Bit Index**	**AXIS Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Positive Dir Limit (**ALM**, **BLM**)	0	8192	8224	8256	8288	8320	8352	8384	8416
Negative Dir Limit (**ALM**, **BLM**)	1	8193	8225	8257	8289	8321	8353	8385	8417
Dir Limit Activate (**ALM**, **BLM**)	2	8194	8226	8258	8290	8322	8354	8386	8418
Dir Limit Tripped (**ALM**, **BLM**)	3	8195	8227	8259	8291	8323	8355	8387	8419
CAM Trigger Mode	4	8196	8228	8260	8292	8324	8356	8388	8420
CAM Trigger Started	5	8197	8229	8261	8293	8325	8357	8389	8421
CAM SRC Zero	6	8198	8230	8262	8294	8326	8358	8390	8422
Reserved	7	8199	8231	8263	8295	8327	8359	8391	8423
GEAR On Trig Armed	8	8200	8232	8264	8296	8328	8360	8392	8424
GEAR On Position	9	8201	8233	8265	8297	8329	8361	8393	8425
GEAR Trigger Started	10	8202	8234	8266	8298	8330	8362	8394	8426
SRC Based Accel (GEAR)	11	8203	8235	8267	8299	8331	8363	8395	8427
GEAR Off Armed	12	8204	8236	8268	8300	8332	8364	8396	8428
GEAR Off Position	13	8205	8237	8269	8301	8333	8365	8397	8429
GEAR Max	14	8206	8238	8270	8302	8334	8366	8398	8430
GEAR Min	15	8207	8239	8271	8303	8335	8367	8399	8431
Reserved	16	8208	8240	8272	8304	8336	8368	8400	8432
3D ARC (**TARC**)	17	8209	8241	8273	8305	8337	8369	8401	8433
Reserved	18	8210	8242	8274	8306	8338	8370	8402	8434
Reserved	19	8211	8243	8275	8307	8339	8371	8403	8435
Reserved	20	8212	8244	8276	8308	8340	8372	8404	8436
Reserved	21	8213	8245	8277	8309	8341	8373	8405	8437
Don't Use Capture Register	22	8214	8246	8278	8310	8342	8374	8406	8438
Stepper Feedback	23	8215	8247	8279	8311	8343	8375	8407	8439

Fast Axis Limit Flags	Bit Index	AXIS Number							
		8	9	10	11	12	13	14	15
Fast EXC Flags	24	8216	8248	8280	8312	8344	8376	8408	8440
Fast IPB Flags	25	8217	8249	8281	8313	8345	8377	8409	8441
Fast ALM Flags	26	8218	8250	8282	8314	8346	8378	8410	8442
Fast BLM Flags	27	8219	8251	8283	8315	8347	8379	8411	8443
Fast TLM Flags	28	8220	8252	8284	8316	8348	8380	8412	8444
Fast TIB Flags	29	8221	8253	8285	8317	8349	8381	8413	8445
Reserved	30	8222	8254	8286	8318	8350	8382	8414	8446
Fast Master Flags	31	8223	8255	8287	8319	8351	8383	8415	8447

Control Flags

Field Description	Read/ Write	Description
Positive Dir Limit	R/W	If this flag and the “Dir Limit Active” flag are set, the “Dir Limit Tripped” flag will be set and a feedhold will be issued if the axis moves in the positive direction.
Negative Dir Limit	R/W	Same as “Positive Dir Limit” except in the negative direction.
Dir Limit Active	R/W	Set this flag to activate directional limit checking.
Dir Limit Tripped	R/W	Set if a directional limit condition caused a master feedhold to be issued.
CAM Trigger Mode	R	CAM Trigger mode will set this bit and will clear itself when CAM turns OFF.
CAM Trigger Started	R	Set when the CAM is in trigger mode and the external input has enabled the CAM. **CAM OFF** will clear this flag.
CAM SRC Zero	R/W	Causes subsequent **CAM ON** command to clear index into cam table. This bit is self-cleaning.
Gear ON Trig Armed	R	Set when the Gear Trigger Mode is set by the user. The processor will clear this flag when the gear has started.
Gear ON Position	R	Set when the Gear Offset position is reached to start gearing. Gear Offset is the number of pulses after the trigger is received.
Gear Trigger Started	R	Set when the gear is in trigger mode and the external input has enabled the gear. **GEAR OFF** will clear this flag.
SRC Based Accel	R/W	This flag will cause the **GEAR ACC** and **GEAR DEC** values to be interpreted as output units / input unit / input unit.
Gear Off Trigger Armed	R	Set when the Gear Off Trigger Mode is set by the user. The processor will clear this flag.
Gear Off Position	R	Set when the Gear Offset position is reached to turn off gearing. Gear Offset is the number of pulses after the trigger is received.
Gear Max	R	When the gear max limit is hit this flag is automatically set. It self clears when gear comes back within the max limit
Gear Min	R	When the gear min limit is hit this flag is automatically set. It self clears when gear goes out of the min limit
3D ARC (TARC)	R/W	Setting this flag enables the axis as part of a 3D Arc move. Clearing this flag removes the axis from a 3D Arc move.
Don’t Use Capture Register	R/W	This flag is set by the user to tell that there is no feedback encoder attached to the stepper motor. In this case the when the interrupt comes the capture register value is not used rather current commanded position value is used. (INTCAP)
Stepper Feedback for HSINT	R/W	This flag will ensure open loop stepper and still feedback the encoder counts for **HSINT**, **INTCAP** and **MSEEK** commands

Fast Axis Limit Flags

The default update rate for the following Axis Flags (Bit768 – Bit1023) is 50 milliseconds:

Axis Limit Flags

Not In Position (**IPB**)

Not Excess Error (**EXC**)

Within A Limit (**ALM**)

Not Within B Limit (**BLM**)

Not Torque Limit (**TLM**)

Not In Torque Band (**ITB**)

The user can select these flag groups to be updated at a higher rate using the Fast Axis Limit Flags and the corresponding 'Enable Fast Flags Update Mode' flag, Bit5632 of the Misc. Control Group 1 flags.

When this mode is enabled (Bit5632), up to eight (8) axis in one group of Axis Limit flags are updated each servo period, depending on the individual axes that are selected. When more than one group of Fast Axis Limit Flags are selected, only one group of Axis Limit Flags will be updated every servo period. All axes for the selected group will be updated in the same servo period.

For example, if both Fast EXC Flags Axis 0-3 and Fast ALM Flags Axis 2-3 are selected, and Enable Fast Flags Update Mode is set, Not Excess Error flags for axes 0-3 will be updated in one servo period. The next servo period, Within A Limit flags for axes 2 and 3 will be updated. It takes two (2) servo periods to update both sets of flags. If all six groups of flags are selected, it will take six (6) servo periods to update all flags.

Only the axes required for fast flag update should be enabled, to prevent unnecessary burden on the CPU load during the servo period.

Fast Master Limit Flags

The default update rate for the Master Limit Flags (Bit512 – Bit767) is 50 milliseconds. When this mode is selected, all master limit flags for the selected axes will be updated in the servo period.

This mode works in conjunction with the Fast Axis Limit Flags. When Fast Axis Limit Flags and Fast Master Limit Flags are both enabled, only one group of limit flags will be updated in a single servo period. However, unlike the Axis Limit Flags, which update only group of limit flags in a single servo period, all of the Master Limit Flags are updated in a single servo period.

Bit2560 - Bit3175 Encoder Flags

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x0A		**4176**	**4177**	**4178**	**4179**	**4180**	**4181**	**4182**	**4183**
Encoder Flags	**Bit Index**	**Encoder Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Encoder Signal Fault (RES)	0	2560	2592	2624	2656	2688	2720	2752	2784
Encoder Signal Lost (RES)	1	2561	2593	2625	2657	2689	2721	2753	2785
Reserved	2	2562	2594	2626	2658	2690	2722	2754	2786
Reserved	3	2563	2595	2627	2659	2691	2723	2755	2787
ABS DATA Fault	4	2564	2596	2628	2660	2692	2724	2756	2788
ABS DATA Ready	5	2565	2597	2629	2661	2693	2725	2757	2789
Reserved	6	2566	2598	2630	2662	2694	2726	2758	2790
Reserved	7	2567	2599	2631	2663	2695	2727	2759	2791
OOP Random Mode	8	2568	2600	N/A	N/A	N/A	N/A	N/A	N/A
OOP Enable	9	2569	2601	N/A	N/A	N/A	N/A	N/A	N/A
OOP Output Selection	10	2570	2602	N/A	N/A	N/A	N/A	N/A	N/A

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x0B		**4184**	**4185**	**4186**	**4187**	**4188**	**4189**	**4190**	**4191**
Encoder Flags	**Bit Index**	**Encoder Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Encoder Signal Fault (RES)	0	2816	2848	2880	2912	2944	2976	3008	3040
Encoder Signal Lost (RES)	1	2817	2849	2881	2913	2945	2977	3009	3041
Reserved	2	2818	2850	2882	2914	2946	2978	3010	3042
Reserved	3	2819	2851	2883	2915	2947	2979	3011	3043
ABS DATA Fault	4	2820	2852	2884	2916	2948	2980	3012	3044
ABS DATA Ready	5	2821	2853	2885	2917	2949	2981	3013	3045
Reserved	6	2822	2854	2886	2918	2950	2982	3014	3046
Reserved	7	2823	2855	2887	2919	2951	2983	3015	3047
OOP Random Mode	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OOP Enable	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x0C		**4192**	**4193**	**4194**	**4195**	**4196**	**4197**	**4198**	**4199**
Encoder Flags	**Bit Index**	**Encoder Number**							
		16	**17**	**18**	**19**	**20**	**21**	**22**	**23**
Encoder Signal Fault (RES)	0	3072	3104	3136	3168	N/A	N/A	N/A	N/A
Encoder Signal Lost (RES)	1	3073	3105	3137	3169	N/A	N/A	N/A	N/A
Reserved	2	3074	3106	3138	3170	N/A	N/A	N/A	N/A
Reserved	3	3075	3107	3139	3171	N/A	N/A	N/A	N/A
ABS DATA Fault	4	3076	3108	3140	3172	N/A	N/A	N/A	N/A
ABS DATA Ready	5	3077	3109	3141	3173	N/A	N/A	N/A	N/A
Reserved	6	3078	3110	3142	3174	N/A	N/A	N/A	N/A
Reserved	7	3079	3111	3143	3175	N/A	N/A	N/A	N/A

Encoder Flags

Field Description	Read/ Write	Description
Encoder Signal Fault	R	This flag is set if an encoder fault is detected by the state machine in the FPGA. This flag is cleared by the command “ENCx RES”. This flag is available on the ACR1200 and ACR8010 boards only.
Encoder Signal Lost	R	This flag is set if an encoder fault is detected by the encoder check circuit. This flag is cleared by the command “ENCx RES”. This flag is available on the ACR1200 and ACR8010 boards only.
ABS Data Fault	R	This flag is set if a bad data read is detected during a read of the Yaskawa encoder.
ABS Data Ready	R	This flag is set to indicate that a successful read of the Yaskawa encoder occurred and data is ready. In normal cases this should always be on as it will only be cleared for several micro seconds at a time.
OOP Random Mode	R	Set from OOP RND mode and clear for OOP INC mode. **OOP OFF** command will clear this flag.
OOP Enable	R	Set by the start of the **OOP** command. In **OOP INC** mode it will self clear when **OOP** command is completed firing output. In the **OOP RND** mode, it will stay on. The user will have to issue **OOP OFF** command to clear this flag.

Field Description	Read/ Write	Description
OOP Output Selection	R	If the bit is not set, pulses are steered to the OUT bit corresponding to that encoder. If the bit is set, pulses are steered to one of the high speed outputs associated with encoder 3 or 7 as listed below: • OOP 0 – Axis 3 step output • OOP 1 – Axis 3 direction output • OOP 2 – Axis 3 SSI clock (Channel A Encoder automatically set as output) • OOP 4 – Axis 7 step output • OOP 5 – Axis 7 direction output • OOP 6 – Axis 7 SSI clock (Channel A Encoder automatically set as output)

Bit3328 - Bit3455 EPLD Digital Inputs

Mask		0x01	0x02	0x04	0x08		
Flag Parameter code=0x10; index=0x0D		4200	4201	4202	4203		DSP-402 Object 60FD Bit Position (n=EPLD num)
Aries EPL Inputs	Bit Index	EPLD Number					
		EPLD0	EPLD4	EPLD8	EPLD12		
Input 0	0	3328	3360	3392	3424		EPLDn 3
Input 1	1	3329	3361	3393	3425		EPLDn 0
Input 2	2	3330	3362	3394	3426		EPLDn 1
Input 3	3	3331	3363	3395	3427		EPLDn 18
High Speed Input 4	4	3332	3364	3396	3428		EPLDn 2
High Speed Input 5	5	3333	3365	3397	3429		EPLDn 16
High Speed Input 6	6	3334	3366	3398	3430		EPLDn 17
No function	7	3335	3367	3399	3431		EPLDn 19
		EPLD 1	EPLD5	EPLD9	EPLD13		
Input 0	8	3336	3368	3400	3432		EPLDn 3
Input 1	9	3337	3369	3401	3433		EPLDn 0
Input 2	10	3338	3370	3402	3434		EPLDn 1
Input 3	11	3339	3371	3403	3435		EPLDn 18
High Speed Input 4	12	3340	3372	3404	3436		EPLDn 2
High Speed Input 5	13	3341	3373	3405	3437		EPLDn 16
High Speed Input 6	14	3342	3374	3406	3438		EPLDn 17
No function	15	3343	3375	3407	3439		EPLDn 19
		EPLD 2	EPLD6	EPLD10	EPLD14		
Input 0	16	3344	3376	3408	3440		EPLDn 3
Input 1	17	3345	3377	3409	3441		EPLDn 0
Input 2	18	3346	3378	3410	3442		EPLDn 1
Input 3	19	3347	3379	3411	3443		EPLDn 18
High Speed Input 4	20	3348	3380	3412	3444		EPLDn 2
High Speed Input 5	21	3349	3381	3413	3445		EPLDn 16
High Speed Input 6	22	3350	3382	3414	3446		EPLDn 17
No function	23	3351	3383	3415	3447		EPLDn 19

Mask		0x01	0x02	0x04	0x08		
Flag Parameter code=0x10; index=0x0D		**4200**	**4201**	**4202**	**4203**		**DSP-402 Object 60FD Bit Position (n=EPLD num)**
Aries EPL Inputs	**Bit Index**	**EPLD Number**					
		EPLD 3	**EPLD7**	**EPLD11**	**EPLD15**		
Input 0	24	3352	3384	3416	3448		EPLDn 3
Input 1	25	3353	3385	3417	3449		EPLDn 0
Input 2	26	3354	3386	3418	3450		EPLDn 1
Input 3	27	3355	3387	3419	3451		EPLDn 18
High Speed Input 4	28	3356	3388	3420	3452		EPLDn 2
High Speed Input 5	29	3357	3389	3421	3453		EPLDn 16
High Speed Input 6	30	3358	3390	3422	3454		EPLDn 17
No function	31	3359	3391	3423	3455		EPLDn 19

Bit3840 - Bit3967 EPLD Digital Outputs

	Mask	0x01	0x02	0x04	0x08		
Flag Parameter code=0x10; index=0x0D		**4216**	**4217**	**4218**	**4219**		**DSP-402 Object 60FD Bit Position (n=EPLD num)**
Aries EPL Inputs	**Bit Index**	**EPLD Number**					
		EPLD0	**EPLD4**	**EPLD8**	**EPLD12**		
Output 0	0	3840	3872	3904	3936		EPLDn 16
Output 1	1	3841	3873	3905	3937		EPLDn 17
Output 2	2	3842	3874	3906	3938		EPLDn 18
Output 3	3	3843	3875	3907	3939		EPLDn 19
No function	4	3844	3876	3908	3940		EPLDn 20
No function	5	3845	3877	3909	3941		EPLDn 21
No function	6	3846	3878	3910	3942		EPLDn 22
No function	7	3847	3879	3911	3943		EPLDn 23
		EPLD 1	**EPLD5**	**EPLD9**	**EPLD13**		
Output 0	8	3848	3880	3912	3944		EPLDn 16
Output 1	9	3849	3881	3913	3945		EPLDn 17
Output 2	10	3850	3882	3914	3946		EPLDn 18
Output 3	11	3851	3883	3915	3947		EPLDn 19
No function	12	3852	3884	3916	3948		EPLDn 20
No function	13	3853	3885	3917	3949		EPLDn 21
No function	14	3854	3886	3918	3950		EPLDn 22
No function	15	3855	3887	3919	3951		EPLDn 23
		EPLD 2	**EPLD6**	**EPLD10**	**EPLD14**		
Output 0	16	3856	3888	3920	3952		EPLDn 16
Output 1	17	3857	3889	3921	3953		EPLDn 17
Output 2	18	3858	3890	3922	3954		EPLDn 18
Output 3	19	3859	3891	3923	3955		EPLDn 19
No function	20	3860	3892	3924	3956		EPLDn 20
No function	21	3861	3893	3925	3957		EPLDn 21
No function	22	3862	3894	3926	3958		EPLDn 22
No function	23	3863	3895	3927	3959		EPLDn 23

Mask		0x01	0x02	0x04	0x08		
Flag Parameter code=0x10; index=0x0D		4216	4217	4218	4219		DSP-402 Object 60FD Bit Position (n=EPLD num)
Aries EPL Inputs	Bit Index	EPLD Number					
		EPLD 3	EPLD7	EPLD11	EPLD15		
Output 0	24	3864	3896	3928	3960		EPLDn 16
Output 1	25	3865	3897	3929	3961		EPLDn 17
Output 2	26	3866	3898	3930	3962		EPLDn 18
Output 3	27	3867	3899	3931	3963		EPLDn 19
No function	28	3868	3900	3932	3964		EPLDn 20
No function	29	3869	3901	3933	3965		EPLDn 21
No function	30	3870	3902	3934	3966		EPLDn 22
No function	31	3871	3903	3935	3967		EPLDn 23

Bit5120 - Bit5375 Tertiary Master Flags (Masters 0-7)

Version 1.18.04 & Up

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x14		**4256**	**4257**	**4258**	**4259**	**4260**	**4261**	**4262**	**4263**
		MASTER Number							
Control Flags	**Bit Index**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
SPLINE Pending	0	5120	5152	5184	5216	5248	5280	5312	5344
SPLINE Buffered	1	5121	5153	5185	5217	5249	5281	5313	5345
SPLINE Interpolation	2	5122	5154	5186	5218	5250	5282	5314	5346
Reserved	3	5123	5155	5187	5219	5251	5283	5315	5347
SPLINE Velocity Mode	4	5124	5156	5188	5220	5252	5284	5316	5348
SPLINE Time Mode	5	5125	5157	5189	5221	5253	5285	5317	5349
Reserved	6	5126	5158	5190	5222	5254	5286	5318	5350
SPLINE Knot Present	7	5127	5159	5191	5223	5255	5287	5319	5351
SPLINE Acc Ramp	8	5128	5160	5192	5224	5256	5288	5320	5352
SPLINE Started	9	5129	5161	5193	5225	5257	5289	5321	5353
SPLINE Neg. Knot	10	5130	5162	5194	5226	5258	5290	5322	5354
SPLINE Moved	11	5131	5163	5195	5227	5259	5291	5323	5355
SPLINE Loaded	12	5132	5164	5196	5228	5260	5292	5324	5356
Reserved	13	5133	5165	5197	5229	5261	5293	5325	5357
SPLINE Profiler On	14	5134	5166	5198	5230	5262	5294	5326	5358
Reserved	15	5135	5167	5199	5231	5263	5295	5327	5359
NURB Loaded	16	5136	5168	5200	5232	5264	5296	5328	5360
Reserved	17	5137	5169	5201	5233	5265	5297	5329	5361
NURB Delta Done	18	5138	5170	5202	5234	5266	5298	5330	5362
NURB Stop Active	19	5139	5171	5203	5235	5267	5299	5331	5363
NURB Moved	20	5140	5172	5204	5236	5268	5300	5332	5364
NURB Interpolation	21	5141	5173	5205	5237	5269	5301	5333	5365
NURB Buffered	22	5142	5174	5206	5238	5270	5302	5334	5366
NURB Profiler On	23	5143	5175	5207	5239	5271	5303	5335	5367
NURB Pending	24	5144	5176	5208	5240	5272	5304	5336	5368
NURB Acc Ramp	25	5145	5177	5209	5241	5273	5405	5337	5369
Reserved	26	5146	5178	5210	5242	5274	5306	5338	5370
NURB Started	27	5147	5179	5211	5243	5275	5307	5339	5371
NURB Time	28	5148	5180	5212	5244	5276	5308	5340	5372
NURB Smooth	29	5149	5181	5213	5245	5277	5309	5341	5373
NURB Dynamic	30	5150	5182	5214	5246	5278	5310	5342	5374
NURB Neg Knot	31	5151	5183	5215	5247	5279	5311	5343	5375

Field Description	Read/ Write	Description
SPLINE Pending	R	This flag indicates to the spline profiler that a spline move is pending. The profiler then loads the move into a buffer and clears the flag.
SPLINE Buffered	R	Flag set if a spline move is pending (buffered) while a previous move is in progress. This flag will clear when there are no moves pending.
SPLINE Interpolation	R/W	This flag is set by the **SPLINE** mode command and remains set until the interpolation mode ends.
SPLINE Velocity Mode	R/W	Indicates that **SPLINE MODE** 1 is on.
SPLINE Time Mode	R/W	Indicates that **SPLINE MODE** 0 is on.
SPLINE Knot Present	R/W	This flag will be set if optional knot data is included in the spline data.
SPLINE Acc Ramp	R	Setting the 'feed hold bit 520' on the master will put the spline profiler in the acceleration/deceleration ramp mode. This flag indicates this state.
SPLINE Started	R/W	If set, means that the **SPLINE** move has started. Self clears at the end of the move
SPLINE Neg. Knot	R/W	This flag is set when the user issues a negative knot and self clears when the **SPLINE** ends.
SPLINE Moved	R	When the current spline move is completed, the spline profiler will move to the next spline and set this flag and clear the **SPLINE** buffered flag. Sending the next move data will set the **SPLINE** buffered flag and clear this flag.
SPLINE Load	R	The **SPLINE MODE** command will set this flag and it will stay on until the end of the spline block. (i.e. until K-1 is issued.)
SPLINE Profiler On	R/W	This flag indicates that the **SPLINE** profiler is calculating the curve points.
NURB Load	R	The **NURB MODE** command will set this flag and it will stay on until the end of the nurb block. (i.e. until K-1 is issued.)
NURB Delta Done	R	This flag is used with only **NURB MODE** 2. At the beginning of each segment this flag is set, indicating that a new delta period is calculated for linear motion. This is cleared at the end of each segment.
NURB Stop Active	R	When the negative knot is received and processed, the **NURB** profiler activates the stop sequence by decelerating to a slower velocity. This flag is set to indicate this state.
NURB Moved	R	When the current nurb move is completed, the nurb profiler will move to the next nurb and set this flag and clear the **NURB** buffered flag. Sending the next move data will set the **NURB** buffered flag and clear this flag.
NURB Interpolation	R/W	This flag is set by the **NURB** mode command and remains set until the interpolation mode ends.

Field Description	Read/ Write	Description
NURB Buffered	R	Flag set if a spline move is pending (buffered) while a previous move is in progress. This flag will clear when there are no moves pending.
NURB Profiler On	R/W	This flag indicates that the **NURB** profiler is calculating the curve points.
NURB Pending	R	This flag indicates to the nurb profiler that a nurb move is pending. The profiler then loads the move into a buffer and clears the flag.
NURB Acc Ramp	R	Setting the 'feed hold bit 520' on the master will put the nurb profiler in the acceleration/deceleration ramp mode. This flag indicates this state.
NURB Started	R/W	If set means that the **NURB** move has started. Self clears at the end of the move
NURB Time	R/W	Indicates **NURB MODE** 0
NURB Smooth	R/W	Indicates **NURB MODE** 4
NURB Dynamic	R/W	Indicates **NURB MODE** 1
NURB Neg. Knot	R/W	This flag is set when the user issues a negative knot and self clears when the **NURB** ends.

Bit5376 - Bit5631 Tertiary Master Flags (Masters 8-15)

Version 1.18.04 & Up

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x15		**4264**	**4265**	**4266**	**4267**	**4268**	**4269**	**4270**	**4271**
		MASTER Number							
Control Flags	**Bit Index**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
SPLINE Pending	0	5376	5408	5440	5472	5504	5536	5568	5600
SPLINE Buffered	1	5377	5409	5441	5473	5505	5537	5569	5601
SPLINE Interpolation	2	5378	5410	5442	5474	5506	5538	5570	5602
Reserved	3	5379	5411	5443	5475	5507	5539	5571	5603
SPLINE Velocity Mode	4	5380	5412	5444	5476	5508	5540	5572	5604
SPLINE Time Mode	5	5381	5413	5445	5477	5509	5541	5573	5605
Reserved	6	5382	5414	5446	5478	5510	5542	5574	5606
SPLINE Knot Present	7	5383	5415	5447	5479	5511	5543	5575	5607
SPLINE Acc Ramp	8	5384	5416	5448	5480	5512	5544	5576	5608
SPLINE Started	9	5385	5417	5449	5481	5513	5545	5577	5609
SPLINE Neg. Knot	10	5386	5418	5450	5482	5514	5546	5578	5610
SPLINE Moved	11	5387	5419	5451	5483	5515	5547	5579	5611
SPLINE Loaded	12	5388	5420	5452	5484	5516	5548	5580	5612
Reserved	13	5389	5421	5453	5485	5517	5549	5581	5613
SPLINE Profiler On	14	5390	5422	5454	5486	5518	5550	5582	5614
Reserved	15	5391	5423	5455	5487	5519	5551	5583	5615
NURB Loaded	16	5392	5424	5456	5488	5520	5552	5584	5616
Reserved	17	5393	5425	5457	5489	5521	5553	5585	5617
NURB Delta Done	18	5394	5426	5458	5490	5522	5554	5586	5618
NURB Stop Active	19	5395	5427	5459	5491	5523	5555	5587	5619
NURB Moved	20	5396	5428	5460	5492	5524	5556	5588	5620
NURB Interpolation	21	5397	5429	5461	5493	5525	5557	5589	5621
NURB Buffered	22	5398	5430	5462	5494	5526	5558	5590	5622
NURB Profiler On	23	5399	5431	5463	5495	5527	5559	5591	5623
NURB Pending	24	5400	5432	5464	5496	5528	5560	5592	5624
NURB Acc Ramp	25	5401	5433	5465	5497	5529	5561	5593	5625
Reserved	26	5402	5434	5466	5498	5530	5562	5594	5626
NURB Started	27	5403	5435	5467	5499	5531	5563	5595	5627
NURB Time	28	5404	5436	5468	5500	5532	5564	5596	5628
NURB Smooth	29	5405	5437	5469	5501	5533	5565	5597	5629
NURB Dynamic	30	5406	5438	5470	5502	5534	5566	5598	5630
NURB Neg Knot	31	5407	5439	5471	5503	5535	5567	5599	5631

Field Description	Read/ Write	Description
SPLINE Pending	R	This flag indicates to the spline profiler that a spline move is pending. The profiler then loads the move into a buffer and clears the flag.
SPLINE Buffered	R	Flag set if a spline move is pending (buffered) while a previous move is in progress. This flag will clear when there are no moves pending.
SPLINE Interpolation	R/W	This flag is set by the **SPLINE MODE** command and remains set until the interpolation mode ends.
SPLINE Velocity Mode	R/W	Indicates that **SPLINE MODE** 1 is on.
SPLINE Time Mode	R/W	Indicates that **SPLINE MODE** 0 is on.
SPLINE Knot Present	R/W	This flag will be set if optional knot data is included in the SPLINE data.
SPLINE Acc Ramp	R	Setting the 'feed hold bit 520' on the master will put the spline profiler in the acceleration/deceleration ramp mode. This flag indicates this state.
SPLINE Started	R/W	If set, means that the **SPLINE** move has started. Self clears at the end of the move
SPLINE Neg. Knot	R/W	This flag is set when the user issues a negative knot and self clears when the **SPLINE** ends.
SPLINE Moved	R	When the current spline move is completed, the spline profiler will move to the next spline and set this flag and clear the **SPLINE** buffered flag. Sending the next move data will set the **SPLINE** buffered flag and clear this flag.
SPLINE Load	R	The **SPLINE MODE** command will set this flag and it will stay on until the end of the spline block. (i.e. until K-1 is issued.)
SPLINE Profiler On	R/W	This flag indicates that the **SPLINE** profiler is calculating the curve points.
NURB Load	R	The **NURB MODE** command will set this flag and it will stay on until the end of the nurb block. (i.e. until K-1 is issued.)
NURB Delta Done	R	This flag is used with only **NURB MODE** 2. At the beginning of each segment this flag is set, indicating that a new delta period is calculated for linear motion. This is cleared at the end of each segment.
NURB Stop Active	R	When the negative knot is received and processed, the **NURB** profiler activates the stop sequence by decelerating to a slower velocity. This flag is set to indicate this state.
NURB Moved	R	When the current nurb move is completed, the nurb profiler will move to the next nurb and set this flag and clear the **NURB** buffered flag. Sending the next move data will set the **NURB** buffered flag and clear this flag.
NURB Interpolation	R/W	This flag is set by the **NURB** mode command and remains set until the interpolation mode ends.

Field Description	Read/ Write	Description
NURB Buffered	R	Flag set if a spline move is pending (buffered) while a previous move is in progress. This flag will clear when there are no moves pending.
NURB Profiler On	R/W	This flag indicates that the NURB profiler is calculating the curve points.
NURB Pending	R	This flag indicates to the nurb profiler that a nurb move is pending. The profiler then loads the move into a buffer and clears the flag.
NURB Acc Ramp	R	Setting the 'feed hold bit 520' on the master will put the nurb profiler in the acceleration/deceleration ramp mode. This flag indicates this state.
NURB Started	R/W	If set means that the **NURB** move has started. Self clears at the end of the move
NURB Time	R/W	Indicates **NURB MODE** 0
NURB Smooth	R/W	Indicates **NURB MODE** 4
NURB Dynamic	R/W	Indicates **NURB MODE** 1
NURB Neg. Knot	R/W	This flag is set when the user issues a negative knot and self clears when the NURB ends.

Bit5888 - Bit6143 Quaternary Master Flags (Master 0-7)

Version 1.18.06 & Up

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x17		**4280**	**4281**	**4282**	**4283**	**4284**	**4285**	**4286**	**4287**
Flag Description	**Bit Index**	**MASTER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
VEL LIMIT	0	5888	5920	5952	5984	6016	6048	6080	6112
LOOK Ahead Slowdown	1	5889	5921	5953	5985	6017	6049	6081	6113
Reserved	2	5890	5922	5954	5986	6018	6050	6082	6114
Reserved	3	5891	5923	5955	5987	6019	6051	6083	6115
MBUF mode (MBUF OFF, MBUF ON)	4	5892	5924	5956	5988	6020	6052	6084	6116
LOOK Ahead mode	5	5893	5925	5957	5989	6021	6053	6085	6117
Reserved	6	5894	5926	5958	5990	6022	6054	6086	6118
Reserved	7	5895	5927	5959	5991	6023	6055	6087	6119
Reserved	8	5896	5928	5960	5992	6024	6056	6088	6120
Reserved	9	5897	5929	5961	5993	6025	6057	6089	6121
MBUF user RAM	10	5898	5930	5962	5994	6026	6058	6090	6122
LOOK Ahead Neglect	11	5899	5931	5963	5995	6027	6059	6091	6123
Master Move Ended Alarm	12	5900	5932	5964	5996	6028	6060	6092	6124
Reserved	13	5901	5933	5965	5997	6029	6061	6093	6125
Reserved	14	5902	5934	5966	5998	6030	6062	6094	6126
Reserved	15	5903	5935	5967	5999	6031	6063	6095	6127
Perform Kinematics	16	5904	5936	5968	6000	6032	6064	6096	6128
Reserved	17	5905	5937	5969	6001	6033	6065	6097	6129
Reserved	18	5906	5938	5970	6002	6034	6066	6098	6130
Reserved	19	5907	5939	5971	6003	6035	6067	6099	6131
Reserved	20	5908	5940	5972	6004	6036	6068	6100	6132
Reserved	21	5909	5941	5973	6005	6037	6069	6101	6133
Reserved	22	5910	5942	5974	6006	6038	6070	6102	6134
Reserved	23	5911	5943	5975	6007	6039	6071	6103	6135
Reserved	24	5912	5944	5976	6008	6040	6072	6104	6136
Reserved	25	5913	5945	5977	6009	6041	6073	6105	6137
Reserved	26	5914	5946	5978	6010	6042	6074	6106	6138
Reserved	27	5915	5947	5979	6011	6043	6075	6107	6139
Reserved	28	5916	5948	5980	6012	6044	6076	6108	6140
Reserved	29	5917	5949	5981	6013	6045	6077	6109	6141

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x17		**4280**	**4281**	**4282**	**4283**	**4284**	**4285**	**4286**	**4287**
Flag Description	**Bit Index**	**MASTER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Reserved	30	5918	5950	5982	6014	6046	6078	6110	6142
Reserved	31	5919	5951	5983	6015	6047	6079	6111	6143

Field Description	Read/ Write	Description
VEL LIMIT	R	This flag is set when the master current vector velocity hits the **VEL LIMIT** set by the user. It self clears
LookAhead Slow Down	R	This flag is set by the look ahead algorithm to indicate that it is forcing to slow down
MBUF Mode	R	MBUF ON and OFF command will set and clear this flag respectively
LookAhead Mode	R	LOOK ON and OFF command will set and clear this flag respectively
MBUF user RAM	R	DIM MBUF and MBUF OFF command will set and clear this flag respectively
LookAhead Neglect	R/W	User can set this flag to turn off the look ahead on the fly and vice versa
Master Move Ended Alarm	R/W	When this flag is set, an Ethernet Alarm will be sent at the end of a master move.
Perform Kinematics	R/W	Setting this flag turns on kinematics. When the flag is cleared, the kinematics are turned off.

Bit6144 - Bit6399 Quaternary Master Flags (Master 8-15)

Version 1.18.06 & Up

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x18		**4288**	**4289**	**4290**	**4291**	**4292**	**4293**	**4294**	**4295**
Flag Description	**Bit Index**	**MASTER Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
VEL LIMIT	0	6144	6176	6208	6240	6272	6304	6336	6368
LOOK Ahead Slowdown	1	6145	6177	6209	6241	6273	6305	6337	6369
Reserved	2	6146	6178	6210	6242	6274	6306	6338	6370
Reserved	3	6147	6179	6211	6243	6275	6307	6339	6371
MBUF mode (MBUF OFF, MBUF ON)	4	6148	6180	6212	6244	6276	6308	6340	6372
LOOK Ahead mode	5	6149	6181	6213	6245	6277	6309	6341	6373
Reserved	6	6150	6182	6214	6246	6278	6310	6342	6374
Reserved	7	6151	6183	6215	6247	6279	6311	6343	6375
Reserved	8	6152	6184	6216	6248	6280	6312	6344	6376
Reserved	9	6153	6185	6217	6249	6281	6313	6345	6377
MBUF user RAM	10	6154	6186	6218	6250	6282	6314	6346	6378
LOOK Ahead Neglect	11	6155	6187	6219	6251	6283	6315	6347	6379
Master Move Ended Alarm	12	6156	6188	6220	6252	6284	6316	6348	6380
Reserved	13	6157	6189	6221	6253	6285	6317	6349	6381
Reserved	14	6158	6190	6222	6254	6286	6318	6350	6382
Reserved	15	6159	6191	6223	6255	6287	6319	6351	6383
Perform Kinematics	16	6160	6192	6224	6256	6288	6320	6352	6384
Reserved	17	6161	6193	6225	6257	6289	6321	6353	6385
Reserved	18	6162	6194	6226	6258	6290	6322	6354	6386
Reserved	19	6163	6195	6227	6259	6291	6323	6355	6387
Reserved	20	6164	6196	6228	6260	6292	6324	6356	6388
Reserved	21	6165	6197	6229	6261	6293	6325	6357	6389
Reserved	22	6166	6198	6230	6262	6294	6326	6358	6390
Reserved	23	6167	6199	6231	6263	6295	6327	6359	6391
Reserved	24	6168	6200	6232	6264	6296	6328	6360	6392
Reserved	25	6169	6201	6233	6265	6297	6329	6361	6393
Reserved	26	6170	6202	6234	6266	6298	6330	6362	6394
Reserved	27	6171	6203	6235	6267	6299	6331	6363	6395
Reserved	28	6172	6204	6236	6268	6300	6332	6364	6396
Reserved	29	6173	6205	6237	6269	6301	6333	6365	6397

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x18		**4288**	**4289**	**4290**	**4291**	**4292**	**4293**	**4294**	**4295**
	Bit Index	**MASTER Number**							
Flag Description		**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Reserved	30	6174	6206	6238	6270	6302	6334	6366	6398
Reserved	31	6175	6207	6239	6271	6303	6335	6367	6399

Field Description	Read/ Write	Description
VEL LIMIT	R	This flag is set when the master current vector velocity hits the **VEL LIMIT** set by the user. It self clears
LookAhead Slow Down	R	This flag is set by the look ahead algorithm to indicate that it is forcing to slow down
MBUF Mode	R	MBUF ON and OFF command will set and clear this flag respectively
LookAhead Mode	R	LOOK ON and OFF command will set and clear this flag respectively
MBUF user RAM	R	DIM MBUF and MBUF OFF command will set and clear this flag respectively
LookAhead Neglect	R/W	User can set this flag to turn off the look ahead on the fly and vice versa
Master Move Ended Alarm	R/W	When this flag is set, an Ethernet Alarm will be sent at the end of a master move.
Perform Kinematics	R/W	Setting this flag turns on kinematics. When the flag is cleared, the kinematics are turned off.

Bit6400 - Bit6655 Tertiary Axis Flags (Axes 0-7)

Version 1.18.06 & Up

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x19		**4296**	**4297**	**4298**	**4299**	**4300**	**4301**	**4302**	**4303**
Control Flags	**Bit Index**	**MASTER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Reserved	0	6400	6432	6464	6496	6528	6560	6592	6624
Reserved	1	6401	6433	6465	6497	6529	6561	6593	6625
Reserved	2	6402	6434	6466	6498	6530	6562	6594	6626
Reserved	3	6403	6435	6467	6499	6531	6563	6595	6627
Filter Move	4	6404	6436	6468	6500	6532	6564	6596	6628
In Dead Band (DZL, DZU)	5	6405	6437	6469	6501	6533	6565	6597	6629
Reserved	6	6406	6438	6470	6502	6534	6566	6598	6630
Reserved	7	6407	6439	6471	6503	6535	6567	6599	6631
Reserved	8	6408	6440	6472	6504	6536	6568	6600	6632
Reserved	9	6409	6441	6473	6505	6537	6569	6601	6633
Reserved	10	6410	6442	6474	6506	6538	6570	6602	6634
Reserved	11	6411	6443	6475	6507	6539	6571	6603	6635
CAM POFF armed	12	6412	6444	6476	6508	6540	6572	6604	6636
Reserved	13	6413	6445	6477	6509	6541	6573	6605	6637
Reserved	14	6414	6446	6478	6510	6542	6574	6606	6638
Reserved	15	6415	6447	6479	6511	6543	6575	6607	6639
Tangential	16	6416	6448	6480	6512	6544	6576	6608	6640
Reserved	17	6417	6449	6481	6513	6545	6577	6609	6641
Reserved	18	6418	6450	6482	6514	6546	6578	6610	6642
Reserved	19	6419	6451	6483	6515	6547	6579	6611	6643
Reserved	20	6420	6452	6484	6516	6548	6580	6612	6644
Reserved	21	6421	6453	6485	6517	6549	6581	6613	6645
Reserved	22	6422	6454	6486	6518	6550	6582	6614	6646
Reserved	23	6423	6455	6487	6519	6551	6583	6615	6647
Reserved	24	6424	6456	6488	6520	6552	6584	6616	6648
Reserved	25	6425	6457	6489	6521	6553	6585	6617	6649
Reserved	26	6426	6458	6490	6522	6554	6586	6618	6650
Reserved	27	6427	6459	6491	6523	6555	6587	6619	6651
GEAR ON IHPOS Armed	28	6428	6460	6492	6524	6556	6588	6620	6652
Reserved	29	6429	6461	6493	6525	6557	6589	6621	6653
CAM ON IHPOS Armed	30	6430	6462	6494	6526	6558	6590	6622	6654

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x19		**4296**	**4297**	**4298**	**4299**	**4300**	**4301**	**4302**	**4303**
Control Flags	**Bit Index**	**MASTER Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Reserved	31	6431	6463	6495	6527	6559	6591	6623	6655

Field Description	Read/ Write	Description
Filter Moved	R	FLT ON and OFF will set and clear this flag respectively.
In Dead Band	R	This flag is set when the following error in less the **DZL** and the and master is not in motion. It will clear when the error is bigger than **DZU**.
CAM POFF armed	R	This flag indicates that the CAM will end when the current CAM cycle is complete (**CAM POFF**).
Tangential	R	This flag indicates that the axis is a tangential axis (**TANG**).
GEAR ON IHPOS armed	R	Indicates that the GEAR is armed to begin when the GEAR source becomes equal to or going greater then the setpoint value (**GEAR ON IHPOS**).
CAM ON IHPOS armed	R	Indicates that the CAM is armed to begin when the CAM source becomes equal to or going greater then the setpoint value (**CAM ON IHPOS**).

Bit6656 - Bit6911 Tertiary Axis Flags (Axes 8-15)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x1A		**4304**	**4305**	**4306**	**4307**	**4308**	**4309**	**4310**	**4311**
Control Flags	**Bit Index**	**MASTER Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Reserved	0	6656	6688	6720	6752	6784	6816	6848	6880
Reserved	1	6657	6689	6721	6753	6785	6817	6849	6881
Reserved	2	6658	6690	6722	6754	6786	6818	6850	6882
Reserved	3	6659	6691	6723	6755	6787	6819	6851	6883
Filter Move	4	6660	6692	6724	6756	6788	6820	6852	6884
In Dead Band (DZL, DZU)	5	6661	6693	6725	6757	6789	6821	6853	6885
Reserved	6	6662	6694	6726	6758	6790	6822	6854	6886
Reserved	7	6663	6695	6727	6759	6791	6823	6855	6887
Reserved	8	6664	6696	6728	6760	6792	6824	6856	6888
Reserved	9	6665	6697	6729	6761	6793	6825	6857	6889
Reserved	10	6666	6698	6730	6762	6794	6826	6858	6890
Reserved	11	6667	6699	6731	6763	6795	6827	6859	6891
CAM POFF armed	12	6668	6700	6732	6764	6796	6828	6860	6892
Reserved	13	6669	6701	6733	6765	6797	6829	6861	6893
Reserved	14	6670	6702	6734	6766	6798	6830	6862	6894
Reserved	15	6671	6703	6735	6767	6799	6831	6863	6895
Tangential	16	6672	6704	6736	6768	6800	6832	6864	6896
Reserved	17	6673	6705	6737	6769	6801	6833	6865	6897
Reserved	18	6674	6706	6738	6770	6802	6834	6866	6898
Reserved	19	6675	6707	6739	6771	6803	6835	6867	6899
Reserved	20	6676	6708	6740	6772	6804	6836	6868	6900
Reserved	21	6677	6709	6741	6773	6805	6837	6869	6901
Reserved	22	6678	6710	6742	6774	6806	6838	6870	6902
Reserved	23	6679	6711	6743	6775	6807	6839	6871	6903
Reserved	24	6680	6712	6744	6776	6808	6840	6872	6904
Reserved	25	6681	6713	6745	6777	6809	6841	6873	6905
Reserved	26	6682	6714	6746	6778	6810	6842	6874	6906
Reserved	27	6683	6715	6747	6779	6811	6843	6875	6907
GEAR ON IHPOS Armed	28	6684	6716	6748	6780	6812	6844	6876	6908
Reserved	29	6685	6717	6749	6781	6813	6845	6877	6909
CAM ON IHPOS Armed	30	6686	6718	6750	6782	6814	6846	6878	6910
Reserved	31	6687	6719	6751	6783	6815	6847	6879	6911

Field Description	Read/ Write	Description
Filter Moved	R	FLT ON and OFF will set and clear this flag respectively.
In Dead Band	R	This flag is set when the following error in less the **DZL** and the and master is not in motion. It will clear when the error is bigger than **DZU**.
CAM POFF armed	R	This flag indicates that the CAM will end when the current CAM cycle is complete (**CAM POFF**).
Tangential	R	This flag indicates that the axis is a tangential axis (**TANG**).
GEAR ON IHPOS armed	R	Indicates that the GEAR is armed to begin when the GEAR source becomes equal to or going greater then the setpoint value (**GEAR ON IHPOS**).
CAM ON IHPOS armed	R	Indicates that the CAM is armed to begin when the CAM source becomes equal to or going greater then the setpoint value (**CAM ON IHPOS**).

Bit8448 - Bit8703 Quaternary Axis Flags (Axes 0-7)

Version 1.18.15 & Up

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x21		**4360**	**4361**	**4362**	**4363**	**4364**	**4365**	**4366**	**4367**
		Axis Number							
Control Flags	**Bit Index**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Ethernet Alarm on Drive Fault	0	8448	8480	8512	8544	8576	8608	8640	8672
Ethernet Alarm on Hard Limit Hit	1	8449	8481	8513	8545	8577	8609	8641	8673
Ethernet Alarm on Stall Detect	2	8450	8482	8514	8546	8578	8610	8642	8674
Disable Encoder Fault Response	3	8451	8483	8515	8547	8579	8611	8643	8675
Disable Drive Fault Response	4	8452	8484	8516	8548	8580	8612	8644	8676
Invert Drive Fault Input Level	5	8453	8485	8517	8549	8581	8613	8645	8677
Position Maintenance (PM) Axis Stalled	6	8454	8486	8518	8550	8582	8614	8646	8678
Invert Motion Direction	7	8455	8487	8519	8551	8583	8615	8647	8679
PM Enable (PM OFF, PM ON)	8	8456	8488	8520	8552	8584	8616	8648	8680
PM Active	9	8457	8489	8521	8553	8585	8617	8649	8681
PM Interrupted	10	8458	8490	8522	8554	8586	8618	8650	8682
PM Excess Error	11	8459	8491	8523	8555	8587	8619	8651	8683
PM In Dead Band	12	8460	8492	8524	8556	8588	8620	8652	8684
PM Correction Started	13	8461	8493	8525	8557	8589	8621	8653	8685
PM Positive Direction	14	8462	8494	8526	8558	8590	8622	8654	8686
PM Negative Direction	15	8463	8495	8527	8559	8591	8623	8655	8687
Enable CW/CCW (versus Step/Dir)	16	8464	8496	8528	8560	8592	8624	8656	8688
Drive Enable Output	17	8465	8497	8529	8561	8593	8625	8657	8689
Drive Reset Output	18	8466	8498	8530	8562	8594	8626	8658	8690
Kill All Motion Request	19	8467	8499	8531	8563	8595	8627	8659	8691
Enable Drive I/O	20	8468	8500	8532	8564	8596	8628	8660	8692
Enable EXC Response	21	8469	8501	8533	8565	8597	8629	8661	8693
DEO Serves Shutdown Function	22	8470	8502	8534	8566	8598	8630	8662	8694
Disable Drive on Kill	23	8471	8503	8535	8567	8599	8631	8663	8695

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x21		**4360**	**4361**	**4362**	**4363**	**4364**	**4365**	**4366**	**4367**
Control Flags	**Bit Index**	**Axis Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Drive Fault Input	24	8472	8504	8536	8568	8600	8632	8664	8696
Reserved	25	8473	8505	8537	8569	8601	8633	8665	8697
DFI Response Inhibit	26	8474	8506	8538	8570	8602	8634	8666	8698
Completing Drive Reset	27	8475	8507	8539	8571	8603	8635	8667	8699
Physical Drive Enable State	28	8476	8508	8540	8572	8604	8636	8668	8700
Drive Fault Latched	29	8477	8509	8541	8573	8605	8637	8669	8701
EPL Axis	30	8478	8510	8542	8574	8606	8638	8670	8702
Latched Excess Position Error	31	8479	8511	8543	8575	8607	8639	8671	8703

Field Description	Read/ Write	Description
Ethernet Alarm on Drive Fault	R/W	Enables Ethernet Alarm in the case of Drive Fault on this axis.
Ethernet Alarm on Hard Limit Hit	R/W	Enables Ethernet Alarm in the case of Hard Limit Hit on this axis.
Ethernet Alarm on Stall Detect	R/W	Enables Ethernet Alarm in the case of Stall Detect on this axis.
Disable Encoder Fault Response	R/W	The user can select whether or not the controller responds to the Encoder fault flags of attached encoders by setting or clearing the Disable Encoder Fault Response flag. This is clear by default, which means that the controller will respond to encoder faults in the same way as drive faults, as described in Disable Drive Fault Response (below).
Disable Drive Fault Response	R/W	The user can select whether or not the controller responds to the Drive Fault Input (DFI) flag by setting or clearing the Disable Drive Fault Response flag. This is clear by default, which means that the controller will respond to changes in the DFI flag. (See Drive Fault Input (DFI) in this table.)
Invert Drive Fault Input Level	R/W	The value of the Drive Fault Input (DFI) flag (described in this table) will depend on the actual physical input and the value of the Invert Drive Fault Input Level (IDFIL) flag. If no current is flowing to the input and the IDFIL flag is clear (the default), then the DFI flag will be set. This would be the case if no drive were attached to the connector on power up, or if a cable fell off, or if a standard drive actually faulted. For some drives, however, the presence of current, not the absence, indicates a fault. In this case, the user would wish to set the IDFIL flag, so DFI would be set if current were flowing to the input.
Position Maintenance Axis Stalled	R	When the error for an axis exceeds the limit set by the **EXC** command, this bit is set. This bit self-clears.
Invert Motion Direction	R/W	By convention, default wiring, gains, and MULT values will result in clockwise shaft motion (viewed from the motor face) when the count is becoming more positive. But some applications require that some axes be opposite of this. The Invert Motion Direction bit will implement this by inverting the polarity of the signal and feedback objects attached to the axis. Note that changing this bit (on or off) on an axis that has an attached ENC, DAC, or ADC will simply invert the polarity of those objects by inverting the current MULT or gain values. This allows the MULT and gain values to accommodate “unconventional” wiring but still allow the Invert Motion Direction bit to change the physical direction. The Invert Motion Direction bit is saved by **ESAVE**.
Position Maintenance Enable	R	When position maintenance is enabled, the bit is set. You can set or clear the flag using the **PM ON** and **PM OFF** commands.
Position	R	When an axis is correcting the position, the bit is set. Position

Field Description	Read/ Write	Description
Maintenance Active		maintenance is active after motion has completed and an error needs correcting. The bit clears when the axis moves within the position maintenance deadband region.
Position Maintenance Interrupted	R	When the position maintenance move is interrupted by another move, the bit is set. The bit clears when the next position maintenance move begins.
Position Maintenance Excess Error	R	When the position maintenance move is interrupted a second successive time, the bit is set. The bit clears when the error falls within position maintenance deadband region.
Position Maintenance In Dead Band	R	When an axis is located within the deadband, the bit is set. The bit clears when the axis is moving or gets out of dead band region.
Position Maintenance Correction Started	R	Indicates position maintenance has already started on this axis. Used internally to test for commanded motion interrupting position maintenance.
Position Maintenance Positive Direction	R	When a position maintenance move is in a positive direction, the bit is set.
Position Maintenance Negative Direction	R	When a position maintenance move is in a negative direction, the bit is clear.
Enable CW/CCW (versus Step/Dir)	R/W	The default is Step and Direction (bit set to 0). To enable clockwise/counterclockwise stepper output, set the bit to 1.
Drive Enable Output (DEO)	R/W	Some drives that have an “enable” input that must be enabled to power a motor. When the flag is enabled (bit set to 1), the drive is enabled. You can also use the **DRIVE ON** command. If the flag is disabled (bit set to 0), the drive is disabled; You can also use the **DRIVE OFF** command. Before you can use the Drive Enable Output (DEO) bit, you must set the Enable Drive I/O bit. The corresponding physical output uses the Physical Drive Enable State bit. Note: When the DEO bit is enabled (bit set to 1), a **REN** command is automatically sent (setting the commanded position to the actual encoder position). This prevents the possibility for abrupt motion to a distant commanded position. Enabling the drive also clears the KAMR, Drive Fault Latched, and Latched Excess Position Error bits (described in this table.)

Field Description	Read/ Write	Description
Drive Reset Output (DRO)	R/W	The drive reset output for an axis is connected to the drive reset input on a drive. When this bit is enabled, the drive/motor combination resets itself. You can also use the **DRIVE RES** command. Before you can use the Drive Reset Output bit, you must set the Enable Drive I/O bit.
Kill all Motion Request (KAMR)	R/W	When this bit is enabled, all motion is killed for the axis. In addition, it enables the Kill All Moves bit in the master flags of the master to which the axis is attached. The result is to kill all motion on the given axis but also all other axes attached to the master. This bit may be explicitly set, but is also automatically set any time motion is “killed” on this axis. Motion is killed when end of travel limits are encountered, a CTRL-X or CTRL-Z is issued, a drive fault is detected, or excess position error is detected. To resume motion, first clear the Kill all Motion Request bit for the axis and then clear the Kill all Motion Request bit in the Master. You can then enable the appropriate axis flags for motion. The KAMR bit may be cleared for all axes by issuing a CTRL-Y.
Enable Drive I/O (EDIO)	R/W	The default for ACR9000 controllers is enabled (bit set to 1); The default for all other controllers is disabled (bit set to 0).
Enable EXC Response	R/W	The ACR controllers will always test for excess position error, as defined by the **EXC** command (Axis Parameters indices 0x20 and 0x21). When Enable EXC Response is enabled (bit set to 1), the controller will respond to excess position error by killing all motion and disabling the drive. If the bit is not set, position error will be monitored, but not responded to. The default is set to disabled (bit set to 0). For more information, see the **EXC** command; or Axis Parameters, indices 0x20 and 0x21.
DEO Serves Shutdown Function	R/W	When enabled (bit set to 1), the Drive Enable Output Serves Shutdown Function reverses the behavior of the Drive Enable Output bit.
Disable Drive on Kill	R/W	Normally, CTRL-Z will kill motion and disable all axes, and CTRL-X will only kill motion. If the Disable Drive on Kill bit is set on an axis, then CTRL-X will also disable that axis.
Drive Fault Input (DFI)	R	Provides the state of the physical input when Enable Drive I/O has been enabled. The controller will respond to a new DFI active on an axis only if DEO is also active on that axis. It will respond by turning off the drive enable output and asserting the KAMR flag in the quaternary slave flags of that axis.
DFI Response Inhibit	R	If Drive Fault Input Response Inhibit is active (bit set to 1), then the drive is being re-enabled and the Drive Fault Input is being cleared. This is a self-clearing flag; the operation lasts for 50 ms to 100 ms. During this period the controller is unable to respond to a Drive Fault Input.

Field Description	Read/ Write	Description
Completing Drive Reset	R	Indicates whether a drive is in the process of resetting. This flag is active (bit set to 1) during the final 50 ms of a Drive Reset Output. See also: Drive Fault Input Response Inhibit and Drive Reset Output above.
Physical Drive Enable State	R	Indicates whether the physical Drive Enable Output is active (bit set to 1) or inactive (bit set to 0).
Drive Fault Latched	R	Indicates a drive fault has been detected. Stays latched until cleared with a **DRIVE ON** command.
EPL Axis	R	Indicates an **EPLD** is attached to this axis.
Latched Excess Position Error	R	Indicates that excess position error has been detected, and that motion has been killed and the drive disabled as a result. Stays latched until cleared with a **DRIVE ON** command.

Bit8704 - Bit8959 Quaternary Axis Flags (Axes 8-15)

Version 1.18.15 & Up

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x22		**4368**	**4369**	**4370**	**4371**	**4372**	**4373**	**4374**	**4375**
		Axis Number							
Control Flags	**Bit Index**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Ethernet Alarm on Drive Fault	0	8704	8736	8768	8800	8832	8864	8896	8928
Ethernet Alarm on Hard Limit Hit	1	8705	8737	8769	8801	8833	8865	8897	8929
Ethernet Alarm on Stall Detect	2	8706	8738	8770	8802	8834	8866	8898	8930
Disable Encoder Fault Response	3	8707	8739	8771	8803	8835	8867	8899	8931
Disable Drive Fault Response	4	8708	8740	8772	8804	8836	8868	8900	8932
Invert Drive Fault Input Level	5	8709	8741	8773	8805	8837	8869	8901	8933
Position Maintenance (PM) Axis Stalled	6	8710	8742	8774	8806	8838	8870	8902	8934
Invert Motion Direction	7	8711	8743	8775	8807	8839	8871	8903	8935
PM Enable (PM OFF, PM ON)	8	8712	8744	8776	8808	8840	8872	8904	8936
PM Active	9	8713	8745	8777	8809	8841	8873	8905	8937
PM Interrupted	10	8714	8746	8778	8810	8842	8874	8906	8938
PM Excess Error	11	8715	8747	8779	8811	8843	8875	8907	8939
PM In Dead Zone	12	8716	8748	8780	8812	8844	8876	8908	8940
PM Correction Started	13	8717	8749	8781	8813	8845	8877	8909	8941
PM Positive Direction	14	8718	8750	8782	8814	8846	8878	8910	8942
PM Negative Direction	15	8719	8751	8783	8815	8847	8879	8911	8943
Enable CW/CCW (versus Step/Dir)	16	8720	8752	8784	8816	8848	8880	8912	8944
Drive Enable Output	17	8721	8753	8785	8817	8849	8881	8913	8945
Drive Reset Output	18	8722	8754	8786	8818	8850	8882	8914	8946
Kill All Motion Request	19	8723	8755	8787	8819	8851	8883	8915	8947
Enable Drive I/O	20	8724	8756	8788	8820	8852	8884	8916	8948
Enable EXC Response	21	8725	8757	8789	8821	8853	8885	8917	8949
DEO Serves Shutdown Function	22	8726	8758	8790	8822	8854	8886	8918	8950
Disable Drive on Kill	23	8727	8759	8791	8823	8855	8887	8919	8951

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter code=0x10; index=0x22		**4368**	**4369**	**4370**	**4371**	**4372**	**4373**	**4374**	**4375**
Control Flags	**Bit Index**	**Axis Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Drive Fault Input	24	8728	8760	8792	8824	8856	8888	8920	8952
Reserved	25	8729	8761	8793	8825	8857	8889	8921	8953
DFI Response Inhibit	26	8730	8762	8794	8826	8858	8890	8922	8954
Completing Drive Reset	27	8731	8763	8795	8827	8859	8891	8923	8955
Physical Drive Enable State	28	8732	8764	8796	8828	8860	8892	8924	8956
Drive Fault Latched	29	8733	8765	8797	8829	8861	8893	8925	8957
EPL Axis	30	8734	8766	8798	8830	8862	8894	8926	8958
Latched Excess Position Error	31	8735	8767	8799	8831	8863	8895	8927	8959

Field Description	Read/ Write	Description
Ethernet Alarm on Drive Fault	R/W	Enables Ethernet Alarm in the case of Drive Fault on this axis.
Ethernet Alarm on Hard Limit Hit	R/W	Enables Ethernet Alarm in the case of Hard Limit Hit on this axis.
Ethernet Alarm on Stall Detect	R/W	Enables Ethernet Alarm in the case of Stall Detect on this axis.
Disable Encoder Fault Response	R/W	The user can select whether or not the controller responds to the Encoder fault flags of attached encoders by setting or clearing the Disable Encoder Fault Response flag. This is clear by default, which means that the controller will respond to encoder faults in the same way as drive faults, as described in Disable Drive Fault Response (below).
Disable Drive Fault Response	R/W	The user can select whether or not the controller responds to the Drive Fault Input (DFI) flag by setting or clearing the Disable Drive Fault Response flag. This is clear by default, which means that the controller will respond to changes in the DFI flag. (See Drive Fault Input (DFI) in this table.)
Invert Drive Fault Input Level	R/W	The value of the Drive Fault Input (DFI) flag (described in this table) will depend on the actual physical input and the value of the Invert Drive Fault Input Level (IDFIL) flag. If no current is flowing to the input and the IDFIL flag is clear (the default), then the DFI flag will be set. This would be the case if no drive were attached to the connector on power up, or if a cable fell off, or if a standard drive actually faulted. For some drives, however, the presence of current, not the absence, indicates a fault. In this case, the user would wish to set the IDFIL flag, so DFI would be set if current were flowing to the input.
Position Maintenance Axis Stalled	R	When the error for an axis exceeds the limit set by the **EXC** command, this bit is set. This bit self-clears.
Invert Motion Direction	R/W	By convention, default wiring, gains, and MULT values will result in clockwise shaft motion (viewed from the motor face) when the count is becoming more positive. But some applications require that some axes be opposite of this. The Invert Motion Direction bit will implement this by inverting the polarity of the signal and feedback objects attached to the axis. Note that changing this bit (on or off) on an axis that has an attached ENC, DAC, or ADC will simply invert the polarity of those objects by inverting the current MULT or gain values. This allows the MULT and gain values to accommodate “unconventional” wiring but still allow the Invert Motion Direction bit to change the physical direction. The Invert Motion Direction bit is saved by **ESAVE**.
Position Maintenance Enable	R	When position maintenance is enabled, the bit is set. You can set or clear the flag using the **PM ON** and **PM OFF** commands.
Position Maintenance	R	When an axis is correcting the position, the bit is set. Position maintenance is active after motion has completed and an error needs

Field Description	Read/ Write	Description
Active		correcting. The bit clears when the axis moves within the position maintenance deadband region.
Position Maintenance Interrupted	R	When the position maintenance move is interrupted by another move, the bit is set. The bit clears when the next position maintenance move begins.
Position Maintenance Excess Error	R	When the position maintenance move is interrupted a second successive time, the bit is set. The bit clears when the error falls within position maintenance deadband region.
Position Maintenance In Dead Band	R	When an axis is located within the deadband, the bit is set. The bit clears when the axis is moving or gets out of dead band region.
Position Maintenance Correction Started	R	Indicates position maintenance has already started on this axis. Used internally to test for commanded motion interrupting position maintenance.
Position Maintenance Positive Direction	R	When a position maintenance move is in a positive direction, the bit is set.
Position Maintenance Negative Direction	R	When a position maintenance move is in a negative direction, the bit is clear.
Enable CW/CCW (versus Step/Dir)	R/W	The default is Step and Direction (bit set to 0). To enable clockwise/counterclockwise stepper output, set the bit to 1.
Drive Enable Output (DEO)	R/W	Some drives that have an “enable” input that must be enabled to power a motor. When the flag is enabled (bit set to 1), the drive is enabled. You can also use the **DRIVE ON** command. If the flag is disabled (bit set to 0), the drive is disabled; You can also use the **DRIVE OFF** command. Before you can use the Drive Enable Output (DEO) bit, you must set the Enable Drive I/O bit. The corresponding physical output uses the Physical Drive Enable State bit. Note: When the DEO bit is enabled (bit set to 1), a **REN** command is automatically sent (setting the commanded position to the actual encoder position). This prevents the possibility for abrupt motion to a distant commanded position. Enabling the drive also clears the KAMR, Drive Fault Latched, and Latched Excess Position Error bits (described in this table.)

Field Description	Read/ Write	Description
Drive Reset Output (DRO)	R/W	The drive reset output for an axis is connected to the drive reset input on a drive. When this bit is enabled, the drive/motor combination resets itself. You can also use the **DRIVE RES** command. Before you can use the Drive Reset Output bit, you must set the Enable Drive I/O bit.
Kill all Motion Request (KAMR)	R/W	When this bit is enabled, all motion is killed for the axis. In addition, it enables the Kill All Moves bit in the master flags of the master to which the axis is attached. The result is to kill all motion on the given axis but also all other axes attached to the master. This bit may be explicitly set, but is also automatically set any time motion is “killed” on this axis. Motion is killed when end of travel limits are encountered, a CTRL-X or CTRL-Z is issued, a drive fault is detected, or excess position error is detected. To resume motion, first clear the Kill all Motion Request bit for the axis and then clear the Kill all Motion Request bit in the Master. You can then enable the appropriate axis flags for motion. The KAMR bit may be cleared for all axes by issuing a CTRL-Y.
Enable Drive I/O (EDIO)	R/W	The default for ACR9000 controllers is enabled (bit set to 1); The default for all other controllers is disabled (bit set to 0).
Enable EXC Response	R/W	The ACR controllers will always test for excess position error, as defined by the **EXC** command (Axis Parameters indices 0x20 and 0x21). When Enable EXC Response is enabled (bit set to 1), the controller will respond to excess position error by killing all motion and disabling the drive. If the bit is not set, position error will be monitored, but not responded to. The default is set to disabled (bit set to 0). For more information, see the **EXC** command; or Axis Parameters, indices 0x20 and 0x21.
DEO Serves Shutdown Function	R/W	When enabled (bit set to 1), the Drive Enable Output Serves Shutdown Function reverses the behavior of the Drive Enable Output bit.
Disable Drive on Kill	R/W	Normally, CTRL-Z will kill motion and disable all axes, and CTRL-X will only kill motion. If the Disable Drive on Kill bit is set on an axis, then CTRL-X will also disable that axis.
Drive Fault Input (DFI)	R	Provides the state of the physical input when Enable Drive I/O has been enabled. The controller will respond to a new DFI active on an axis only if DEO is also active on that axis. It will respond by turning off the drive enable output and asserting the KAMR flag in the quaternary slave flags of that axis.
DFI Response Inhibit	R	If Drive Fault Input Response Inhibit is active (bit set to 1), then the drive is being re-enabled and the Drive Fault Input is being cleared. This is a self-clearing flag; the operation lasts for 50 ms to 100 ms. During this period the controller is unable to respond to a Drive Fault Input.

Field Description	Read/ Write	Description
Completing Drive Reset	R	Indicates whether a drive is in the process of resetting. This flag is active (bit set to 1) during the final 50 ms of a Drive Reset Output. See also: Drive Fault Input Response Inhibit and Drive Reset Output above.
Physical Drive Enable State	R	Indicates whether the physical Drive Enable Output is active (bit set to 1) or inactive (bit set to 0).
Drive Fault Latched	R	Indicates a drive fault has been detected. Stays latched until cleared with a **DRIVE ON** command
EPL Axis	R	Indicates an **EPLD** is attached to this axis.
Latched Excess Position Error	R	Indicates that excess position error has been detected, and that motion has been killed and the drive disabled as a result. Stays latched until cleared with a **DRIVE ON** command.

Bit8960 - Bit9199 Drive Error-Log Flags (Axes 0-7)

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x23		**4376**	**4377**	**4378**	**4379**	**4380**	**4381**	**4382**	**4383**
Axis Flags	**Bit Index**	**Axis Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Enable/Disable	0	8960	8992	9024	9056	9088	9120	9152	9184
Bridge fault	1	8961	8993	9025	9057	9089	9121	9153	9185
No PWM output	2	8962	8994	9026	9058	9090	9122	9154	9186
Over Voltage	3	8963	8995	9027	9059	9091	9123	9155	9187
Under Voltage	4	8964	8996	9028	9060	9092	9124	9156	9188
Excessive Startup Voltage	5	8965	8997	9029	9061	9093	9125	9157	9189
Drive Over Temperature	6	9866	8998	9030	9062	9094	9126	9158	9190
Motor Over Temperature	7	8967	8999	9031	9063	9095	9127	9159	9191
Motor Thermal Switch	8	8968	9000	9032	9064	9096	9128	9160	9192
Feedback Error	9	8969	9001	9033	9065	9097	9129	9161	9193
Hall error	10	8970	9002	9034	9066	9098	9130	9162	9194
Motor Configuration Error	11	8971	9003	9035	9067	9099	9131	9163	9195
Regeneration Fault	12	8972	9004	9036	9068	9100	9132	9164	9196
Reserved	13	8973	9005	9037	9069	9101	9133	9165	9197
Reserved	14	8974	9006	9038	9070	9102	9134	9166	9198
Reserved	15	8975	9007	9039	9071	9103	9135	9167	9199

Field Description	Read/ Write	Description
Enable/Disable	R/W	Indicates the Enable/Disable state of the Drive (bit set to 1 = enabled, bit set to 0 = disabled).
Bridge fault	R/W	Bit set to 1 enables drive logging of Bridge Faults.
No PWM output	R/W	Bit set to 1 enables drive logging of errors where the H-Bridge is not switching.
Over Voltage	R/W	Bit set to 1 enables drive logging of errors where the Bus Voltage is too high.
Under Voltage	R/W	Bit set to 1 enables drive logging of errors where the Bus Voltage is too low.
Excessive Startup Voltage	R/W	Bit set to 1 enables drive logging of errors where the command voltage was too high when the drive was enabled.
Drive Over Temperature	R/W	Bit set to 1 enables drive logging of errors where the temperature of the drive is too high.
Motor Over Temperature	R/W	Bit set to 1 enables drive logging of errors where the temperature of the motor, based on the thermal model of the motor, is too high.
Motor Thermal Switch	R/W	Bit set to 1 enables drive logging of errors where the temperature of the motor, based on the thermal switch of the motor, is too high.
Feedback Error	R/W	Bit set to 1 enables drive logging of errors where the feedback is not present or the signal levels are incorrect.
Hall Error	R/W	Bit set to 1 enables drive logging of errors with the Hall sensors.
Motor Configuration Error	R/W	Bit set to 1 enables drive logging of errors with a motor configuration parameter of the drive.
Regeneration Fault	R/W	Bit set to 1 enables drive logging of errors with the regeneration resistor of the drive.

Bit9216 - Bit9455 Drive Error-Log Flags (Axes 8-15)

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x24		**4384**	**4385**	**4386**	**4387**	**4388**	**4389**	**4390**	**4391**
		Axis Number							
Axis Flags	**Bit Index**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Enable/Disable	0	9216	9248	9280	9312	9344	9376	9408	9440
Bridge fault	1	9217	9249	9281	9313	9345	9377	9409	9441
No PWM output	2	9218	9250	9282	9314	9346	9378	9410	9442
Over Voltage	3	9219	9251	9283	9315	9347	9379	9411	9443
Under Voltage	4	9220	9252	9284	9316	9348	9380	9412	9444
Excessive Startup Voltage	5	9221	9253	9285	9317	9349	9381	9413	9445
Drive Over Temperature	6	9222	9254	9286	9318	9350	9382	9414	9446
Motor Over Temperature	7	9223	9255	9287	9319	9351	9383	9415	9447
Motor Thermal Switch	8	9224	9256	9288	9320	9352	9384	9416	9448
Feedback Error	9	9225	9257	9289	9321	9353	9385	9417	9449
Hall error	10	9226	9258	9290	9322	9354	9386	9418	9450
Motor Configuration Error	11	9227	9259	9291	9323	9355	9387	9419	9451
Regeneration Fault	12	9228	9260	9292	9324	9356	9388	9420	9452
Reserved	13	9229	9261	9293	9325	9357	9389	9421	9453
Reserved	14	9230	9262	9294	9326	9358	9390	9422	9454
Reserved	15	9231	9263	9295	9327	9359	9391	9423	9455

Field Description	Read/ Write	Description
Enable/Disable	R/W	Indicates the Enable/Disable state of the Drive. (bit set to 1 = enabled, bit set to 0 = disabled)
Bridge fault	R/W	Bit set to 1 enables drive logging of Bridge Faults.
No PWM output	R/W	Bit set to 1 enables drive logging of errors where the H-Bridge is not switching.
Over Voltage	R/W	Bit set to 1 enables drive logging of errors where the Bus Voltage is too high.
Under Voltage	R/W	Bit set to 1 enables drive logging of errors where the Bus Voltage is too low.
Excessive Startup Voltage	R/W	Bit set to 1 enables drive logging of errors where the command voltage was too high when the drive was enabled.
Drive Over Temperature	R/W	Bit set to 1 enables drive logging of errors where the temperature of the drive is too high.
Motor Over Temperature	R/W	Bit set to 1 enables drive logging of errors where the temperature of the motor, based on the thermal model of the motor, is too high.
Motor Thermal Switch	R/W	Bit set to 1 enables drive logging of errors where the temperature of the motor, based on the thermal switch of the motor, is too high.
Feedback Error	R/W	Bit set to 1 enables drive logging of errors where the feedback is not present or the signal levels are incorrect.
Hall Error	R/W	Bit set to 1 enables drive logging of errors with the Hall sensors.
Motor Configuration Error	R/W	Bit set to 1 enables drive logging of errors with a motor configuration parameter of the drive.
Regeneration Fault	R/W	Bit set to 1 enables drive logging of errors with the regeneration resistor of the drive.

Bit9472 - Bit9727 Drive Status 1 Flags (Axes 0-7)

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x25		**4392**	**4393**	**4394**	**4395**	**4396**	**4397**	**4398**	**4399**
Drive Status Flags	**Bit Index**	**Axis Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Motor Config Warning	0	9472	9504	9536	9568	9600	9632	9664	9696
Motor Config Error	1	9473	9505	9537	9569	9601	9633	9665	9697
Reserved	2	9474	9506	9538	9570	9602	9634	9666	9698
Max Inductance = 0	3	9475	9507	9539	9571	9603	9635	9667	9699
Rated Speed = 0	4	9476	9508	9540	9572	9604	9636	9668	9700
DPOLE = 0	5	9477	9509	9541	9573	9605	9637	9669	9701
Resistance = 0	6	9478	9510	9542	9574	9606	9638	9670	9702
Ke = 0	7	9479	9511	9543	9575	9607	9639	9671	9703
Cont Current = 0	8	9480	9512	9544	9576	9608	9640	9672	9704
Peak Current = 0	9	9481	9513	9545	9577	9609	9641	9673	9705
Cont Motor Current too high for drive power level	10	9482	9514	9546	9578	9610	9642	9674	9706
Torque rating too high for drive current	11	9483	9515	9547	9579	9611	9643	9675	9707
Peak current too high- use drive's value	12	9484	9516	9548	9580	9612	9644	9676	9708
Inertia = 0	13	9485	9517	9549	9581	9613	9645	9677	9709
Damping = 0	14	9486	9518	9550	9582	9614	9646	9678	9710
Notch Filter Calc Error	15	9487	9519	9551	9583	9615	9647	9679	9711
Lead < Lag Frequency	16	9488	9520	9552	9584	9616	9648	9680	9712
Lead>=4x Lag Frequency	17	9489	9521	9553	9585	9617	9649	9681	9713
Lag Frequency Too Low	18	9490	9522	9554	9586	9618	9650	9682	9714
Reserved	19	9491	9523	9555	9587	9619	9651	9683	9715
Reserved	20	9492	9524	9556	9588	9620	9652	9684	9716
Reserved	21	9493	9525	9557	9589	9621	9653	9685	9717
Reserved	22	9494	9526	9558	9590	9622	9654	9686	9718
Reserved	23	9495	9527	9559	9591	9623	9655	9687	9719
Reserved	24	9496	9528	9560	9592	9624	9656	9688	9720
Reserved	25	9497	9529	9561	9593	9625	9657	9689	9721
Drive Faulted Error	26	9498	9530	9562	9594	9626	9658	9690	9722
Bridge Hardware Error	27	9499	9531	9563	9595	9627	9659	9691	9723
Bridge Temperature Fault	28	9500	9532	9564	9596	9628	9660	9692	9724

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x25		**4392**	**4393**	**4394**	**4395**	**4396**	**4397**	**4398**	**4399**
Drive Status Flags	**Bit Index**	**Axis Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Overvoltage Error	29	9501	9533	9565	9597	9629	9661	9693	9725
Undervoltage Error	30	9502	9534	9566	9598	9630	9662	9694	9726
Bridge Foldback Warning	31	9503	9535	9567	9599	9631	9663	9695	9727

Field Description	Warning/ Fault	Description
Motor Config Warning	Warning	The motor rating is too high for the drive, and the drive is using its own limits for safety reasons.
Motor Config Error	Fault	One of the motor parameters is set to zero (0). Look at the additional errors to find which parameters are set at zero (0). Refer to your motor specifications for the correct value.
Max Inductance = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTIND**)
Rated Speed = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTW**)
DPOLE = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DPOLE**)
Resistance = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTRES**)
Ke = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMKE**)
Cont Current = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTIC**)
Peak Current = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTIP**)
Cont Motor Current too high for drive	Warning	The continuous current of the motor is higher than the continuous current rating of the drive. Continuous current rating for the drive is used.
Torque rating too high for drive current	Warning	The motor's torque rating is too high for the power level of the drive. Drive's torque rating is used.
Peak current too high- use drive's value	Warning	The peak current of the motor is higher than the peak current rating of the drive. Drive's value for peak current is used.
Inertia = 0	Fault	
Damping = 0	Fault	
Notch Filter Calc Error	Fault	
Lead < Lag Frequency	Fault	
Lead>=4x Lag Frequency	Fault	
Lag Frequency Too Low	Fault	
Drive Faulted Error	Fault	Indicates that the drive is faulted.
Bridge Hardware Error	Fault	Indicates excessive current or short on the H Bridge.
Bridge Temperature Fault	Fault	Indicates excessive temperature on the H Bridge.
Overvoltage Error	Fault	Indicates the Bus voltage of the drive is too high.

Field Description	Warning/ Fault	Description
Undervoltage Error	Fault	Indicates the Bus voltage of the drive is too low.
Bridge Foldback Warning	Warning	Warning indicating the drive current is limited to prevent overheating.

Drive Status 1 Flags and Drive Status 2 Flags reflect drive errors and warnings for Aries drives.

- **Aries Controller:** Values are updated every 0.5ms. Errors/warnings can also be viewed in text format using the DRERROR command.
- **Aries EPL:** Values are updated every EPL cycle (0.5 – 2ms). Errors/warnings can also be viewed in text format with the ERROR command when using TALKTO.
- **Aries AE/SE:** Values are updated by request when using DRIVE TALK. See DTALK command for details.

Bit9728 - Bit9983 Drive Status 1 Flags (Axes 8-15)

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x26		4400	4401	4402	4403	4404	4405	4406	4407
		Axis Number							
Drive Status Flags	**Bit Index**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Motor Config Warning	0	9728	9760	9792	9824	9856	9888	9920	9952
Motor Config Error	1	9729	9761	9793	9825	9857	9889	9921	9953
Reserved	2	9730	9762	9794	9826	9858	9890	9922	9954
Max Inductance = 0	3	9731	9763	9795	9827	9859	9891	9923	9955
Rated Speed = 0	4	9732	9764	9796	9828	9860	9892	9924	9956
DPOLE = 0	5	9733	9765	9797	9829	9861	9893	9925	9957
Resistance = 0	6	9734	9766	9798	9830	9862	9894	9926	9958
Ke = 0	7	9735	9767	9799	9831	9863	9895	9927	9959
Cont Current = 0	8	9736	9768	9800	9832	9864	9896	9928	9960
Peak Current = 0	9	9737	9769	9801	9833	9865	9897	9929	9961
Cont Motor Current too high for drive power level	10	9738	9770	9802	9834	9866	9898	9930	9962
Torque rating too high for drive current	11	9739	9771	9803	9835	9867	9899	9931	9963
Peak current too high- use drive's value	12	9740	9772	9804	9836	9868	9900	9932	9964
Inertia = 0	13	9741	9773	9805	9837	9869	9901	9933	9965
Damping = 0	14	9742	9774	9806	9838	9870	9902	9934	9966
Notch Filter Calc Error	15	9743	9775	9807	9839	9871	9903	9935	9967
Lead < Lag Frequency	16	9744	9776	9808	9840	9872	9904	9936	9968
Lead>=4x Lag Frequency	17	9745	9777	9809	9841	9873	9905	9937	9969
Lag Frequency Too Low	18	9746	9778	9810	9842	9874	9906	9938	9970
Reserved	19	9747	9779	9811	9843	9875	9907	9939	9971
Reserved	20	9748	9780	9812	9844	9876	9908	9940	9972
Reserved	21	9749	9781	9813	9845	9877	9909	9941	9973
Reserved	22	9750	9782	9814	9846	9878	9910	9942	9974
Reserved	23	9751	9783	9815	9847	9879	9911	9943	9975
Reserved	24	9752	9784	9816	9848	9880	9912	9944	9976
Reserved	25	9753	9785	9817	9849	9881	9913	9945	9977
Drive Faulted Error	26	9754	9786	9818	9850	9882	9914	9946	9978
Bridge Hardware Error	27	9755	9787	9819	9851	9883	9915	9947	9979
Bridge Temperature Fault	28	9756	9788	9820	9852	9884	9916	9948	9980

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x26		**4400**	**4401**	**4402**	**4403**	**4404**	**4405**	**4406**	**4407**
Drive Status Flags	**Bit Index**	**Axis Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Overvoltage Error	29	9757	9789	9821	9853	9885	9917	9949	9981
Undervoltage Error	30	9758	9790	9822	9854	9886	9918	9950	9982
Bridge Foldback Warning	31	9759	9791	9823	9855	9887	9919	9951	9983

Field Description	Warning/ Fault	Description
Motor Config Warning	Warning	The motor rating is too high for the drive, and the drive is using its own limits for safety reasons.
Motor Config Error	Fault	One of the motor parameters is set to zero (0). Look at the additional errors to find which parameters are set at zero (0). Refer to your motor specifications for the correct value.
Max Inductance = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTIND**)
Rated Speed = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTW**)
DPOLE = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DPOLE**)
Resistance = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTRES**)
Ke = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMKE**)
Cont Current = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTIC**)
Peak Current = 0	Fault	Parameter must be set to a non-zero (0) value. Refer to motor specifications for the correct value. (**DMTIP**)
Cont Motor Current too high for drive	Warning	The continuous current of the motor is higher than the continuous current rating of the drive. Continuous current rating for the drive is used.
Torque rating too high for drive current	Warning	The motor's torque rating is too high for the power level of the drive. Drive's torque rating is used.
Peak current too high- use drive's value	Warning	The peak current of the motor is higher than the peak current rating of the drive. Drive's value for peak current is used.
Inertia = 0	Fault	
Damping = 0	Fault	
Notch Filter Calc Error	Fault	
Lead < Lag Frequency	Fault	
Lead>=4x Lag Frequency	Fault	
Lag Frequency Too Low	Fault	
Drive Faulted Error	Fault	Indicates that the drive is faulted.
Bridge Hardware Error	Fault	Indicates excessive current or short on the H Bridge.
Bridge Temperature Fault	Fault	Indicates excessive temperature on the H Bridge.
Overvoltage Error	Fault	Indicates the Bus voltage of the drive is too high.

Field Description	Warning/ Fault	Description
Undervoltage Error	Fault	Indicates the Bus voltage of the drive is too low.
Bridge Foldback Warning	Warning	Warning indicating the drive current is limited to prevent overheating.

Drive Status 1 Flags and Drive Status 2 Flags reflect drive errors and warnings for Aries drives.

- **Aries Controller:** Values are updated every 0.5ms. Errors/warnings can also be viewed in text format using the DRERROR command.
- **Aries EPL:** Values are updated every EPL cycle (0.5 – 2ms). Errors/warnings can also be viewed in text format with the ERROR command when using TALKTO.
- **Aries AE/SE:** Values are updated by request when using DRIVE TALK. See DTALK command for details.

Bit9984 - Bit10239 Drive Status 2 Flags (Axes 0-7)

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x27		**4408**	**4409**	**4410**	**4411**	**4412**	**4413**	**4414**	**4415**
Drive Status Flags	**Bit Index**	**Axis Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Power Regeneration Fault	0	9984	10016	10048	10080	10112	10144	10176	10208
Reserved	1	9985	10017	10049	10081	10113	10145	10177	10209
Drive Temperature Fault	2	9986	10018	10050	10082	10114	10146	10178	10210
Motor Thermal Model Fault	3	9987	10019	10051	10083	10115	10147	10179	10211
Motor Temperature Fault	4	9988	10020	10052	10084	10116	10148	10180	10212
Bad Hall State	5	9989	10021	10053	10085	10117	10149	10181	10213
Feedback Failure	6	9990	10022	10054	10086	10118	10150	10182	10214
Drive Disabled	7	9991	10023	10055	10087	10119	10151	10183	10215
PWM not active	8	9992	10024	10056	10088	10120	10152	10184	10216
Power Regeneration Warning	9	9993	10025	10057	10089	10121	10153	10185	10217
Shaft Power Limited Warning	10	9994	10026	10058	10090	10122	10154	10186	10218
Excessive Speed at Enable	11	9995	10027	10059	10091	10123	10155	10187	10219
Excessive Position Error	12	9996	10028	10060	10092	10124	10156	10188	10220
Excess Velocity Error	13	9997	10029	10061	10093	10125	10157	10189	10221
Reserved	14	9998	10030	10062	10094	10126	10158	10190	10222
Low Voltage at Enable	15	9999	10031	10063	10095	10127	10159	10191	10223
Control Power Active	16	10000	10032	10064	10096	10128	10160	10192	10224
Alignment Error	17	10001	10033	10065	10097	10129	10161	10193	10225
Reserved	18	10002	10034	10066	10098	10130	10162	10194	10226
Reserved	19	10003	10035	10067	10099	10131	10163	10195	10227
Encoder Read Fault	20	10004	10036	10068	10100	10132	10164	10196	10228
User Fault	21	10005	10037	10069	10101	10133	10165	10197	10229
Encoder Loss Fault	22	10006	10038	10070	10102	10134	10166	10198	10230
Network Loss Fault	23	10007	10039	10071	10103	10135	10167	10199	10231
Drive Param Error	24	10008	10040	10072	10104	10136	10168	10200	10232
Excessive Encoder Count Error	25	10009	10041	10073	10105	10137	10169	10201	10233
Reserved	26	10010	10042	10074	10106	10138	10170	10202	10234
Reserved	27	10011	10043	10075	10107	10139	10171	10203	10235

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x27		**4408**	**4409**	**4410**	**4411**	**4412**	**4413**	**4414**	**4415**
Drive Status Flags	**Bit Index**	**Axis Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Reserved	28	10012	10044	10076	10108	10140	10172	10204	10236
Reserved	29	10013	10045	10077	10109	10141	10173	10205	10237
Reserved	30	10014	10046	10078	10110	10142	10174	10206	10238
Reserved	31	10015	10047	10079	10111	10143	10175	10207	10239

Field Description	Warning/ Fault	Description
Power Regeneration Fault	Fault	Indicates that the drive has encountered a Power Regeneration Fault. Check the Regeneration Resistor of the Drive.
Drive Temperature Fault	Fault	Indicates the drive has faulted due to temperature of the drive being too high.
Motor Thermal Model Fault	Fault	Indicates that the drive has faulted from the Motor Temperature based on the Motor Thermal Model.
Motor Temperature Fault	Fault	Indicates that the drive has faulted from the Motor Temperature based on the Motor thermal switch.
Bad Hall State	Fault	Indicates a problem with the Hall Sensors.
Feedback Failure	Fault	Indicates a fault where the feedback is not present or the signal levels are incorrect.
Drive Disabled	Fault	Indicates that the drive is disabled.
PWM not active	Fault	Indicates that the H-Bridge is not switching.
Power Regeneration Warning	Warning	The drive is in Regeneration Mode.
Shaft Power Limited Warning	Warning	Shaft Power is limited to the rated output to protect the drive.
Excessive Speed at Enable	Fault	The motor was turning too fast when the drive/controller was enabled.
Excess Position Error	Fault	Aries AE/SE models only.
Excess Velocity Error	Fault	Aries AE/SE models only
Low Voltage at Enable	Fault	No motor power was present when the drive/controller was enabled.
Control Power Active	Fault	The drive is in Control power mode. No motor power is present.
Alignment Error	Fault	The **ALIGN** command did not complete successfully.
Encoder Read Fault	Fault	The drive determined there was loss of feedback. Check the feedback wiring.
Encoder Loss Fault	Fault	The drive could no longer detect the encoder. Check the encoder connections.
Network Loss Fault	Fault	EPL drives only. Drive faulted due to loss of EPL communications.
Drive Param Error	Fault	Factory parameters have been corrupted.

Drive Status 1 Flags and Drive Status 2 Flags reflect drive errors and warnings for Aries drives.

- **Aries Controller:** Values are updated every 0.5ms. Errors/warnings can also be viewed in text format using the DRERROR command.
- **Aries EPL:** Values are updated every EPL cycle (0.5 – 2ms). Errors/warnings can also be viewed in text format with the ERROR command when using TALKTO.
- **Aries AE/SE:** Values are updated by request when using DRIVE TALK. See DTALK command for details.

Bit10240 - Bit10495 Drive Status 2 Flags (Axes 8-15)

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x28		4416	4417	4418	4419	4420	4421	4422	4423
Drive Status Flags	**Bit Index**	**Axis Number**							
		8	9	10	11	12	13	14	15
Power Regeneration Fault	0	10240	10272	10304	10336	10368	10400	10432	10464
Reserved	1	10241	10273	10305	10337	10369	10401	10433	10465
Drive Temperature Fault	2	10242	10274	10306	10338	10370	10402	10434	10466
Motor Thermal Model Fault	3	10243	10275	10307	10339	10371	10403	10435	10467
Motor Temperature Fault	4	10244	10276	10308	10340	10372	10404	10436	10468
Bad Hall State	5	10245	10277	10309	10341	10373	10405	10437	10469
Feedback Failure	6	10246	10278	10310	10342	10374	10406	10438	10470
Drive Disabled	7	10247	10279	10311	10343	10375	10407	10439	10471
PWM not active	8	10248	10280	10312	10344	10376	10408	10440	10472
Power Regeneration Warning	9	10249	10281	10313	10345	10377	10409	10441	10473
Shaft Power Limited Warning	10	10250	10282	10314	10346	10378	10410	10442	10474
Excessive Speed at Enable	11	10251	10283	10315	10347	10379	10411	10443	10475
Excessive Position Error	12	10252	10284	10316	10348	10380	10412	10444	10476
Excess Velocity Error	13	10253	10285	10317	10349	10381	10413	10445	10477
Reserved	14	10254	10286	10318	10350	10382	10414	10446	10478
Low Voltage at Enable	15	10255	10287	10319	10351	10383	10415	10447	10479
Control Power Active	16	10256	10288	10320	10352	10384	10416	10448	10480
Alignment Error	17	10257	10289	10321	10353	10385	10417	10449	10481
Reserved	18	10258	10290	10322	10354	10386	10418	10450	10482
Reserved	19	10259	10291	10323	10355	10387	10419	10451	10483
Encoder Read Fault	20	10260	10292	10324	10356	10388	10420	10452	10484
User Fault	21	10261	10293	10325	10357	10389	10421	10453	10485
Encoder Loss Fault	22	10262	10294	10326	10358	10390	10422	10454	10486
Network Loss Fault	23	10263	10295	10327	10359	10391	10423	10455	10487
Drive Param Error	24	10264	10296	10328	10360	10392	10424	10456	10488
Excessive Encoder Count Error	25	10265	10297	10329	10361	10393	10425	10457	10489
Reserved	26	10266	10298	10330	10362	10394	10426	10458	10490
Reserved	27	10267	10299	10331	10363	10395	10427	10459	10491

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x28		**4416**	**4417**	**4418**	**4419**	**4420**	**4421**	**4422**	**4423**
Drive Status Flags	**Bit Index**	**Axis Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Reserved	28	10268	10300	10332	10364	10396	10428	10460	10492
Reserved	29	10269	10301	10333	10365	10397	10429	10461	10493
Reserved	30	10270	10302	10334	10366	10398	10430	10462	10494
Reserved	31	10271	10303	10335	10367	10399	10431	10463	10495

Field Description	Warning/ Fault	Description
Power Regeneration Fault	Fault	Indicates that the drive has encountered a Power Regeneration Fault. Check the Regeneration Resistor of the Drive.
Drive Temperature Fault	Fault	Indicates the drive has faulted due to temperature of the drive being too high.
Motor Thermal Model Fault	Fault	Indicates that the drive has faulted from the Motor Temperature based on the Motor Thermal Model.
Motor Temperature Fault	Fault	Indicates that the drive has faulted from the Motor Temperature based on the Motor thermal switch.
Bad Hall State	Fault	Indicates a problem with the Hall Sensors.
Feedback Failure	Fault	Indicates a fault where the feedback is not present or the signal levels are incorrect.
Drive Disabled	Fault	Indicates that the drive is disabled.
PWM not active	Fault	Indicates that the H-Bridge is not switching.
Power Regeneration Warning	Warning	The drive is in Regeneration Mode.
Shaft Power Limited Warning	Warning	Shaft Power is limited to the rated output to protect the drive.
Excessive Speed at Enable	Fault	The motor was turning too fast when the drive/controller was enabled.
Excess Position Error	Fault	Aries AE/SE models only.
Excess Velocity Error	Fault	Aries AE/SE models only
Low Voltage at Enable	Fault	No motor power was present when the drive/controller was enabled.
Control Power Active	Fault	The drive is in Control power mode. No motor power is present.
Alignment Error	Fault	The **ALIGN** command did not complete successfully.
Encoder Read Fault	Fault	The drive determined there was loss of feedback. Check the feedback wiring.
Encoder Loss Fault	Fault	The drive could no longer detect the encoder. Check the encoder connections.
Network Loss Fault	Fault	EPL drives only. Drive faulted due to loss of EPL communications.
Drive Param Error	Fault	Factory parameters have been corrupted.

Drive Status 1 Flags and Drive Status 2 Flags reflect drive errors and warnings for Aries drives.

- **Aries Controller:** Values are updated every 0.5ms. Errors/warnings can also be viewed in text format using the DRERROR command.
- **Aries EPL:** Values are updated every EPL cycle (0.5 – 2ms). Errors/warnings can also be viewed in text format with the ERROR command when using TALKTO.
- **Aries AE/SE:** Values are updated by request when using DRIVE TALK. See DTALK command for details.

Bit10496 - Bit10750 Drive Control Flags (Axes 0-7)

ACR90x0 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x29		**4424**	**4425**	**4426**	**4427**	**4428**	**4429**	**4430**	**4431**
Drive Control Flags	**Bit Index**	**Axis Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Auto Address Request	0	10496	10528	10560	10592	10624	10656	10688	10720
Get Config Request	1	10497	10529	10561	10593	10625	10657	10689	10721
Send Config Request	2	10498	10530	10562	10594	10626	10658	10690	10722
Send ERRORL Request	3	10499	10531	10563	10595	10627	10659	10691	10723
Get Drive Data Request	4	10500	10532	10564	10596	10628	10660	10692	10724
Reserved	5	10501	10533	10565	10597	10629	10661	10693	10725
Reserved	6	10502	10534	10566	10598	10630	10662	10694	10726
Drive Reset Status (internal only)	7	10503	10535	10567	10599	10631	10663	10695	10727
Custom Product ID	8	10504	10536	10568	10600	10632	10664	10696	10728
Encoder Position	9	10505	10537	10569	10601	10633	10665	10697	10729
Current Hall State (standard encoder only)	10	10506	10538	10570	10602	10634	10666	10698	10730
Operating Hours	11	10507	10539	10571	10603	10635	10667	10699	10731
Operating Minutes	12	10508	10540	10572	10604	10636	10668	10700	10732
Operating Milliseconds	13	10509	10541	10573	10605	10637	10669	10701	10733
Reserved	14	10510	10542	10574	10606	10638	10670	10702	10734
Reserved	15	10511	10543	10575	10607	10639	10671	10703	10735
Amplifier Cont Current Rating	16	10512	10544	10576	10608	10640	10672	10704	10736
Amplifier Max Current Rating	17	10513	10545	10577	10609	10641	10673	10705	10737
Commanded Current	18	10514	10546	10578	10610	10642	10674	10706	10738
Commanded Torque	19	10515	10547	10579	10611	10643	10675	10707	10739
Actual Torque	20	10516	10548	10580	10612	10644	10676	10708	10740
Actual Velocity	21	10517	10549	10581	10613	10645	10677	10709	10741
±10V Input Signal or Shaft Power in Watts	22	10518	10550	10582	10614	10646	10678	10710	10742
Drive Temp	23	10519	10551	10583	10615	10647	10679	10711	10743
Motor Temp	24	10520	10552	10584	10616	10648	10680	10712	10744
Bus Voltage	25	10521	10553	10585	10617	10649	10681	10713	10745
Reserved	26	10522	10554	10586	10618	10650	10682	10714	10746
Reserved	27	10523	10555	10587	10619	10651	10683	10715	10747

Drive Status 1	28	10524	10556	10588	10620	10652	10684	10716	10748
Drive Status 2	29	10525	10557	10589	10621	10653	10685	10717	10749
Reserved	30	10526	10558	10590	10622	10654	10686	10718	10750
Reserved	31	10527	10559	10591	10623	10655	10687	10719	10751

Field Description	Read/ Write	Description
Auto Address Request	R/W	Bit is set to request that the drive Auto Addresses. Not used for EPL.
Get Config Request	R/W	Bit is set to request drive configuration data is uploaded from the drive.
Send Config Request	R/W	Bit is set to request drive configuration data is downloaded to the drive.
Send ERRORL Request	R/W	Bit is set to request drive's error log data. Not used for EPL.
Get Drive Data Request	R/W	Bit is set to request to get drive data (that has been requested) be uploaded from the drive.
Drive Reset Status (internal only)	R	Indicates that the drive is in reset
Custom Product ID	R/W	Bit is set to request drive's Custom Product ID when the Get Drive Data Request Bit is set.
Encoder Position	R/W	Bit is set to request drive's Encoder Position when the Get Drive Data Request Bit is set.
Current Hall State (standard encoder only)	R/W	Bit is set to request drive's Current Hall State when the Get Drive Data Request Bit is set.
Operating Hours	R/W	Bit is set to request drive's Operating Hours when the Get Drive Data Request Bit is set.
Operating Minutes	R/W	Bit is set to request drive's Operating Minutes when the Get Drive Data Request Bit is set.
Operating Milliseconds	R/W	Bit is set to request drive's Operating Milliseconds when the Get Drive Data Request Bit is set.
Amplifier Cont Current Rating	R/W	Bit is set to request drive's Amplifier Continuous Current Rating when the Get Drive Data Request Bit is set.
Amplifier Max Current Rating	R/W	Bit is set to request drive's Amplifier Max Current Rating when the Get Drive Data Request Bit is set.
Commanded Current	R/W	Bit is set to request drive's Commanded Current when the Get Drive Data Request Bit is set.
Commanded Torque	R/W	Bit is set to request drive's Commanded Torque when the Get Drive Data Request Bit is set.
Actual Torque	R/W	Bit is set to request drive's Actual Torque when the Get Drive Data Request Bit is set.
Actual Velocity	R/W	Bit is set to request drive's Actual Velocity when the Get Drive Data Request Bit is set.

Field Description	Read/ Write	Description
±10V Input Signal	R/W	When talking to Aries AE or Aries SE drives, bit is set to request drive's Analog Input Command Signal when the Get Drive Data Request Bit is set.
Shaft Power in Watts	R/W	When talking to Aries EPL drives, bit is set to request drive's Shaft Power when the Get Drive Data Request Bit is set.
Drive Temp	R/W	Bit is set to request drive's Drive Temperature when the Get Drive Data Request Bit is set.
Motor Temp	R/W	Bit is set to request drive's Motor Temperature when the Get Drive Data Request Bit is set.
Bus Voltage	R/W	Bit is set to request drive's Bus Voltage when the Get Drive Data Request Bit is set.
Drive Status 1	R/W	Bit is set to request drive's Drive Status 1 when the Get Drive Data Request Bit is set. (Not required for Aries EPL; data is retrieved automatically as part of the EPL cycle.)
Drive Status 2	R/W	Bit is set to request drive's Drive Status 2 when the Get Drive Data Request Bit is set. (Not required for Aries EPL; data is retrieved automatically as part of the EPL cycle.)

Bit10752 - Bit11007 Drive Control Flags (Axes 8-15)

ACR90x0 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x2A		4432	4433	4434	4435	4436	4437	4438	4439
Drive Control Flags	**Bit Index**	**Axis Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Auto Address Request	0	10752	10784	10816	10848	10880	10912	10944	10976
Get Config Request	1	10753	10785	10817	10849	10881	10913	10945	10977
Send Config Request	2	10754	10786	10818	10850	10882	10914	10946	10978
Send ERRORL Request	3	10755	10787	10819	10851	10883	10915	10947	10979
Get Drive Data Request	4	10756	10788	10820	10852	10884	10916	10948	10980
Reserved	5	10757	10789	10821	10853	10885	10917	10949	10981
Reserved	6	10758	10790	10822	10854	10886	10918	10950	10982
Drive Reset Status (internal only)	7	10759	10791	10823	10855	10887	10919	10951	10983
Custom Product ID	8	10760	10792	10824	10856	10888	10920	10952	10984
Encoder Position	9	10761	10793	10825	10857	10889	10921	10953	10985
Current Hall State (standard encoder only)	10	10762	10794	10826	10858	10890	10922	10954	10986
Operating Hours	11	10763	10795	10827	10859	10891	10923	10955	10987
Operating Minutes	12	10764	10796	10828	10860	10892	10924	10956	10988
Operating Milliseconds	13	10765	10797	10829	10861	10893	10925	10957	10989
Reserved	14	10766	10798	10830	10862	10894	10926	10958	10990
Reserved	15	10767	10799	10831	10863	10895	10927	10959	10991
Amplifier Cont Current Rating	16	10768	10800	10832	10864	10896	10928	10960	10992
Amplifier Max Current Rating	17	10769	10801	10833	10865	10897	10929	10961	10993
Commanded Current	18	10770	10802	10834	10866	10898	10930	10962	10994
Commanded Torque	19	10771	10803	10835	10867	10899	10931	10963	10995
Actual Torque	20	10772	10804	10836	10868	10900	10932	10964	10996
Actual Velocity	21	10773	10805	10837	10869	10901	10933	10965	10997
±10V Input Signal or Shaft Power in Watts	22	10774	10806	10838	10870	10902	10934	10966	10998
Drive Temp	23	10775	10807	10839	10871	10903	10935	10967	10999
Motor Temp	24	10776	10808	10840	10872	10904	10936	10968	11000
Bus Voltage	25	10777	10809	10841	10873	10905	10937	10969	11001
Reserved	26	10778	10810	10842	10874	10906	10938	10970	11002
Reserved	27	10779	10811	10843	10875	10907	10939	10971	11003

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x2A		**4432**	**4433**	**4434**	**4435**	**4436**	**4437**	**4438**	**4439**
Drive Control Flags	**Bit Index**	**Axis Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Drive Status 1	28	10780	10812	10844	10876	10908	10940	10972	11004
Drive Status 2	29	10781	10813	10845	10877	10909	10941	10973	11005
Reserved	30	10782	10814	10846	10878	10910	10942	10974	11006
Reserved	31	10783	10815	10847	10879	10911	10943	10975	11007

Field Description	Read/ Write	Description
Auto Address Request	R/W	Bit is set to request that the drive Auto Addresses. Not used for EPL.
Get Config Request	R/W	Bit is set to request drive configuration data is uploaded from the drive.
Send Config Request	R/W	Bit is set to request drive configuration data is downloaded to the drive.
Send ERRORL Request	R/W	Bit is set to request drive's error log data. Not used for EPL.
Get Drive Data Request	R/W	Bit is set to request to get drive data (that has been requested) be uploaded from the drive.
Drive Reset Status (internal only)	R	Indicates that the drive is in reset.
Custom Product ID	R/W	Bit is set to request drive's Custom Product ID when the Get Drive Data Request Bit is set.
Encoder Position	R/W	Bit is set to request drive's Encoder Position when the Get Drive Data Request Bit is set.
Current Hall State (standard encoder only)	R/W	Bit is set to request drive's Current Hall State when the Get Drive Data Request Bit is set.
Operating Hours	R/W	Bit is set to request drive's Operating Hours when the Get Drive Data Request Bit is set.
Operating Minutes	R/W	Bit is set to request drive's Operating Minutes when the Get Drive Data Request Bit is set.
Operating Milliseconds	R/W	Bit is set to request drive's Operating Milliseconds when the Get Drive Data Request Bit is set.
Amplifier Cont Current Rating	R/W	Bit is set to request drive's Amplifier Continuous Current Rating when the Get Drive Data Request Bit is set.
Amplifier Max Current Rating	R/W	Bit is set to request drive's Amplifier Max Current Rating when the Get Drive Data Request Bit is set.
Commanded Current	R/W	Bit is set to request drive's Commanded Current when the Get Drive Data Request Bit is set.
Commanded Torque	R/W	Bit is set to request drive's Commanded Torque when the Get Drive Data Request Bit is set.

Field Description	Read/ Write	Description
Actual Torque	R/W	Bit is set to request drive's Actual Torque when the Get Drive Data Request Bit is set.
Actual Velocity	R/W	Bit is set to request drive's Actual Velocity when the Get Drive Data Request Bit is set.
±10V Input Signal	R/W	When talking to Aries AE or Aries SE drives, bit is set to request drive's Analog Input Command Signal when the Get Drive Data Request Bit is set.
Shaft Power in Watts	R/W	When talking to Aries EPL drives, bit is set to request drive's Shaft Power when the Get Drive Data Request Bit is set.
Drive Temp	R/W	Bit is set to request drive's Drive Temperature when the Get Drive Data Request Bit is set.
Motor Temp	R/W	Bit is set to request drive's Motor Temperature when the Get Drive Data Request Bit is set.
Bus Voltage	R/W	Bit is set to request drive's Bus Voltage when the Get Drive Data Request Bit is set.
Drive Status 1	R/W	Bit is set to request drive's Drive Status 1 when the Get Drive Data Request Bit is set. (Not required for Aries EPL; data is retrieved automatically as part of the EPL cycle.)
Drive Status 2	R/W	Bit is set to request drive's Drive Status 2 when the Get Drive Data Request Bit is set. (Not required for Aries EPL; data is retrieved automatically as part of the EPL cycle.)

Bit11040 - Bit11071 Stream Flags for Drive Talk—LPT1

Version 1.18.10 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4441
LPT1 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11040
Reserved	1	11041
Reserved	2	11042
Reserved	3	11043
Reserved	4	11044
Reserved	5	11045
Reserved	6	11046
Reserved	7	11047

LPT1 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11048
Reserved	9	11049
Reserved	10	11050
Reserved	11	11051
Stream DTALK Active	12	11052
Stream Drive Found	13	11053
Stream Drive Lost	14	11054
Stream Drive Timeout	15	11055
Stream Address Error	16	11056
Reserved	17	11057
Reserved	18	11058
Reserved	19	11059
Reserved	20	11060
Reserved	21	11061
Reserved	22	11062
Reserved	23	11063

LPT1 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11064
Stream Forward to Drive	25	11065
Stream Response Pending	26	11066
Stream Forward Request	27	11067
Reserved	28	11068
Reserved	29	11069
Reserved	30	11070
Reserved	31	11071

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11072 - Bit11103 Stream Flags for Drive Talk—COM1

Version 1.18.10 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4442
COM1 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11072
Reserved	1	11073
Reserved	2	11074
Reserved	3	11075
Reserved	4	11076
Reserved	5	11077
Reserved	6	11078
Reserved	7	11079

COM1 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11080
Reserved	9	11081
Reserved	10	11082
Reserved	11	11083
Stream DTALK Active	12	11084
Stream Drive Found	13	11085
Stream Drive Lost	14	11086
Stream Drive Timeout	15	11087
Stream Address Error	16	11088
Reserved	17	11089
Reserved	18	11090
Reserved	19	11091
Reserved	20	11092
Reserved	21	11093
Reserved	22	11094
Reserved	23	11095

COM1 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11096
Stream Forward to Drive	25	11097
Stream Response Pending	26	11098
Stream Forward Request	27	11099
Reserved	28	11100
Reserved	29	11101
Reserved	30	11102
Reserved	31	11103

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11104 - Bit11135 Stream Flags for Drive Talk—COM2

Version 1.18.10 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4443
COM2 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11104
Reserved	1	11105
Reserved	2	11106
Reserved	3	11107
Reserved	4	11108
Reserved	5	11109
Reserved	6	11110
Reserved	7	11111

COM2 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11112
Reserved	9	11113
Reserved	10	11114
Reserved	11	11115
Reserved	12	11116
Reserved	13	11117
Reserved	14	11118
Reserved	15	11119
Stream DTALK Active	16	11120
Stream Drive Found	17	11121
Stream Drive Lost	18	11122
Stream Drive Timeout	19	11123
Stream Address Error	20	11124
Reserved	21	11125
Reserved	22	11126
Reserved	23	11127

COM2 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Reserved	24	11128
Reserved	25	11129
Reserved	26	11130
Reserved	27	11131
Stream Forward to Stream	28	11132
Stream Forward to Drive	29	11133
Stream Response Pending	30	11134
Stream Forward Request	31	11135

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11168 - Bit11199 DPCB/Stream 3 Flags for Drive Talk

Version 1.18.10 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4445
DUALPORT Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11168
Reserved	1	11169
Reserved	2	11170
Reserved	3	11171
Reserved	4	11172
Reserved	5	11173
Reserved	6	11174
Reserved	7	11175

DUALPORT Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11176
Reserved	9	11177
Reserved	10	11178
Reserved	11	11179
Stream DTALK Active	12	11180
Stream Drive Found	13	11181
Stream Drive Lost	14	11182
Stream Drive Timeout	15	11183
Stream Address Error	16	11184
Reserved	17	11185
Reserved	18	11186
Reserved	19	11187
Reserved	20	11188
Reserved	21	11189
Reserved	22	11190
Reserved	23	11191

DUALPORT Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11192
Stream Forward to Drive	25	11193
Stream Response Pending	26	11194
Stream Forward Request	27	11195
Reserved	28	11196
Reserved	29	11197
Reserved	30	11198
Reserved	31	11199

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11200 - Bit11231 Stream 4 Flags for Drive Talk

Version 1.18.13 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4446
Stream 4 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11200
Reserved	1	11201
Reserved	2	11202
Reserved	3	11203
Reserved	4	11204
Reserved	5	11205
Reserved	6	11206
Reserved	7	11207

Stream 4 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11208
Reserved	9	11209
Reserved	10	11210
Reserved	11	11211
Stream DTALK Active	12	11212
Stream Drive Found	13	11213
Stream Drive Lost	14	11214
Stream Drive Timeout	15	11215
Stream Address Error	16	11216
Reserved	17	11217
Reserved	18	11218
Reserved	19	11219
Reserved	20	11220
Reserved	21	11221
Reserved	22	11222
Reserved	23	11223

Stream 4 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11224
Stream Forward to Drive	25	11225
Stream Response Pending	26	11226
Stream Forward Request	27	11227
Reserved	28	11228
Reserved	29	11229
Reserved	30	11230
Reserved	31	11231

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11232 - Bit11263 Stream 5 Flags for Drive Talk

Version 1.18.13 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4447
Stream 5 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11232
Reserved	1	11233
Reserved	2	11234
Reserved	3	11235
Reserved	4	11236
Reserved	5	11237
Reserved	6	11238
Reserved	7	11239

Stream 5 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11240
Reserved	9	11241
Reserved	10	11242
Reserved	11	11243
Stream DTALK Active	12	11244
Stream Drive Found	13	11245
Stream Drive Lost	14	11246
Stream Drive Timeout	15	11247
Stream Address Error	16	11248
Reserved	17	11249
Reserved	18	11250
Reserved	19	11251
Reserved	20	11252
Reserved	21	11253
Reserved	22	11254
Reserved	23	11255

Stream 5 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11256
Stream Forward to Drive	25	11257
Stream Response Pending	26	11258
Stream Forward Request	27	11259
Reserved	28	11260
Reserved	29	11261
Reserved	30	11262
Reserved	31	11263

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11264 - Bit11279 CANopen Control Flags

ACR90x0 only

Flag Parameter Code=0x11; Index=0x60; Mask=0xFF		4448
Control Flags	**Bit Index**	**Bit Number**
Discover Network Config	0	11264
Start Network	1	11265
Reset Network	2	11266
Reserved	3	11267

Status Flags	**Bit Index**	**Bit Number**
CANopen Controller Installed	4	11268
Network Operational	5	11269
Network Start Failed	6	11270
Node Failure	7	11271
SW RX Overflow	8	11272
HW Rx Overflow	9	11273
Reserved	10	11274
Reserved	11	11275
Reserved	12	11276
Reserved	13	11277
Reserved	14	11278
Reserved	15	11279
Reserved	16	11280
Starting	17	11281
Start Failed	18	11282

Field Description	Read/ Write	Description
Discover Network Config	W	When the bit is set, the controller attempts a network discovery for the CANopen network. All nodes in the CANopen network are then configured for communications with the controller (with CANopen option).
Start Network	R/W	Setting this self-clearing bit will start the CANopen communications. User configuration is verified and status is established. Action complete when bit is clear.
Reset Network	R/W	Setting this self-clearing bit will reset the CANopen network. Action complete when bit is clear.
CANopen Controller Installed	R	This flag is set to indicate that the CANopen hardware is installed on the ACR9000.
Network Operational	R	This flag is set to indicate that the CANopen network is operation and running without errors.
Network Start Failed	R	This flag is set when a “Start Network” command (bit 11265) has failed for any reason. The network and parameters should be inspected for proper wiring and configuration before attempting to restart. Reason for failure may be indicated by CANopen LED and P32779
Node Failure	R	This flag is set to indicate that a node has failed. The network should be inspected for errors.
SW RX Overflow	R	This bit will be set when an overflow as occurred on the software receive FIFO.
HW Rx Overflow	R	This bit will be set when an overflow has occurred on the hardware receive FIFO.
Starting	R	Indicates that the Start Request has been received and the Controller is in the process of starting the CAN-Open network.
Start Failed	R	Indicates that the Start Request has failed.

Bit11520 - Bit12031 Node 0 Digital Input Flags

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x2D		**4456**	**4457**	**4458**	**4459**	**4460**	**4461**	**4462**	**4463**
	Bit Index								
Digital Input	0	11520	11552	11584	11616	11648	11680	11712	11744
Digital Input	1	11521	11553	11585	11617	11649	11681	11713	11745
Digital Input	2	11522	11554	11586	11618	11650	11682	11714	11746
Digital Input	3	11523	11555	11587	11619	11651	11683	11715	11747
Digital Input	4	11524	11556	11588	11620	11652	11684	11716	11748
Digital Input	5	11525	11557	11589	11621	11653	11685	11717	11749
Digital Input	6	11526	11558	11590	11622	11654	11686	11718	11750
Digital Input	7	11527	11559	11591	11623	11655	11687	11719	11751
Digital Input	8	11528	11560	11592	11624	11656	11688	11720	11752
Digital Input	9	11529	11561	11593	11625	11657	11689	11721	11753
Digital Input	10	11530	11562	11594	11626	11658	11690	11722	11754
Digital Input	11	11531	11563	11595	11627	11659	11691	11723	11755
Digital Input	12	11532	11564	11596	11628	11660	11692	11724	11756
Digital Input	13	11533	11565	11597	11629	11661	11693	11725	11757
Digital Input	14	11534	11566	11598	11630	11662	11694	11726	11758
Digital Input	15	11535	11567	11599	11631	11663	11695	11727	11759
Digital Input	16	11536	11568	11600	11632	11664	11696	11728	11760
Digital Input	17	11537	11569	11601	11633	11665	11697	11729	11761
Digital Input	18	11538	11570	11602	11634	11666	11698	11730	11762
Digital Input	19	11539	11571	11603	11635	11667	11699	11731	11763
Digital Input	20	11540	11572	11604	11636	11668	11700	11732	11764
Digital Input	21	11541	11573	11605	11637	11669	11701	11733	11765
Digital Input	22	11542	11574	11606	11638	11670	11702	11734	11766
Digital Input	23	11543	11575	11607	11639	11671	11703	11735	11767
Digital Input	24	11544	11576	11608	11640	11672	11704	11736	11768
Digital Input	25	11545	11577	11609	11641	11673	11705	11737	11769
Digital Input	26	11546	11578	11610	11642	11674	11706	11738	11770
Digital Input	27	11547	11579	11611	11643	11675	11707	11739	11771
Digital Input	28	11548	11580	11612	11644	11676	11708	11740	11772
Digital Input	29	11549	11581	11613	11645	11677	11709	11741	11773
Digital Input	30	11550	11582	11614	11646	11678	11710	11742	11774
Digital Input	31	11551	11583	11615	11647	11679	11711	11743	11775

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x2E		**4464**	**4465**	**4466**	**4467**	**4468**	**4469**	**4470**	**4471**
	Bit Index								
Digital Input	0	11776	11808	11840	11872	11904	11936	11968	12000
Digital Input	1	11777	11809	11841	11873	11905	11937	11969	12001
Digital Input	2	11778	11810	11842	11874	11906	11938	11970	12002
Digital Input	3	11779	11811	11843	11875	11907	11939	11971	12003
Digital Input	4	11780	11812	11844	11876	11908	11940	11972	12004
Digital Input	5	11781	11813	11845	11877	11909	11941	11973	12005
Digital Input	6	11782	11814	11846	11878	11910	11942	11974	12006
Digital Input	7	11783	11815	11847	11879	11911	11943	11975	12007
Digital Input	8	11784	11816	11848	11880	11912	11944	11976	12008
Digital Input	9	11785	11817	11849	11881	11913	11945	11977	12009
Digital Input	10	11786	11818	11850	11882	11914	11946	11978	12010
Digital Input	11	11787	11819	11851	11883	11915	11947	11979	12011
Digital Input	12	11788	11820	11852	11884	11916	11948	11980	12012
Digital Input	13	11789	11821	11853	11885	11917	11949	11981	12013
Digital Input	14	11790	11822	11854	11886	11918	11950	11982	12014
Digital Input	15	11791	11823	11855	11887	11919	11951	11983	12015
Digital Input	16	11792	11824	11856	11888	11920	11952	11984	12016
Digital Input	17	11793	11825	11857	11889	11921	11953	11985	12017
Digital Input	18	11794	11826	11858	11890	11922	11954	11986	12018
Digital Input	19	11795	11827	11859	11891	11923	11955	11987	12019
Digital Input	20	11796	11828	11860	11892	11924	11956	11988	12020
Digital Input	21	11797	11829	11861	11893	11925	11957	11989	12021
Digital Input	22	11798	11830	11862	11894	11926	11958	11990	12022
Digital Input	23	11799	11831	11863	11895	11927	11959	11991	12023
Digital Input	24	11800	11832	11864	11896	11928	11960	11992	12024
Digital Input	25	11801	11833	11865	11897	11929	11961	11993	12025
Digital Input	26	11802	11834	11866	11898	11930	11962	11994	12026
Digital Input	27	11803	11835	11867	11899	11931	11963	11995	12027
Digital Input	28	11804	11836	11868	11900	11932	11964	11996	12028
Digital Input	29	11805	11837	11869	11901	11933	11965	11997	12029
Digital Input	30	11806	11838	11870	11902	11934	11966	11998	12030
Digital Input	31	11807	11839	11871	11903	11935	11967	11999	12031

Bit12032 - Bit12543 Node 0 Digital Output Flags

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x2F		**4472**	**4473**	**4474**	**4475**	**4476**	**4477**	**4478**	**4479**
	Bit Index								
Digital Output	0	12032	12064	12096	12128	12160	12192	12224	12256
Digital Output	1	12033	12065	12097	12129	12161	12193	12225	12257
Digital Output	2	12034	12066	12098	12130	12162	12194	12226	12258
Digital Output	3	12035	12067	12099	12131	12163	12195	12227	12259
Digital Output	4	12036	12068	12100	12132	12164	12196	12228	12260
Digital Output	5	12037	12069	12101	12133	12165	12197	12229	12261
Digital Output	6	12038	12070	12102	12134	12166	12198	12230	12262
Digital Output	7	12039	12071	12103	12135	12167	12199	12231	12263
Digital Output	8	12040	12072	12104	12136	12168	12200	12232	12264
Digital Output	9	12041	12073	12105	12137	12169	12201	12233	12265
Digital Output	10	12042	12074	12106	12138	12170	12202	12234	12266
Digital Output	11	12043	12075	12107	12139	12171	12203	12235	12267
Digital Output	12	12044	12076	12108	12140	12172	12204	12236	12268
Digital Output	13	12045	12077	12109	12141	12173	12205	12237	12269
Digital Output	14	12046	12078	12110	12142	12174	12206	12238	12270
Digital Output	15	12047	12079	12111	12143	12175	12207	12239	12271
Digital Output	16	12048	12080	12112	12144	12176	12208	12240	12272
Digital Output	17	12049	12081	12113	12145	12177	12209	12241	12273
Digital Output	18	12050	12082	12114	12146	12178	12210	12242	12274
Digital Output	19	12051	12083	12115	12147	12179	12211	12243	12275
Digital Output	20	12052	12084	12116	12148	12180	12212	12244	12276
Digital Output	21	12053	12085	12117	12149	12181	12213	12245	12277
Digital Output	22	12054	12086	12118	12150	12182	12214	12246	12278
Digital Output	23	12055	12087	12119	12151	12183	12215	12247	12279
Digital Output	24	12056	12088	12120	12152	12184	12216	12248	12280
Digital Output	25	12057	12089	12121	12153	12185	12217	12249	12281
Digital Output	26	12058	12090	12122	12154	12186	12218	12250	12282
Digital Output	27	12059	12091	12123	12155	12187	12219	12251	12283
Digital Output	28	12060	12092	12124	12156	12188	12220	12252	12284
Digital Output	29	12061	12093	12125	12157	12189	12221	12253	12285
Digital Output	30	12062	12094	12126	12158	12190	12222	12254	12286

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x2F		**4472**	**4473**	**4474**	**4475**	**4476**	**4477**	**4478**	**4479**
	Bit Index								
Digital Output	31	12063	12095	12127	12159	12191	12223	12255	12287

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x30		**4480**	**4481**	**4482**	**4483**	**4484**	**4485**	**4486**	**4487**
	Bit Index								
Digital Output	0	12288	12320	12352	12384	12416	12448	12480	12512
Digital Output	1	12289	12321	12353	12385	12417	12449	12481	12513
Digital Output	2	12290	12322	12354	12386	12418	12450	12482	12514
Digital Output	3	12291	12323	12355	12387	12419	12451	12483	12515
Digital Output	4	12292	12324	12356	12388	12420	12452	12484	12516
Digital Output	5	12293	12325	12357	12389	12421	12453	12485	12517
Digital Output	6	12294	12326	12358	12390	12422	12454	12486	12518
Digital Output	7	12295	12327	12359	12391	12423	12455	12487	12519
Digital Output	8	12296	12328	12360	12392	12424	12456	12488	12520
Digital Output	9	12297	12329	12361	12393	12425	12457	12489	12521
Digital Output	10	12298	12330	12362	12394	12426	12458	12490	12522
Digital Output	11	12299	12331	12363	12395	12427	12459	12491	12523
Digital Output	12	12300	12332	12364	12396	12428	12460	12492	12524
Digital Output	13	12301	12333	12365	12397	12429	12461	12493	12525
Digital Output	14	12302	12334	12366	12398	12430	12462	12494	12526
Digital Output	15	12303	12335	12367	12399	12431	12463	12495	12527
Digital Output	16	12304	12336	12368	12400	12432	12464	12496	12528
Digital Output	17	12305	12337	12369	12401	12433	12465	12497	12529
Digital Output	18	12306	12338	12370	12402	12434	12466	12498	12530
Digital Output	19	12307	12339	12371	12403	12435	12467	12499	12531
Digital Output	20	12308	12340	12372	12404	12436	12468	12500	12532
Digital Output	21	12309	12341	12373	12405	12437	12469	12501	12533
Digital Output	22	12310	12342	12374	12406	12438	12470	12502	12534
Digital Output	23	12311	12343	12375	12407	12439	12471	12503	12535
Digital Output	24	12312	12344	12376	12408	12440	12472	12504	12536
Digital Output	25	12313	12345	12377	12409	12441	12473	12505	12537
Digital Output	26	12314	12346	12378	12410	12442	12474	12506	12538
Digital Output	27	12315	12347	12379	12411	12443	12475	12507	12539
Digital Output	28	12316	12348	12380	12412	12444	12476	12508	12540
Digital Output	29	12317	12349	12381	12413	12445	12477	12509	12541
Digital Output	30	12318	12350	12382	12414	12446	12478	12510	12542

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x30		**4480**	**4481**	**4482**	**4483**	**4484**	**4485**	**4486**	**4487**
	Bit Index								
Digital Output	31	12319	12351	12383	12415	12447	12479	12511	12543

Bit12544 - Bit13055 Node 1 Digital Input Flags

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x31		**4488**	**4489**	**4490**	**4491**	**4492**	**4493**	**4494**	**4495**
	Bit Index								
Digital Input	0	12544	12576	12608	12640	12672	12704	12736	12768
Digital Input	1	12545	12577	12609	12641	12673	12705	12737	12769
Digital Input	2	12546	12578	12610	12642	12674	12706	12738	12770
Digital Input	3	12547	12579	12611	12643	12675	12707	12739	12771
Digital Input	4	12548	12580	12612	12644	12676	12708	12740	12772
Digital Input	5	12549	12581	12613	12645	12677	12709	12741	12773
Digital Input	6	12550	12582	12614	12646	12678	12710	12742	12774
Digital Input	7	12551	12583	12615	12647	12679	12711	12743	12775
Digital Input	8	12552	12584	12616	12648	12680	12712	12744	12776
Digital Input	9	12553	12585	12617	12649	12681	12713	12745	12777
Digital Input	10	12554	12586	12618	12650	12682	12714	12746	12778
Digital Input	11	12555	12587	12619	12651	12683	12715	12747	12779
Digital Input	12	12556	12588	12620	12652	12684	12716	12748	12780
Digital Input	13	12557	12589	12621	12653	12685	12717	12749	12781
Digital Input	14	12558	12590	12622	12654	12686	12718	12750	12782
Digital Input	15	12559	12591	12623	12655	12687	12719	12751	12783
Digital Input	16	12560	12592	12624	12656	12688	12720	12752	12784
Digital Input	17	12561	12593	12625	12657	12689	12721	12753	12785
Digital Input	18	12562	12594	12626	12658	12690	12722	12754	12786
Digital Input	19	12563	12595	12627	12659	12691	12723	12755	12787
Digital Input	20	12564	12596	12628	12660	12692	12724	12756	12788
Digital Input	21	12565	12597	12629	12661	12693	12725	12757	12789
Digital Input	22	12566	12598	12630	12662	12694	12726	12758	12790
Digital Input	23	12567	12599	12631	12663	12695	12727	12759	12791
Digital Input	24	12568	12600	12632	12664	12696	12728	12760	12792
Digital Input	25	12569	12601	12633	12665	12697	12729	12761	12793
Digital Input	26	12570	12602	12634	12666	12698	12730	12762	12794
Digital Input	27	12571	12603	12635	12667	12699	12731	12763	12795
Digital Input	28	12572	12604	12636	12668	12700	12732	12764	12796
Digital Input	29	12573	12605	12637	12669	12701	12733	12765	12797
Digital Input	30	12574	12606	12638	12670	12702	12734	12766	12798

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x31		**4488**	**4489**	**4490**	**4491**	**4492**	**4493**	**4494**	**4495**
	Bit Index								
Digital Input	31	12575	12607	12639	12671	12703	12735	12767	12799

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x32		**4496**	**4497**	**4498**	**4499**	**4500**	**4501**	**4502**	**4503**
	Bit Index								
Digital Input	0	12800	12832	12864	12896	12928	12960	12992	13024
Digital Input	1	12801	12833	12865	12897	12929	12961	12993	13025
Digital Input	2	12802	12834	12866	12898	12930	12962	12994	13026
Digital Input	3	12803	12835	12867	12899	12931	12963	12995	13027
Digital Input	4	12804	12836	12868	12900	12932	12964	12996	13028
Digital Input	5	12805	12837	12869	12901	12933	12965	12997	13029
Digital Input	6	12806	12838	12870	12902	12934	12966	12998	13030
Digital Input	7	12807	12839	12871	12903	12935	12967	12999	13031
Digital Input	8	12808	12840	12872	12904	12936	12968	13000	13032
Digital Input	9	12809	12841	12873	12905	12937	12969	13001	13033
Digital Input	10	12810	12842	12874	12906	12938	12970	13002	13034
Digital Input	11	12811	12843	12875	12907	12939	12971	13003	13035
Digital Input	12	12812	12844	12876	12908	12940	12972	13004	13036
Digital Input	13	12813	12845	12877	12909	12941	12973	13005	13037
Digital Input	14	12814	12846	12878	12910	12942	12974	13006	13038
Digital Input	15	12815	12847	12879	12911	12943	12975	13007	13039
Digital Input	16	12816	12848	12880	12912	12944	12976	13008	13040
Digital Input	17	12817	12849	12881	12913	12945	12977	13009	13041
Digital Input	18	12818	12850	12882	12914	12946	12978	13010	13042
Digital Input	19	12819	12851	12883	12915	12947	12979	13011	13043
Digital Input	20	12820	12852	12884	12916	12948	12980	13012	13044
Digital Input	21	12821	12853	12885	12917	12949	12981	13013	13045
Digital Input	22	12822	12854	12886	12918	12950	12982	13014	13046
Digital Input	23	12823	12855	12887	12919	12951	12983	13015	13047
Digital Input	24	12824	12856	12888	12920	12952	12984	13016	13048
Digital Input	25	12825	12857	12889	12921	12953	12985	13017	13049
Digital Input	26	12826	12858	12890	12922	12954	12986	13018	13050
Digital Input	27	12827	12859	12891	12923	12955	12987	13019	13051
Digital Input	28	12828	12860	12892	12924	12956	12988	13020	13052
Digital Input	29	12829	12861	12893	12925	12957	12989	13021	13053
Digital Input	30	12830	12862	12894	12926	12958	12990	13022	13054

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x32		**4496**	**4497**	**4498**	**4499**	**4500**	**4501**	**4502**	**4503**
	Bit Index								
Digital Input	31	12831	12863	12895	12927	12959	12991	13023	13055

Bit13056 - Bit13567 Node 1 Digital Output Flags

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x33		**4504**	**4505**	**4506**	**4507**	**4508**	**4509**	**4510**	**4511**
	Bit Index								
Digital Output	0	13056	13088	13120	13152	13184	13216	13248	13280
Digital Output	1	13057	13089	13121	13153	13185	13217	13249	13281
Digital Output	2	13058	13090	13122	13154	13186	13218	13250	13282
Digital Output	3	13059	13091	13123	13155	13187	13219	13251	13283
Digital Output	4	13060	13092	13124	13156	13188	13220	13252	13284
Digital Output	5	13061	13093	13125	13157	13189	13221	13253	13285
Digital Output	6	13062	13094	13126	13158	13190	13222	13254	13286
Digital Output	7	13063	13095	13127	13159	13191	13223	13255	13287
Digital Output	8	13064	13096	13128	13160	13192	13224	13256	13288
Digital Output	9	13065	13097	13129	13161	13193	13225	13257	13289
Digital Output	10	13066	13098	13130	13162	13194	13226	13258	13290
Digital Output	11	13067	13099	13131	13163	13195	13227	13259	13291
Digital Output	12	13068	13100	13132	13164	13196	13228	13260	13292
Digital Output	13	13069	13101	13133	13165	13197	13229	13261	13293
Digital Output	14	13070	13102	13134	13166	13198	13230	13262	13294
Digital Output	15	13071	13103	13135	13167	13199	13231	13263	13295
Digital Output	16	13072	13104	13136	13168	13200	13232	13264	13296
Digital Output	17	13073	13105	13137	13169	13201	13233	13265	13297
Digital Output	18	13074	13106	13138	13170	13202	13234	13266	13298
Digital Output	19	13075	13107	13139	13171	13203	13235	13267	13299
Digital Output	20	13076	13108	13140	13172	13204	13236	13268	13300
Digital Output	21	13077	13109	13141	13173	13205	13237	13269	13301
Digital Output	22	13078	13110	13142	13174	13206	13238	13270	13302
Digital Output	23	13079	13111	13143	13175	13207	13239	13271	13303
Digital Output	24	13080	13112	13144	13176	13208	13240	13272	13304
Digital Output	25	13081	13113	13145	13177	13209	13241	13273	13305
Digital Output	26	13082	13114	13146	13178	13210	13242	13274	13306
Digital Output	27	13083	13115	13147	13179	13211	13243	13275	13307
Digital Output	28	13084	13116	13148	13180	13212	13244	13276	13308
Digital Output	29	13085	13117	13149	13181	13213	13245	13277	13309
Digital Output	30	13086	13118	13150	13182	13214	13246	13278	13310

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x33		**4504**	**4505**	**4506**	**4507**	**4508**	**4509**	**4510**	**4511**
	Bit Index								
Digital Output	31	13087	13119	13151	13183	13215	13247	13279	13311

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x34		**4512**	**4513**	**4514**	**4515**	**4516**	**4517**	**4518**	**4519**
	Bit Index								
Digital Output	0	13312	13344	13376	13408	13440	13472	13504	13536
Digital Output	1	13313	13345	13377	13409	13441	13473	13505	13537
Digital Output	2	13314	13346	13378	13410	13442	13474	13506	13538
Digital Output	3	13315	13347	13379	13411	13443	13475	13507	13539
Digital Output	4	13316	13348	13380	13412	13444	13476	13508	13540
Digital Output	5	13317	13349	13381	13413	13445	13477	13509	13541
Digital Output	6	13318	13350	13382	13414	13446	13478	13510	13542
Digital Output	7	13319	13351	13383	13415	13447	13479	13511	13543
Digital Output	8	13320	13352	13384	13416	13448	13480	13512	13544
Digital Output	9	13321	13353	13385	13417	13449	13481	13513	13545
Digital Output	10	13322	13354	13386	13418	13450	13482	13514	13546
Digital Output	11	13323	13355	13387	13419	13451	13483	13515	13547
Digital Output	12	13324	13356	13388	13420	13452	13484	13516	13548
Digital Output	13	13325	13357	13389	13421	13453	13485	13517	13549
Digital Output	14	13326	13358	13390	13422	13454	13486	13518	13550
Digital Output	15	13327	13359	13391	13423	13455	13487	13519	13551
Digital Output	16	13328	13360	13392	13424	13456	13488	13520	13552
Digital Output	17	13329	13361	13393	13425	13457	13489	13521	13553
Digital Output	18	13330	13362	13394	13426	13458	13490	13522	13554
Digital Output	19	13331	13363	13395	13427	13459	13491	13523	13555
Digital Output	20	13332	13364	13396	13428	13460	13492	13524	13556
Digital Output	21	13333	13365	13397	13429	13461	13493	13525	13557
Digital Output	22	13334	13366	13398	13430	13462	13494	13526	13558
Digital Output	23	13335	13367	13399	13431	13463	13495	13527	13559
Digital Output	24	13336	13368	13400	13432	13464	13496	13528	13560
Digital Output	25	13337	13369	13401	13433	13465	13497	13529	13561
Digital Output	26	13338	13370	13402	13434	13466	13498	13530	13562
Digital Output	27	13339	13371	13403	13435	13467	13499	13531	13563
Digital Output	28	13340	13372	13404	13436	13468	13500	13532	13564
Digital Output	29	13341	13373	13405	13437	13469	13501	13533	13565
Digital Output	30	13342	13374	13406	13438	13470	13502	13534	13566

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x34		**4512**	**4513**	**4514**	**4515**	**4516**	**4517**	**4518**	**4519**
	Bit Index								
Digital Output	31	13343	13375	13407	13439	13471	13503	13535	13567

Bit13568 - Bit14079 Node 2 Digital Input Flags

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x35		**4520**	**4521**	**4522**	**4523**	**4524**	**4525**	**4526**	**4527**
	Bit Index								
Digital Input	0	13568	13600	13632	13664	13696	13728	13760	13792
Digital Input	1	13569	13601	13633	13665	13697	13729	13761	13793
Digital Input	2	13570	13602	13634	13666	13698	13730	13762	13794
Digital Input	3	13571	13603	13635	13667	13699	13731	13763	13795
Digital Input	4	13572	13604	13636	13668	13700	13732	13764	13796
Digital Input	5	13573	13605	13637	13669	13701	13733	13765	13797
Digital Input	6	13574	13606	13638	13670	13702	13734	13766	13798
Digital Input	7	13575	13607	13639	13671	13703	13735	13767	13799
Digital Input	8	13576	13608	13640	13672	13704	13736	13768	13800
Digital Input	9	13577	13609	13641	13673	13705	13737	13769	13801
Digital Input	10	13578	13610	13642	13674	13706	13738	13770	13802
Digital Input	11	13579	13611	13643	13675	13707	13739	13771	13803
Digital Input	12	13580	13612	13644	13676	13708	13740	13772	13804
Digital Input	13	13581	13613	13645	13677	13709	13741	13773	13805
Digital Input	14	13582	13614	13646	13678	13710	13742	13774	13806
Digital Input	15	13583	13615	13647	13679	13711	13743	13775	13807
Digital Input	16	13584	13616	13648	13680	13712	13744	13776	13808
Digital Input	17	13585	13617	13649	13681	13713	13745	13777	13809
Digital Input	18	13586	13618	13650	13682	13714	13746	13778	13810
Digital Input	19	13587	13619	13651	13683	13715	13747	13779	13811
Digital Input	20	13588	13620	13652	13684	13716	13748	13780	13812
Digital Input	21	13589	13621	13653	13685	13717	13749	13781	13813
Digital Input	22	13590	13622	13654	13686	13718	13750	13782	13814
Digital Input	23	13591	13623	13655	13687	13719	13751	13783	13815
Digital Input	24	13592	13624	13656	13688	13720	13752	13784	13816
Digital Input	25	13593	13625	13657	13689	13721	13753	13785	13817
Digital Input	26	13594	13626	13658	13690	13722	13754	13786	13818
Digital Input	27	13595	13627	13659	13691	13723	13755	13787	13819
Digital Input	28	13596	13628	13660	13692	13724	13756	13788	13820
Digital Input	29	13597	13629	13661	13693	13725	13757	13789	13821
Digital Input	30	13598	13630	13662	13694	13726	13758	13790	13822

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x35		**4520**	**4521**	**4522**	**4523**	**4524**	**4525**	**4526**	**4527**
	Bit Index								
Digital Input	31	13599	13631	13663	13695	13727	13759	13791	13823

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x36		**4528**	**4529**	**4530**	**4531**	**4532**	**4533**	**4534**	**4535**
	Bit Index								
Digital Input	0	13824	13856	13888	13920	13952	13984	14016	14048
Digital Input	1	13825	13857	13889	13921	13953	13985	14017	14049
Digital Input	2	13826	13858	13890	13922	13954	13986	14018	14050
Digital Input	3	13827	13859	13891	13923	13955	13987	14019	14051
Digital Input	4	13828	13860	13892	13924	13956	13988	14020	14052
Digital Input	5	13829	13861	13893	13925	13957	13989	14021	14053
Digital Input	6	13830	13862	13894	13926	13958	13990	14022	14054
Digital Input	7	13831	13863	13895	13927	13959	13991	14023	14055
Digital Input	8	13832	13864	13896	13928	13960	13992	14024	14056
Digital Input	9	13833	13865	13897	13929	13961	13993	14025	14057
Digital Input	10	13834	13866	13898	13930	13962	13994	14026	14058
Digital Input	11	13835	13867	13899	13931	13963	13995	14027	14059
Digital Input	12	13836	13868	13900	13932	13964	13996	14028	14060
Digital Input	13	13837	13869	13901	13933	13965	13997	14029	14061
Digital Input	14	13838	13870	13902	13934	13966	13998	14030	14062
Digital Input	15	13839	13871	13903	13935	13967	13999	14031	14063
Digital Input	16	13840	13872	13904	13936	13968	14000	14032	14064
Digital Input	17	13841	13873	13905	13937	13969	14001	14033	14065
Digital Input	18	13842	13874	13906	13938	13970	14002	14034	14066
Digital Input	19	13843	13875	13907	13939	13971	14003	14035	14067
Digital Input	20	13844	13876	13908	13940	13972	14004	14036	14068
Digital Input	21	13845	13877	13909	13941	13973	14005	14037	14069
Digital Input	22	13846	13878	13910	13942	13974	14006	14038	14070
Digital Input	23	13847	13879	13911	13943	13975	14007	14039	14071
Digital Input	24	13848	13880	13912	13944	13976	14008	14040	14072
Digital Input	25	13849	13881	13913	13945	13977	14009	14041	14073
Digital Input	26	13850	13882	13914	13946	13978	14010	14042	14074
Digital Input	27	13851	13883	13915	13947	13979	14011	14043	14075
Digital Input	28	13852	13884	13916	13948	13980	14012	14044	14076
Digital Input	29	13853	13885	13917	13949	13981	14013	14045	14077
Digital Input	30	13854	13886	13918	13950	13982	14014	14046	14078

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x36		**4528**	**4529**	**4530**	**4531**	**4532**	**4533**	**4534**	**4535**
	Bit Index								
Digital Input	31	13855	13887	13919	13951	13983	14015	14047	14079

Bit14080 - Bit14591 Node 2 Digital Output Flags

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x37		**4536**	**4537**	**4538**	**4539**	**4540**	**4541**	**4542**	**4543**
	Bit Index								
Digital Output	0	14080	14112	14144	14176	14208	14240	14272	14304
Digital Output	1	14081	14113	14145	14177	14209	14241	14273	14305
Digital Output	2	14082	14114	14146	14178	14210	14242	14274	14306
Digital Output	3	14083	14115	14147	14179	14211	14243	14275	14307
Digital Output	4	14084	14116	14148	14180	14212	14244	14276	14308
Digital Output	5	14085	14117	14149	14181	14213	14245	14277	14309
Digital Output	6	14086	14118	14150	14182	14214	14246	14278	14310
Digital Output	7	14087	14119	14151	14183	14215	14247	14279	14311
Digital Output	8	14088	14120	14152	14184	14216	14248	14280	14312
Digital Output	9	14089	14121	14153	14185	14217	14249	14281	14313
Digital Output	10	14090	14122	14154	14186	14218	14250	14282	14314
Digital Output	11	14091	14123	14155	14187	14219	14251	14283	14315
Digital Output	12	14092	14124	14156	14188	14220	14252	14284	14316
Digital Output	13	14093	14125	14157	14189	14221	14253	14285	14317
Digital Output	14	14094	14126	14158	14190	14222	14254	14286	14318
Digital Output	15	14095	14127	14159	14191	14223	14255	14287	14319
Digital Output	16	14096	14128	14160	14192	14224	14256	14288	14320
Digital Output	17	14097	14129	14161	14193	14225	14257	14289	14321
Digital Output	18	14098	14130	14162	14194	14226	14258	14290	14322
Digital Output	19	14099	14131	14163	14195	14227	14259	14291	14323
Digital Output	20	14100	14132	14164	14196	14228	14260	14292	14324
Digital Output	21	14101	14133	14165	14197	14229	14261	14293	14325
Digital Output	22	14102	14134	14166	14198	14230	14262	14294	14326
Digital Output	23	14103	14135	14167	14199	14231	14263	14295	14327
Digital Output	24	14104	14136	14168	14200	14232	14264	14296	14328
Digital Output	25	14105	14137	14169	14201	14233	14265	14297	14329
Digital Output	26	14106	14138	14170	14202	14234	14266	14298	14330
Digital Output	27	14107	14139	14171	14203	14235	14267	14299	14331
Digital Output	28	14108	14140	14172	14204	14236	14268	14300	14332
Digital Output	29	14109	14141	14173	14205	14237	14269	14301	14333
Digital Output	30	14110	14142	14174	14206	14238	14270	14302	14334

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x37		**4536**	**4537**	**4538**	**4539**	**4540**	**4541**	**4542**	**4543**
	Bit Index								
Digital Output	31	14111	14143	14175	14207	14239	14271	14303	14335

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x38		**4544**	**4545**	**4546**	**4547**	**4548**	**4549**	**4550**	**4551**
	Bit Index								
Digital Output	0	14336	14368	14400	14432	14464	14496	14528	14560
Digital Output	1	14337	14369	14401	14433	14465	14497	14529	14561
Digital Output	2	14338	14370	14402	14434	14466	14498	14530	14562
Digital Output	3	14339	14371	14403	14435	14467	14499	14531	14563
Digital Output	4	14340	14372	14404	14436	14468	14500	14532	14564
Digital Output	5	14341	14373	14405	14437	14469	14501	14533	14565
Digital Output	6	14342	14374	14406	14438	14470	14502	14534	14566
Digital Output	7	14343	14375	14407	14439	14471	14503	14535	14567
Digital Output	8	14344	14376	14408	14440	14472	14504	14536	14568
Digital Output	9	14345	14377	14409	14441	14473	14505	14537	14569
Digital Output	10	14346	14378	14410	14442	14474	14506	14538	14570
Digital Output	11	14347	14379	14411	14443	14475	14507	14539	14571
Digital Output	12	14348	14380	14412	14444	14476	14508	14540	14572
Digital Output	13	14349	14381	14413	14445	14477	14509	14541	14573
Digital Output	14	14350	14382	14414	14446	14478	14510	14542	14574
Digital Output	15	14351	14383	14415	14447	14479	14511	14543	14575
Digital Output	16	14352	14384	14416	14448	14480	14512	14544	14576
Digital Output	17	14353	14385	14417	14449	14481	14513	14545	14577
Digital Output	18	14354	14386	14418	14450	14482	14514	14546	14578
Digital Output	19	14355	14387	14419	14451	14483	14515	14547	14579
Digital Output	20	14356	14388	14420	14452	14484	14516	14548	14580
Digital Output	21	14357	14389	14421	14453	14485	14517	14549	14581
Digital Output	22	14358	14390	14422	14454	14486	14518	14550	14582
Digital Output	23	14359	14391	14423	14455	14487	14519	14551	14583
Digital Output	24	14360	14392	14424	14456	14488	14520	14552	14584
Digital Output	25	14361	14393	14425	14457	14489	14521	14553	14585
Digital Output	26	14362	14394	14426	14458	14490	14522	14554	14586
Digital Output	27	14363	14395	14427	14459	14491	14523	14555	14587
Digital Output	28	14364	14396	14428	14460	14492	14524	14556	14588
Digital Output	29	14365	14397	14429	14461	14493	14525	14557	14589
Digital Output	30	14366	14398	14430	14462	14494	14526	14558	14590

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x38		**4544**	**4545**	**4546**	**4547**	**4548**	**4549**	**4550**	**4551**
	Bit Index								
Digital Output	31	14367	14399	14431	14463	14495	14527	14559	14591

Bit14592 - Bit15103 Node 3 Digital Input Flags

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x39		**4552**	**4553**	**4554**	**4555**	**4556**	**4557**	**4558**	**4559**
	Bit Index								
Digital Input	0	14592	14624	14656	14688	14720	14752	14784	14816
Digital Input	1	14593	14625	14657	14689	14721	14753	14785	14817
Digital Input	2	14594	14626	14658	14690	14722	14754	14786	14818
Digital Input	3	14595	14627	14659	14691	14723	14755	14787	14819
Digital Input	4	14596	14628	14660	14692	14724	14756	14788	14820
Digital Input	5	14597	14629	14661	14693	14725	14757	14789	14821
Digital Input	6	14598	14630	14662	14694	14726	14758	14790	14822
Digital Input	7	14599	14631	14663	14695	14727	14759	14791	14823
Digital Input	8	14600	14632	14664	14696	14728	14760	14792	14824
Digital Input	9	14601	14633	14665	14697	14729	14761	14793	14825
Digital Input	10	14602	14634	14666	14698	14730	14762	14794	14826
Digital Input	11	14603	14635	14667	14699	14731	14763	14795	14827
Digital Input	12	14604	14636	14668	14700	14732	14764	14796	14828
Digital Input	13	14605	14637	14669	14701	14733	14765	14797	14829
Digital Input	14	14606	14638	14670	14702	14734	14766	14798	14830
Digital Input	15	14607	14639	14671	14703	14735	14767	14799	14831
Digital Input	16	14608	14640	14672	14704	14736	14768	14800	14832
Digital Input	17	14609	14641	14673	14705	14737	14769	14801	14833
Digital Input	18	14610	14642	14674	14706	14738	14770	14802	14834
Digital Input	19	14611	14643	14675	14707	14739	14771	14803	14835
Digital Input	20	14612	14644	14676	14708	14740	14772	14804	14836
Digital Input	21	14613	14645	14677	14709	14741	14773	14805	14837
Digital Input	22	14614	14646	14678	14710	14742	14774	14806	14838
Digital Input	23	14615	14647	14679	14711	14743	14775	14807	14839
Digital Input	24	14616	14648	14680	14712	14744	14776	14808	14840
Digital Input	25	14617	14649	14681	14713	14745	14777	14809	14841
Digital Input	26	14618	14650	14682	14714	14746	14778	14810	14842
Digital Input	27	14619	14651	14683	14715	14747	14779	14811	14843
Digital Input	28	14620	14652	14684	14716	14748	14780	14812	14844
Digital Input	29	14621	14653	14685	14717	14749	14781	14813	14845
Digital Input	30	14622	14654	14686	14718	14750	14782	14814	14846

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x39		**4552**	**4553**	**4554**	**4555**	**4556**	**4557**	**4558**	**4559**
	Bit Index								
Digital Input	31	14623	14655	14687	14719	14751	14783	14815	14847

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x3A		**4560**	**4561**	**4562**	**4563**	**4564**	**4565**	**4566**	**4567**
	Bit Index								
Digital Input	0	14848	14880	14912	14944	14976	15008	15040	15072
Digital Input	1	14849	14881	14913	14945	14977	15009	15041	15073
Digital Input	2	14850	14882	14914	14946	14978	15010	15042	15074
Digital Input	3	14851	14883	14915	14947	14979	15011	15043	15075
Digital Input	4	14852	14884	14916	14948	14980	15012	15044	15076
Digital Input	5	14853	14885	14917	14949	14981	15013	15045	15077
Digital Input	6	14854	14886	14918	14950	14982	15014	15046	15078
Digital Input	7	14855	14887	14919	14951	14983	15015	15047	15079
Digital Input	8	14856	14888	14920	14952	14984	15016	15048	15080
Digital Input	9	14857	14889	14921	14953	14985	15017	15049	15081
Digital Input	10	14858	14890	14922	14954	14986	15018	15050	15082
Digital Input	11	14859	14891	14923	14955	14987	15019	15051	15083
Digital Input	12	14860	14892	14924	14956	14988	15020	15052	15084
Digital Input	13	14861	14893	14925	14957	14989	15021	15053	15085
Digital Input	14	14862	14894	14926	14958	14990	15022	15054	15086
Digital Input	15	14863	14895	14927	14959	14991	15023	15055	15087
Digital Input	16	14864	14896	14928	14960	14992	15024	15056	15088
Digital Input	17	14865	14897	14929	14961	14993	15025	15057	15089
Digital Input	18	14866	14898	14930	14962	14994	15026	15058	15090
Digital Input	19	14867	14899	14931	14963	14995	15027	15059	15091
Digital Input	20	14868	14900	14932	14964	14996	15028	15060	15092
Digital Input	21	14869	14901	14933	14965	14997	15029	15061	15093
Digital Input	22	14870	14902	14934	14966	14998	15030	15062	15094
Digital Input	23	14871	14903	14935	14967	14999	15031	15063	15095
Digital Input	24	14872	14904	14936	14968	15000	15032	15064	15096
Digital Input	25	14873	14905	14937	14969	15001	15033	15065	15097
Digital Input	26	14874	14906	14938	14970	15002	15034	15066	15098
Digital Input	27	14875	14907	14939	14971	15003	15035	15067	15099
Digital Input	28	14876	14908	14940	14972	15004	15036	15068	15100
Digital Input	29	14877	14909	14941	14973	15005	15037	15069	15101
Digital Input	30	14878	14910	14942	14974	15006	15038	15070	15102

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x3A		**4560**	**4561**	**4562**	**4563**	**4564**	**4565**	**4566**	**4567**
	Bit Index								
Digital Input	31	14879	14911	14943	14975	15007	15039	15071	15103

Bit15104 - Bit15615 Node 3 Digital Output Flags

Version 1.18.10 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x3B		**4568**	**4569**	**4570**	**4571**	**4572**	**4573**	**4574**	**4575**
	Bit Index								
Digital Output	0	15104	15136	15168	15200	15232	15264	15296	15328
Digital Output	1	15105	15137	15169	15201	15233	15265	15297	15329
Digital Output	2	15106	15138	15170	15202	15234	15266	15298	15330
Digital Output	3	15107	15139	15171	15203	15235	15267	15299	15331
Digital Output	4	15108	15140	15172	15204	15236	15268	15300	15332
Digital Output	5	15109	15141	15173	15205	15237	15269	15301	15333
Digital Output	6	15110	15142	15174	15206	15238	15270	15302	15334
Digital Output	7	15111	15143	15175	15207	15239	15271	15303	15335
Digital Output	8	15112	15144	15176	15208	15240	15272	15304	15336
Digital Output	9	15113	15145	15177	15209	15241	15273	15305	15337
Digital Output	10	15114	15146	15178	15210	15242	15274	15306	15338
Digital Output	11	15115	15147	15179	15211	15243	15275	15307	15339
Digital Output	12	15116	15148	15180	15212	15244	15276	15308	15340
Digital Output	13	15117	15149	15181	15213	15245	15277	15309	15341
Digital Output	14	15118	15150	15182	15214	15246	15278	15310	15342
Digital Output	15	15119	15151	15183	15215	15247	15279	15311	15343
Digital Output	16	15120	15152	15184	15216	15248	15280	15312	15344
Digital Output	17	15121	15153	15185	15217	15249	15281	15313	15345
Digital Output	18	15122	15154	15186	15218	15250	15282	15314	15346
Digital Output	19	15123	15155	15187	15219	15251	15283	15315	15347
Digital Output	20	15124	15156	15188	15220	15252	15284	15316	15348
Digital Output	21	15125	15157	15189	15221	15253	15285	15317	15349
Digital Output	22	15126	15158	15190	15222	15254	15286	15318	15350
Digital Output	23	15127	15159	15191	15223	15255	15287	15319	15351
Digital Output	24	15128	15160	15192	15224	15256	15288	15320	15352
Digital Output	25	15129	15161	15193	15225	15257	15289	15321	15353
Digital Output	26	15130	15162	15194	15226	15258	15290	15322	15354
Digital Output	27	15131	15163	15195	15227	15259	15291	15323	15355
Digital Output	28	15132	15164	15196	15228	15260	15292	15324	15356
Digital Output	29	15133	15165	15197	15229	15261	15293	15325	15357
Digital Output	30	15134	15166	15198	15230	15262	15294	15326	15358

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code-0x10; Index=0x3B		**4568**	**4569**	**4570**	**4571**	**4572**	**4573**	**4574**	**4575**
	Bit Index								
Digital Output	31	15135	15167	15199	15231	15263	15295	15327	15359

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x3C		**4576**	**4577**	**4578**	**4579**	**4580**	**4581**	**4582**	**4583**
	Bit Index								
Digital Output	0	15360	15392	15424	15456	15488	15520	15552	15584
Digital Output	1	15361	15393	15425	15457	15489	15521	15553	15585
Digital Output	2	15362	15394	15426	15458	15490	15522	15554	15586
Digital Output	3	15363	15395	15427	15459	15491	15523	15555	15587
Digital Output	4	15364	15396	15428	15460	15492	15524	15556	15588
Digital Output	5	15365	15397	15429	15461	15493	15525	15557	15589
Digital Output	6	15366	15398	15430	15462	15494	15526	15558	15590
Digital Output	7	15367	15399	15431	15463	15495	15527	15559	15591
Digital Output	8	15368	15400	15432	15464	15496	15528	15560	15592
Digital Output	9	15369	15401	15433	15465	15497	15529	15561	15593
Digital Output	10	15370	15402	15434	15466	15498	15530	15562	15594
Digital Output	11	15371	15403	15435	15467	15499	15531	15563	15595
Digital Output	12	15372	15404	15436	15468	15500	15532	15564	15596
Digital Output	13	15373	15405	15437	15469	15501	15533	15565	15597
Digital Output	14	15374	15406	15438	15470	15502	15534	15566	15598
Digital Output	15	15375	15407	15439	15471	15503	15535	15567	15599
Digital Output	16	15376	15408	15440	15472	15504	15536	15568	15600
Digital Output	17	15377	15409	15441	15473	15505	15537	15569	15601
Digital Output	18	15378	15410	15442	15474	15506	15538	15570	15602
Digital Output	19	15379	15411	15443	15475	15507	15539	15571	15603
Digital Output	20	15380	15412	15444	15476	15508	15540	15572	15604
Digital Output	21	15381	15413	15445	15477	15509	15541	15573	15605
Digital Output	22	15382	15414	15446	15478	15510	15542	15574	15606
Digital Output	23	15383	15415	15447	15479	15511	15543	15575	15607
Digital Output	24	15384	15416	15448	15480	15512	15544	15576	15608
Digital Output	25	15385	15417	15449	15481	15513	15545	15577	15609
Digital Output	26	15386	15418	15450	15482	15514	15546	15578	15610
Digital Output	27	15387	15419	15451	15483	15515	15547	15579	15611
Digital Output	28	15388	15420	15452	15484	15516	15548	15580	15612
Digital Output	29	15389	15421	15453	15485	15517	15549	15581	15613
Digital Output	30	15390	15422	15454	15486	15518	15550	15582	15614

Mask		0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x3C		**4576**	**4577**	**4578**	**4579**	**4580**	**4581**	**4582**	**4583**
	Bit Index								
Digital Output	31	15391	15423	15455	15487	15519	15551	15583	15615

Bit5632 - Bit5663 Miscellaneous Control Group 1 Flags

Version 1.18.04 & Up—ACR1200, ACR1500, ACR1505, ACR2000, ACR800, ACR8010, and ARC8020

Version 1.18.10 & Up—ACR9000 only*

Flag Parameter Code=0x10; Index=0x16; Mask=0x01		4272
Control Flag	**Bit Index**	**Bit Number**
Enable Fast Flags Update Mode	0	5632
Reserved	1	5633
FBT	2	5634
Reserved	3	5635
Reserved	4	5636
Reserved	5	5637
Reserved	6	5638
Reserved	7	5639
Reserved	8	5640
Reserved	9	5641
Reserved	10	5642
Reserved	11	5643
Reserved	12	5644
Motion Enable Input (latched)*	13	5645
Motion Enable Input (unlatched)*	14	5646
Clear Motion Enable Input Latch*	15	5647
Reserved	16	5648
Reserved	17	5649
Reserved	18	5650
Force Line Numbers with Listing (LIST)	19	5651
Reserved	20	5652
Reserved	21	5653
Reserved	22	5654
Reserved	23	5655
Bootflash Invalid/empty (FIRMWARE CHECKSUM)	24	5656
Sysflash1 Invalid/empty (FIRMWARE CHECKSUM)	25	5657

Flag Parameter Code=0x10; Index=0x16; Mask=0x01		4272
Control Flag	**Bit Index**	**Bit Number**
Sysflash2 Invalid/empty (FIRMWARE CHECKSUM)	26	5658
Userflash Invalid/empty (FIRMWARE CHECKSUM)	27	5659
Firmware Backed Up (FIRMWARE CHECKSUM)	28	5660
Reserved	29	5661
Reserved	30	5662
Reserved	31	5663

* ACR9000 only

Control Flags

Field Description	Read/ Write	Description
Enable Fast Flags Update Mode	R/W	Setting this flag will enable the update of Fast Limit Flags (See Secondary Axis Flags).
FBT	R	Indicates if the **FBT** functionality is enabled. **FBT ON** sets this flag and **FBT OFF** clears this flag.
Motion Enable Input Latched	R	Flag is set when you de-assert the Enable input on the ACR controller.
Motion Enable Input Unlatched	R	The flag reflects the current state of the Enable input on the ACR controller. It is set when the Enable input is de-asserted; it is clear when the input is asserted.
Clear Motion Enable Input Latch	R/W	Flag clears the Motion Enable Input Latched bit. The flag is self-clearing
Bootflash Invalid/empty	R	This flag is not valid until the **FIRMWARE CHECKSUM** command is issued and completed. This flag is cleared if Bootflash code is valid. This flag is set if Bootflash is invalid or empty.
Sysflash1 Invalid/empty	R	This flag is not valid until the **FIRMWARE CHECKSUM** command is issued and completed. This flag is cleared if Sysflash1 code is valid. This flag is set if Sysflash1 is invalid or empty.
Sysflash2 Invalid/empty	R	This flag is not valid until the **FIRMWARE CHECKSUM** command is issued and completed. This flag is cleared if Sysflash2 code is valid. This flag is set if Sysflash2 is invalid or empty.
Userflash Invalid/empty	R	This flag is not valid until the **FIRMWARE CHECKSUM** command is issued and completed. This flag is cleared if Userflash code is valid. This flag is set if Userflash is invalid or empty.
Firmware Backed Up	R	This flag is not valid until the **FIRMWARE CHECKSUM** command is issued and completed. This flag is cleared if Sysflash1 code and Sysflash2 code is not identical. This flag is set if Sysflash1 code and Sysflash2 code are identical.

Bit5696 - Bit5727 Stream 4 Stream Flags

Flag Parameter Code=0x10; Index=0x16; Mask=0x01		4274
Flag Description	**Bit Index**	**Bit Number**
Enable Character Echo	0	5696
Disable Error Reporting	1	5697
Disable Command Prompt	2	5698
Stream XON/XOFF	3	5699
Stream acknowledge binary write	4	5700
Reserved	5	5701
Reserved	6	5702
Reserved	7	5703
Stream 4 Active	8	5704
Stream 4 Waiting	9	5705
Stream 4 Opened	10	5706
Stream 4 Disabled	11	5707
Stream 4 Echoing	12	5708
Stream 5 Re-dimensioned	13	5709
Reserved	14	5710
Reserved	15	5711
Stream 4 Open Request	16	5712
Stream 4 Escape Request	17	5713
Reserved	18	5714
Reserved	19	5715
Stream 4 Control Prefixing	20	5716
Stream 4 High Bit Stripping	21	5717
Reserved	22	5718
Reserved	23	5719
Reserved	24	5720
Reserved	25	5721
Reserved	26	5722
Reserved	27	5723
Reserved	28	5724
Reserved	29	5725
Reserved	30	5726
Reserved	31	5727

Field Description	Read/ Write	Description
Enable character Echo	R/W	Setting this flag enables characters to be echoed as they are received by the controller. Default = 1
Disable Error Reporting	R/W	Setting this flag disables error reporting on the stream. Default = 0
Disable Command Prompt	R/W	Setting this flag disables the command Prompt. Default = 0
Stream XON/XOFF	R/W	Setting this flag enables the Xon/Xoff flow control for this stream. Default = 0
Stream acknowledge binary write	R/W	Setting this flag will cause the Controller to send an ACK for binary packages coming in. Default = 0
Stream 4 Active	R	This flag indicates sending or receiving activity on the stream.
Stream 4 Waiting	R	This flag indicates that the stream is waiting for a response from a request.
Stream 4 Opened	R	This flag indicates that the stream has been opened
Stream 4 Disabled	R	This flag indicates that the stream has been disabled.
Stream 4 Echoing	R	This flag indicates that the echoing incoming characters
Stream 4 Re-dimensioned	R	This flag indicates that the stream has been re-dimensioned with the **DIM** command
Stream 4 Open Request	R	This flag indicates that the controller is processing a request to open the stream
Stream 4 Escape Request	R	This flag indicates that the controller is processing a request to escape the stream
Stream 4 Control Prefixing	R/W	This flag dictates if Control Prefixing is used for binary communications for the stream. For more information, see Binary Communication in the Programmer's Guide.
Stream 4 High Bit Stripping	R/W	This flag dictates if High-Bit Stripping will be used for this stream. For more information, see Binary Communication in the Programmer's Guide.

Bit5728 - Bit5759 Stream 5 Stream Flags

Flag Parameter Code=0x10; Index=0x16; Mask=0x08		4275
Flag Description	**Bit Index**	**Bit Number**
Enable Character Echo	0	5728
Disable Error Reporting	1	5729
Disable Command Prompt	2	5730
Stream XON/XOFF	3	5731
Stream acknowledge binary write	4	5732
Reserved	5	5733
Reserved	6	5734
Reserved	7	5735
Stream 5 Active	8	5736
Stream 5 Waiting	9	5737
Stream 5 Opened	10	5738
Stream 5 Disabled	11	5739
Stream 5 Echoing	12	5740
Stream 5 Re-dimensioned	13	5741
Reserved	14	5742
Reserved	15	5743
Stream 5 Open Request	16	5744
Stream 5 Escape Request	17	5745
Reserved	18	5746
Reserved	19	5747
Stream 5 Control Prefixing	20	5748
Stream 5 High Bit Stripping	21	5749
Reserved	22	5750
Reserved	23	5751
Reserved	24	5752
Reserved	25	5753
Reserved	26	5754
Reserved	27	5755
Reserved	28	5756
Reserved	29	5757
Reserved	30	5758
Reserved	31	5759

Field Description	Read/ Write	Description
Enable character Echo	R/W	Setting this flag enables characters to be echoed as they are received by the controller. Default = 1
Disable Error Reporting	R/W	Setting this flag disables error reporting on the stream. Default = 0
Disable Command Prompt	R/W	Setting this flag disables the command Prompt. Default = 0
Stream XON/XOFF	R/W	Setting this flag enables the Xon/Xoff flow control for this stream. Default = 0
Stream acknowledge binary write	R/W	Setting this flag will cause the Controller to send an ACK for binary packages coming in. Default = 0
Stream 5 Active	R	This flag indicates sending or receiving activity on the stream.
Stream 5 Waiting	R	This flag indicates that the stream is waiting for a response from a request.
Stream 5 Opened	R	This flag indicates that the stream has been opened
Stream 5 Disabled	R	This flag indicates that the stream has been disabled.
Stream 5 Echoing	R	This flag indicates that the echoing incoming characters
Stream 5 Re-dimensioned	R	This flag indicates that the stream has been re-dimensioned with the **DIM** command
Stream 5 Open Request	R	This flag indicates that the controller is processing a request to open the stream
Stream 5 Escape Request	R	This flag indicates that the controller is processing a request to escape the stream
Stream 5 Control Prefixing	R/W	This flag dictates if Control Prefixing is used for binary communications for the stream. For more information, see Binary Communication in the Programmer's Guide.
Stream 5 High Bit Stripping	R/W	This flag dictates if High-Bit Stripping will be used for this stream. For more information, see Binary Communication in the Programmer's Guide.

Bit5760 - Bit5791 Stream 2 Stream Flags

Flag Parameter Code=0x10; Index=0x16; Mask=0x10		4276
Flag Description	**Bit Index**	**Bit Number**
Enable Character Echo	0	5760
Disable Error Reporting	1	5761
Disable Command Prompt	2	5762
Stream XON/XOFF	3	5763
Stream acknowledge binary write	4	5764
Reserved	5	5765
Reserved	6	5766
Reserved	7	5767
Stream 2 Active	8	5768
Stream 2 Waiting	9	5769
Stream 2 Opened	10	5770
Stream 2 Disabled	11	5771
Stream 2 Echoing	12	5772
Stream 2 Re-dimensioned	13	5773
Reserved	14	5774
Reserved	15	5775
Stream 2 Open Request	16	5776
Stream 2 Escape Request	17	5777
Reserved	18	5778
Reserved	19	5779
Stream 2 Control Prefixing	20	5780
Stream 2 High Bit Stripping	21	5781
Reserved	22	5782
Reserved	23	5783
Reserved	24	5784
Reserved	25	5785
Reserved	26	5786
Reserved	27	5787
Reserved	28	5788
Reserved	29	5789
Reserved	30	5790
Reserved	31	5791

Field Description	Read/ Write	Description
Enable character Echo	R/W	Setting this flag enables characters to be echoed as they are received by the controller. Default = 1
Disable Error Reporting	R/W	Setting this flag disables error reporting on the stream. Default = 0
Disable Command Prompt	R/W	Setting this flag disables the command Prompt. Default = 0
Stream XON/XOFF	R/W	Setting this flag enables the Xon/Xoff flow control for this stream. Default = 0
Stream acknowledge binary write	R/W	Setting this flag will cause the Controller to send an ACK for binary packages coming in. Default = 0
Stream 2 Active	R	This flag indicates sending or receiving activity on the stream.
Stream 2 Waiting	R	This flag indicates that the stream is waiting for a response from a request.
Stream 2 Opened	R	This flag indicates that the stream has been opened
Stream 2 Disabled	R	This flag indicates that the stream has been disabled.
Stream 2 Echoing	R	This flag indicates that the echoing incoming characters
Stream 2 Re-dimensioned	R	This flag indicates that the stream has been re-dimensioned with the **DIM** command
Stream 2 Open Request	R	This flag indicates that the controller is processing a request to open the stream
Stream 2 Escape Request	R	This flag indicates that the controller is processing a request to escape the stream
Stream 2 Control Prefixing	R/W	This flag dictates if Control Prefixing is used for binary communications for the stream. For more information, see Binary Communication in the Programmer's Guide.
Stream 2 High Bit Stripping	R/W	This flag dictates if High-Bit Stripping will be used for this stream. For more information, see Binary Communication in the Programmer's Guide.

Bit5792 - Bit5823 DPCB/Stream 3 Stream Flags

Version 1.18.06 & Up—ACR8020
Version 1.18.13 & Up—ACR9000

Flag Parameter Code=0x10; Index=0x16; Mask=0x20		4277
Flag Description	**Bit Index**	**Bit Number**
Enable Character Echo	0	5792
Disable Error Reporting	1	5793
Disable Command Prompt	2	5794
Stream XON/XOFF	3	5795
Stream acknowledge binary write	4	5796
Reserved	5	5797
Reserved	6	5798
Reserved	7	5799
DPCB/Stream 3 Active	8	5800
DPCB/Stream 3 Waiting	9	5801
DPCB/Stream 3 Opened	10	5802
DPCB/Stream 3 Disabled	11	5803
DPCB/Stream 3 Echoing	12	5804
DPCB/Stream 3 Re-dimensioned	13	5805
Reserved	14	5806
Reserved	15	5807
DPCB/Stream 3 Open Request	16	5808
DPCB/Stream 3 Escape Request	17	5809
Reserved	18	5810
Reserved	19	5811
DPCB/Stream 3 Control Prefixing	20	5812
DPCB/Stream 3 High Bit Stripping	21	5813
Reserved	22	5814
Reserved	23	5815
Reserved	24	5816
Reserved	25	5817
Reserved	26	5818
Reserved	27	5819
Reserved	28	5820
Reserved	29	5821
Reserved	30	5822

Flag Parameter Code=0x10; Index=0x16; Mask=0x20		4277
Flag Description	**Bit Index**	**Bit Number**
Reserved	31	5823

Field Description	Read/ Write	Description
Enable character Echo	R/W	Setting this flag enables characters to be echoed as they are received by the controller. Default = 1
Disable Error Reporting	R/W	Setting this flag disables error reporting on the stream. Default = 0
Disable Command Prompt	R/W	Setting this flag disables the command Prompt. Default = 0
Stream XON/XOFF	R/W	Setting this flag enables the Xon/Xoff flow control for this stream. Default = 0
Stream acknowledge binary write	R/W	Setting this flag will cause the Controller to send an ACK for binary packages coming in. Default = 0
DPCB/Stream 3 Active	R	This flag indicates sending or receiving activity on the stream.
DPCB/Stream 3 Waiting	R	This flag indicates that the stream is waiting for a response from a request.
DPCB/Stream 3 Opened	R	This flag indicates that the stream has been opened
DPCB/Stream 3 Disabled	R	This flag indicates that the stream has been disabled.
DPCB/Stream 3 Echoing	R	This flag indicates that the echoing incoming characters
DPCB/Stream 3 Re-dimensioned	R	This flag indicates that the stream has been re-dimensioned with the **DIM** command
DPCB/Stream 3 Open Request	R	This flag indicates that the controller is processing a request to open the stream
DPCB/Stream 3 Escape Request	R	This flag indicates that the controller is processing a request to escape the stream
DPCB/Stream 3 Control Prefixing	R/W	This flag dictates if Control Prefixing is used for binary communications for the stream. For more information, see Binary Communication in the Programmer's Guide.
DPCB/Stream 3 High Bit Stripping	R/W	This flag dictates if High-Bit Stripping will be used for this stream. For more information, see Binary Communication in the Programmer's Guide.

Bit5824 - Bit5855 FSTAT Flags

Version 1.18.06 & Up—ACR8020 only

Flag Parameter Code=0x10; Index=0x16, Mask=0x40		4278
Flag Description	**Bit Index**	**Bit Number**
FSTAT on	0	5824
FSTAT on request	1	5825
Reserved	2	5826
Reserved	3	5827
Reserved	4	5828
Reserved	5	5829
Reserved	6	5830
Reserved	7	5831
Reserved	8	5832
Reserved	9	5833
Reserved	10	5834
Reserved	11	5835
Reserved	12	5836
Reserved	13	5837
Reserved	14	5838
Reserved	15	5839
Reserved	16	5840
Reserved	17	5841
Reserved	18	5842
Reserved	19	5843
Reserved	20	5844
Reserved	21	5845
Reserved	22	5846
Reserved	23	5847
Reserved	24	5848
Reserved	25	5849
Reserved	26	5850
Reserved	27	5851
Reserved	28	5852
Reserved	29	5853
Reserved	30	5854
Reserved	31	5855

FSTAT flags

0Field Description	Read/ Write	Description
FSTAT On	R/W	Flag is set if the fast status is on; the flag is clear when fast status is off. Do not manually set or clear the flag.
FSTAT On Request	R/W	Setting this Flag will update internal **FSTAT** parameters and turn on **FSTAT** if **FSTAT** parameters are set up properly. Processor acknowledgment clears the **FSTAT ON** Request Flag.

Bit11008 - Bit11039 Stream 1 Flags for Drive Talk

Version 1.18.13 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4440
Stream 1 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11008
Reserved	1	11009
Reserved	2	11010
Reserved	3	11011
Reserved	4	11012
Reserved	5	11013
Reserved	6	11014
Reserved	7	11015

Stream 1 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11016
Reserved	9	11017
Reserved	10	11018
Reserved	11	11019
Stream DTALK Active	12	11020
Stream Drive Found	13	11021
Stream Drive Lost	14	11022
Stream Drive Timeout	15	11023
Stream Address Error	16	11024
Reserved	17	11025
Reserved	18	11026
Reserved	19	11027
Reserved	20	11028
Reserved	21	11029
Reserved	22	11030
Reserved	23	11031

Stream 1 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11032
Stream Forward to Drive	25	11033
Stream Response Pending	26	11034
Stream Forward Request	27	11035
Reserved	28	11036
Reserved	29	11037
Reserved	30	11038
Reserved	31	11039

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11136 - Bit11167 Stream 2 Flags for Drive Talk

Version 1.18.13 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4444
Stream 2 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11136
Reserved	1	11137
Reserved	2	11138
Reserved	3	11139
Reserved	4	11140
Reserved	5	11141
Reserved	6	11142
Reserved	7	11143

Stream 2 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11144
Reserved	9	11145
Reserved	10	11146
Reserved	11	11147
Stream DTALK Active	12	11148
Stream Drive Found	13	11149
Stream Drive Lost	14	11150
Stream Drive Timeout	15	11151
Stream Address Error	16	11152
Reserved	17	11153
Reserved	18	11154
Reserved	19	11155
Reserved	20	11156
Reserved	21	11157
Reserved	22	11158
Reserved	23	11159

Stream 2 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11160
Stream Forward to Drive	25	11161
Stream Response Pending	26	11162

Stream 2 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward Request	27	11163
Reserved	28	11164
Reserved	29	11165
Reserved	30	11166
Reserved	31	11167

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11168 - Bit11199 Stream 3 Flags for Drive Talk

Version 1.18.13 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4445
Stream 3 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11168
Reserved	1	11169
Reserved	2	11170
Reserved	3	11171
Reserved	4	11172
Reserved	5	11173
Reserved	6	11174
Reserved	7	11175

Stream 3 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11176
Reserved	9	11177
Reserved	10	11178
Reserved	11	11179
Stream DTALK Active	12	11180
Stream Drive Found	13	11181
Stream Drive Lost	14	11182
Stream Drive Timeout	15	11183
Stream Address Error	16	11184
Reserved	17	11185
Reserved	18	11186
Reserved	19	11187
Reserved	20	11188
Reserved	21	11189
Reserved	22	11190
Reserved	23	11191

Stream 3 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11192
Stream Forward to Drive	25	11193
Stream Response Pending	26	11194

Stream 3 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward Request	27	11195
Reserved	28	11196
Reserved	29	11197
Reserved	30	11198
Reserved	31	11199

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11200 - Bit11231 Stream 4 Flags for Drive Talk

Version 1.18.13 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4446
Stream 4 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11200
Reserved	1	11201
Reserved	2	11202
Reserved	3	11203
Reserved	4	11204
Reserved	5	11205
Reserved	6	11206
Reserved	7	11207

Stream 4 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11208
Reserved	9	11209
Reserved	10	11210
Reserved	11	11211
Stream DTALK Active	12	11212
Stream Drive Found	13	11213
Stream Drive Lost	14	11214
Stream Drive Timeout	15	11215
Stream Address Error	16	11216
Reserved	17	11217
Reserved	18	11218
Reserved	19	11219
Reserved	20	11220
Reserved	21	11221
Reserved	22	11222
Reserved	23	11223

Stream 4 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11224
Stream Forward to Drive	25	11225
Stream Response Pending	26	11226

Stream 4 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward Request	27	11227
Reserved	28	11228
Reserved	29	11229
Reserved	30	11230
Reserved	31	11231

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit11232 - Bit11263 Stream 5 Flags for Drive Talk

Version 1.18.13 & Up—ACR9000 only

Flag Parameter Code=0x10; Index=0x2B; Mask=0x08		4447
Stream 5 Stream Drive Talk Control Flags	**Bit Index**	**Bit Number**
Auto Address Request	0	11232
Reserved	1	11233
Reserved	2	11234
Reserved	3	11235
Reserved	4	11236
Reserved	5	11237
Reserved	6	11238
Reserved	7	11239

Stream 5 Stream Drive Talk Status Flags	Bit Index	Bit Number
Reserved	8	11240
Reserved	9	11241
Reserved	10	11242
Reserved	11	11243
Stream DTALK Active	12	11244
Stream Drive Found	13	11245
Stream Drive Lost	14	11246
Stream Drive Timeout	15	11247
Stream Address Error	16	11248
Reserved	17	11249
Reserved	18	11250
Reserved	19	11251
Reserved	20	11252
Reserved	21	11253
Reserved	22	11254
Reserved	23	11255

Stream 5 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward to Stream	24	11256
Stream Forward to Drive	25	11257
Stream Response Pending	26	11258

Stream 5 Stream TALKTO/DTALK Status Flags	Bit Index	Bit Number
Stream Forward Request	27	11259
Reserved	28	11260
Reserved	29	11261
Reserved	30	11262
Reserved	31	11263

Field Description	Read/ Write	Description
Auto Address Request	R/W	When this flag is set the controller will start the auto address process for all axes with a non-zero Drive Talk Device Number. This process will hold drives in the reset state and issue addressing commands until all axes are addressed in the order that the axes are attached with the **ATTACH** command. The flag is automatically cleared when the process is finished.
Stream DTALK Active	R	Indicates whether drive talk is active or not. Drive Talk becomes active after the **OPEN DTALK** command is issued. Drive talk is deactivated with the **CLOSE** command and any of the errors below.
Stream Drive Found	R	This flag is set each time a successful response from the drive has been read by the controller.
Stream Drive Lost	R	This flag is set if at any time the controller requests data from the drive and the drive does not respond. The controller never clears only sets this flag.
Stream Drive Timeout	R/W	This flag is the same as the Drive Lost flag, but when this flag is set the controller will not send another query to the drive until this flag is cleared.
Stream Address Error	R	This flag is set when an individual axis auto address request was made, but the drive's reported address did not match the sent address.
Stream Forward to Stream	R	Indicates this stream is either a source or destination in **TALKTO** or **DTALK**. For internal implementation use only.
Stream Forward to Drive	R	Indicates this stream is a source for **DTALK**. For internal implementation use only.
Stream Response Pending	R	Indicates this stream has a **DTALK** response pending. For internal implementation use only.
Stream Forward Request	R	Preliminary state before Stream Forward to Stream for destination stream in **DTALK**. For internal implementation use only.

Bit16128 - Bit16383 Quinary Axis Flags (Axes 0-7)

Version 1.18.15 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x3F		**4600**	**4601**	**4602**	**4603**	**4604**	**4605**	**4606**	**4607**
Status Flags	**Bit Index**	**AXIS Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Positive EOT Limit Current State	0	16128	16160	16192	16224	16256	16288	16320	16352
Negative EOT Limit Current State	1	16129	16161	16193	16225	16257	16289	16321	16353
Home Limit Current State	2	16130	16162	16194	16226	16258	16290	16322	16354
Reserved	3	16131	16163	16195	16227	16259	16291	16323	16355
Positive EOT Limit Encountered	4	16132	16164	16196	16228	16260	16292	16324	16356
Negative EOT Limit Encountered	5	16133	16165	16197	16229	16261	16293	16325	16357
Found Home	6	16134	16166	16198	16230	16262	16294	16326	16358
Failed to find Home	7	16135	16167	16199	16231	16263	16295	16327	16359
Positive Soft Limit Current State	8	16136	16168	16200	16232	16264	16296	16328	16360
Negative Soft Limit Current State	9	16137	16169	16201	16233	16265	16297	16329	16361
Reserved	10	16138	16170	16202	16234	16266	16298	16330	16362
Reserved	11	16139	16171	16203	16235	16267	16299	16331	16363
Positive Soft Limit Encountered	12	16140	16172	16204	16236	16268	16300	16332	16364
Negative Soft Limit Encountered	13	16141	16173	16205	16237	16269	16301	16333	16365
LOCKFollower	14	16142	16174	16206	16238	16270	16302	16334	16366
LOCKLeader	15	16143	16175	16207	16239	16271	16303	16335	16367

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x3F		**4600**	**4601**	**4602**	**4603**	**4604**	**4605**	**4606**	**4607**
Control Flags	**Bit Index**	**AXIS Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Positive EOT Limit Level Invert	16	16144	16176	16208	16240	16272	16304	16336	16368
Negative EOT Limit Level Invert	17	16145	16177	16209	16241	16273	16305	16337	16369
Home Limit Level Invert	18	16146	16178	16210	16242	16274	16306	16338	16370
Jog Move Interrupt	19	16147	16179	16211	16243	16275	16307	16339	16371
Positive EOT Limit Enable (HLIM)	20	16148	16180	16212	16244	16276	16308	16340	16372
Negative EOT Limit Enable(HLIM)	21	16149	16181	16213	16245	16277	16309	16341	16373
Positive Soft Limit Enable (SLIM)	22	16150	16182	16214	16246	16278	16310	16342	16374
Negative Soft Limit Enable (SLIM)	23	16151	16183	16215	16247	16279	16311	16343	16375
Home Backup Enable	24	16152	16184	16216	16248	16280	16312	16344	16376
Home Negative Edge Select	25	16153	16185	16217	16249	16281	16313	16345	16377
Home Negative Final Direction	26	16154	16186	16218	16250	16282	16314	16346	16378
Maintain LOCK Setpoint	27	16155	16187	16219	16251	16283	16315	16347	16379
Reserved	28	16156	16188	16220	16252	16284	16316	16348	16380
Reserved	29	16157	16189	16221	16253	16285	16317	16349	16381
Reserved	30	16158	16190	16222	16254	16286	16318	16350	16382
Reserved	31	16159	16191	16223	16255	16287	16319	16351	16383

Field Description	Read/ Write	Description
Positive EOT Limit Current State	R	This flag indicates the status of the Positive EOT Limit. When this flag is CLR, the Positive EOT is not detected. When this flag is SET, the Positive EOT has been detected.
Negative EOT Limit Current State	R	This flag indicates the status of the Negative EOT Limit. When this flag is CLR, the Negative EOT is not detected. When this flag is SET, the Negative EOT has been detected.
Home Limit Current State	R	This flag indicates the status of the Home Limit. When this flag is CLR, the Home Limit is not detected. When this flag is SET, the Home Limit has been detected.
Positive EOT Limit Encountered	R	This flag indicates that the Positive EOT Limit was encountered during a move. The Flag will be cleared when the axis is moved in the Negative direction, or the axis is enabled.
Negative EOT Limit Encountered	R	This flag indicates that the Negative EOT Limit was encountered during a move. The Flag will be cleared when the axis is moved in the Positive direction, or the axis is enabled.
Found Home	R	This flag indicates that the **JOG HOME** was successful. The flag clears when the next move on that axis begins or that of any other axis attached to the same master.
Failed to Find Home	R	This flag indicates that the **JOG HOME** was unsuccessful. Both the Positive and Negative EOT was encountered before the Home Limit was encountered. The flag clears when the next move on that axis begins or that of any other axis attached to the same master.
Positive Soft Limit Current State	R	This flag indicates the status of the Positive Soft Limit. When this flag is CLR, the Positive Soft Limit is not detected. When this flag is SET, the Positive Soft Limit has been detected.
Negative Soft Limit Current State	R	This flag indicates the status of the Negative Soft Limit. When this flag is CLR, the Negative Soft Limit is not detected. When this flag is SET, the Negative Soft Limit has been detected.
Positive Soft Limit Encountered	R	This flag indicates that the Positive Soft Limit was encountered during a move. The Flag will be cleared when the axis is moved in the Negative direction, or the axis is enabled.
Negative Soft Limit Encountered	R	This flag indicates that the Negative Soft Limit was encountered during a move. The Flag will be cleared when the axis is moved in the Positive direction, or the axis is enabled.
LOCKFollower	R	When the LOCK command is issued, this status flag is set for the follower axis.
LOCKLeader	R	When the LOCK command is issued, this status flag is set for the leading axis.
Positive EOT Limit level invert	R/W	Used to Invert the active level of the Positive EOT Limit Input. The Flag being set indicates that the Positive EOT Limit is inverted so that current through the Opto Input means the Limit is not

Field Description	Read/ Write	Description
		detected and the case where no current is flowing through the Opto Input, the Positive EOT is detected.
Negative EOT Limit level invert	R/W	Used to Invert the active level of the Negative EOT Limit Input. The Flag being set indicates that the Negative EOT Limit is inverted so that current through the Opto Input means the Limit is not detected and the case where no current is flowing through the Opto Input, the Negative EOT is detected.
Home Limit level invert	R/W	Used to Invert the active level of the Home Limit Input. The Flag being set indicates that the Home Limit is inverted so that current through the Opto Input means the Limit is not detected and the case where no current is flowing through the Opto Input, the Home is detected.
Jog Move Interrupt	R/W	Determines behavior of the Jog Profiler when a **JOG** move is in progress and another **JOG INC** or **JOG ABS** move is commanded. If the flag is cleared, the current **JOG** move will decelerate to a stop using **JOG DEC** before starting the next **JOG** move. When the flag is set, the next **JOG** move will continue at the current **JOG** velocity using the new command **JOG** position.
Positive EOT limit enable	R/W	Flag set used to enable the Positive EOT Limit functionality.
Negative EOT limit enable	R/W	Flag set used to enable the Negative EOT Limit functionality.
Positive Soft limit enable	R/W	Flag set used to enable the Positive Soft Limit functionality.
Negative Soft limit enable	R/W	Flag set used to enable the Negative Soft Limit functionality.
Home Backup Enabled	R/W	Flag set used to enable Backup functionality for the **JOG HOME** moves.
Home Negative Edge Select	R/W	Flag set used to Select the Negative Edge of the Home Limit for the **JOG HOME** moves.
Home Negative Final Direction	R/W	Flag set used to Select the Negative Final Direction for the **JOG HOME** moves.
Maintain LOCK Setpoint	R/W	If this bit is set and an UNLOCK command is issued, then the setpoint will be maintained by the axes.

Bit16384 - Bit16639 Quinary Axis Flags (Axes 8-15)

Version 1.18.15 & Up—ACR9000 only

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x40		**4608**	**4609**	**4610**	**4611**	**4612**	**4613**	**4614**	**4615**
		AXIS Number							
Status Flags	**Bit Index**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Positive EOT Limit Current State	0	16384	16416	16448	16480	16512	16544	16576	16608
Negative EOT Limit Current State	1	16385	16417	16449	16481	16513	16545	16577	16609
Home Limit Current State	2	16386	16418	16450	16482	16514	16546	16578	16610
Reserved	3	16387	16419	16451	16483	16515	16547	16579	16611
Positive EOT Limit Encountered	4	16388	16420	16452	16484	16516	16548	16580	16612
Negative EOT Limit Encountered	5	16389	16421	16453	16485	16517	16549	16581	16613
Found Home	6	16390	16422	16454	16486	16518	16550	16582	16614
Failed to Find Home	7	16391	16423	16455	16487	16519	16551	16583	16615
Positive Soft Limit Current State	8	16392	16424	16456	16488	16520	16552	16584	16616
Negative Soft Limit Current State	9	16393	16425	16457	16489	16521	16553	16585	16617
Reserved	10	16394	16426	16458	16490	16522	16554	16586	16618
Reserved	11	16395	16427	16459	16491	16523	16555	16587	16619
Positive Soft Limit Encountered	12	16396	16428	16460	16492	16524	16556	16588	16620
Negative Soft Limit Encountered	13	16397	16429	16461	16493	16525	16557	16589	16621
LOCKFollower	14	16398	16430	16462	16494	16526	16558	16590	16622
LOCKLeader	15	16399	16431	16463	16495	16527	16559	16591	16623

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x40		**4608**	**4609**	**4610**	**4611**	**4612**	**4613**	**4614**	**4615**
Control Flags	**Bit Index**	**AXIS Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Positive EOT Limit Level Invert	16	16400	16432	16464	16496	16528	16560	16592	16624
Negative EOT Limit Level Invert	17	16401	16433	16465	16497	16529	16561	16593	16625
Home Limit Level Invert	18	16402	16434	16466	16498	16530	16562	16594	16626
Jog Move Interrupt	19	16403	16435	16467	16499	16531	16563	16595	16627
Positive EOT Limit Enable (HLIM)	20	16404	16436	16468	16500	16532	16564	16596	16628
Negative EOT Limit Enable(HLIM)	21	16405	16437	16469	16501	16533	16565	16597	16629
Positive Soft Limit Enable (SLIM)	22	16406	16438	16470	16502	16534	16566	16598	16630
Negative Soft Limit Enable (SLIM)	23	16407	16439	16471	16503	16535	16567	16599	16631
Home Backup Enable	24	16408	16440	16472	16504	16536	16568	16600	16632
Home Negative Edge Select	25	16409	16441	16473	16505	16537	16569	16601	16633
Home Negative Final Direction	26	16410	16442	16474	16506	16538	16570	16602	16634
Maintain LOCK Setpoint	27	16411	16443	16475	16507	16539	16571	16603	16635
Reserved	28	16412	16444	16476	16508	16540	16572	16604	16636
Reserved	29	16413	16445	16477	16509	16541	16573	16605	16637
Reserved	30	16414	16446	16478	16510	16542	16574	16606	16638
Reserved	31	16415	16447	16479	16511	16543	16575	16607	16639

Field Description	Read/ Write	Description
Positive EOT Limit Current State	R	This flag indicates the status of the Positive EOT Limit. When this flag is CLR, the Positive EOT is not detected. When this flag is SET, the Positive EOT has been detected.
Negative EOT Limit Current State	R	This flag indicates the status of the Negative EOT Limit. When this flag is CLR, the Negative EOT is not detected. When this flag is SET, the Negative EOT has been detected.
Home Limit Current State	R	This flag indicates the status of the Home Limit. When this flag is CLR, the Home Limit is not detected. When this flag is SET, the Home Limit has been detected.
Positive EOT Limit Encountered	R	This flag indicates that the Positive EOT Limit was encountered during a move. The Flag will be cleared when the axis is moved in the Negative direction, or the axis is enabled.
Negative EOT Limit Encountered	R	This flag indicates that the Negative EOT Limit was encountered during a move. The Flag will be cleared when the axis is moved in the Positive direction, or the axis is enabled.
Found Home	R	This flag indicates that the **JOG HOME** was successful. The flag clears when the next move on that axis begins or that of any other axis attached to the same master.
Failed to Find Home	R	This flag indicates that the **JOG HOME** was unsuccessful. Both the Positive and Negative EOT was encountered before the Home Limit was encountered. The flag clears when the next move on that axis begins or that of any other axis attached to the same master.
Positive Soft Limit Current State	R	This flag indicates the status of the Positive Soft Limit. When this flag is CLR, the Positive Soft Limit is not detected. When this flag is SET, the Positive Soft Limit has been detected.
Negative Soft Limit Current State	R	This flag indicates the status of the Negative Soft Limit. When this flag is CLR, the Negative Soft Limit is not detected. When this flag is SET, the Negative Soft Limit has been detected.
Positive Soft Limit Encountered	R	This flag indicates that the Positive Soft Limit was encountered during a move. The Flag will be cleared when the axis is moved in the Negative direction, or the axis is enabled.
Negative Soft Limit Encountered	R	This flag indicates that the Negative Soft Limit was encountered during a move. The Flag will be cleared when the axis is moved in the Positive direction, or the axis is enabled.
LOCKFollower	R	When the LOCK command is issued, this status flag is set for the follower axis.
LOCKLeader	R	When the LOCK command is issued, this status flag is set for the leading axis.
Positive EOT Limit level invert	R/W	Used to Invert the active level of the Positive EOT Limit Input. The Flag being set indicates that the Positive EOT Limit is inverted so that current through the Opto Input means the Limit is not

Field Description	Read/ Write	Description
		detected and the case where no current is flowing through the Opto Input, the Positive EOT is detected.
Negative EOT Limit level invert	R/W	Used to Invert the active level of the Negative EOT Limit Input. The Flag being set indicates that the Negative EOT Limit is inverted so that current through the Opto Input means the Limit is not detected and the case where no current is flowing through the Opto Input, the Negative EOT is detected.
Home Limit level invert	R/W	Used to Invert the active level of the Home Limit Input. The Flag being set indicates that the Home Limit is inverted so that current through the Opto Input means the Limit is not detected and the case where no current is flowing through the Opto Input, the Home is detected.
Jog Move Interrupt	R/W	Determines behavior of the Jog Profiler when a **JOG** move is in progress and another **JOG INC** or **JOG ABS** move is commanded. If the flag is cleared, the current **JOG** move will decelerate to a stop using **JOG DEC** before starting the next **JOG** move. When the flag is set, the next **JOG** move will continue at the current **JOG** velocity using the new command **JOG** position.
Positive EOT limit enable	R/W	Flag set used to enable the Positive EOT Limit functionality.
Negative EOT limit enable	R/W	Flag set used to enable the Negative EOT Limit functionality.
Positive Soft limit enable	R/W	Flag set used to enable the Positive Soft Limit functionality.
Negative Soft limit enable	R/W	Flag set used to enable the Negative Soft Limit functionality.
Home Backup Enabled	R/W	Flag set used to enable Backup functionality for the **JOG HOME** moves.
Home Negative Edge Select	R/W	Flag set used to Select the Negative Edge of the Home Limit for the **JOG HOME** moves.
Home Negative Final Direction	R/W	Flag set used to Select the Negative Final Direction for the **JOG HOME** moves.
Maintain LOCK Setpoint	R/W	If this bit is set and an UNLOCK command is issued, then the setpoint will be maintained by the axes.

Bit16640 – Bit16660 EPL Network Flags

EPL Network Control Flags Code=0x10; Index=0x41		4616
EPL Control Flags	**Bit Index**	**Bit Number**
Start Network	0	16640
Reset Network	1	16641
Reserved	2	16642
Reserved	3	16643
Reserved	4	16644
Reserved	5	16645
Reserved	6	16646
Reserved	7	16647

EPL Network Status Flags Code=0x10; Index=0x41		4616
EPL Status Flags	**Bit Index**	**Bit Number**
EPL Controller Installed	8	16648
Network Operational	9	16649
Network Start Failed	10	16650
EPL Node Failure	11	16651
EPLD Stream Open	12	16652
EPLD Stream Disconnected	13	16653
EPL Drive(s) Enabled	14	16654
Insufficient Period	15	16655
Starting Network	16	16656
Resetting Network	17	16657
Reserved	18	16658
Reserved	19	16659
Opening EPLD Stream	20	16660

Field Description	Read/ Write	Description
Start Network	R/W	Set the bit to start the EPL network. The Managing Node (MN) places the Controlled Nodes (CN) into a pre-operational state, configures the CNs, then places the CNs into an operational state. The bit is self-clearing.
Reset Network	R/W	Set the bit to reset the EPL network to a non-operational state. The bit is self-clearing.
EPL Controller Installed	R	The EPL controller card has been detected.
Network Operational	R	The EPL controller is exchanging data with the drives.
Network Start Failed	R	An attempt to start the network using bit 16640 has failed. To determine why the attempt failed, look at P37384-P37386.
EPL Node Failure	R	An individual EPL node has failed. To determine which node failed, look at P37385
EPLD Stream Open	R	An EPLD stream is open (using the OPEN command). To determine which EPL drive is communicating, and its device number, look at P37387 and P37388
EPLD Stream Disconnected	R	Set when an unexpected disconnection with an EPL drive occurs. The controller automatically closes the EPL communication stream. The bit remains set until the user clears it, or another OPEN EPLD command is sent to the same drive to reestablish communication.
EPL Drive(s) Enabled	R	The controller will not allow the network to be started or reset if any of the EPL drives are enabled.
Insufficient Period	R	Set when the period is too low. Network will not start.
Starting Network	R	Indicates that a network start is underway.
Resetting Network	R	Indicates that a network reset is underway.
Opening EPLD Stream	R	Indicates that the process of opening an EPLD stream is underway.

Bit16896 – Bit16923 IEC Control and Status Flags

IEC Status Flags Code=0x10; Index=0x42		4624
Internal Status Flags	**Bit Index**	**Bit Number**
No Controller Errors	0	16896
Host Online	1	16897
Downloading Project	2	16898
Reserved	3	16899
Reserved	4	16900
Valid Program Present	5	16901
Reserved	6	16902
Reserved	7	16903
PC Connection Stopped	8	16904
Loading from Flash	9	16905
Reserved	10	16906
Reserved	11	16907
Reserved	12	16908
IEC Tasks Running	13	16909
PC Connection Error	14	16910
Reserved	15	16911

IEC Control Flags Code=0x10; Index=0x42		4624
User Control Flags	**Bit Index**	**Bit Number**
Download Autosave	16	16912
Power Up Autorun	17	16913
Autorun Warm Start	18	16914
Autorun Hot Start	19	16915
Halt Request	20	16916
Coldstart Request	21	16917
Warm Start Request	22	16918
Hot Start Request	23	16919

IEC Status Flags Code=0x10; Index=0x42		4624
User Status Flags	**Bit Index**	**Bit Number**
Saving to Flash	24	16920
Loading from Flash	25	16921
Save Failed	26	16922

IEC Status Flags Code=0x10; Index=0x42		4624
User Status Flags	**Bit Index**	**Bit Number**
Load Failed	27	16923

Field Description	Read/ Write	Description
No Controller Errors	R	No controller errors
Host Online	R	Controller in login mode
Downloading Project	R	Download active
Valid Program Present	R	Valid program present
PC Connection Stopped	R	External communication stopped
Loading from Flash	R	Loading from flash
IEC Tasks Running	R	Program execution active
PC Connection Error	R	Communication error with PC
Download Autosave	R/W	If set, a downloaded configuration will automatically be saved to FLASH
Power Up Autorun	R/W	If set, the PLC tasks will automatically start running on power up. The type of start is determined by bits 16915 and 16914.
Autorun Warm Start	R/W	If 16913 and 16914 are both set, but 16915 is not set, the power up start will result in a warm start.
Autorun Hot Start	R/W	If 16913 and 16915 are both set, regardless of 16914, the power-up start will result in a hot start.
Halt Request	R/W	Setting this bit will halt IEC PLC execution. Self-clearing.
Coldstart Request	R/W	Setting this bit will execute IEC Coldstart. Self-clearing.
Warm Start Request	R/W	Setting this bit will execute IEC Warmstart. Self-clearing.
Hot Start Request	R/W	Setting this bit will execute IEC Hotstart. Self-clearing.
Saving to Flash	R	This bit will automatically be set during the execution of the IEC SAVE command. It will clear automatically when the command is complete.
Loading from Flash	R	This bit will automatically be set during the execution of the IEC LOAD command. It will clear automatically when the command is complete.
Save Failed	R	This bit will be set if the IEC SAVE command fails.
Load Failed	R	This bit will be set if the IEC LOAD command fails.

Bit17152 – Bit17407 Senary Axis Flags (Axes 0-7)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x43		**4632**	**4169**	**4170**	**4171**	**4172**	**4173**	**4174**	**4175**
Control Flags	**Bit Index**	**AXIS Number**							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CAM SRC FLZ (CAM)	0	17152	17184	17216	17248	17280	17312	17344	17376
CAM IHPOS SRC (CAM)	1	17153	17185	17217	17249	17281	17313	17345	17377

Control Flags

Field Description	Read/ Write	Description
CAM SRC FLZ	R/W	If this flag is set, the index into the cam table will be set to the CAM FLZ value when CAM ON is issued.
CAM IHPOS SRC	R/W	If this flag is set, the CAM IHPOS setpoint will be compared to the count of the object named in the CAM SRC command.

Bit17408 – Bit17663 Senary Axis Flags (Axes 8-15)

	Mask	0x01	0x02	0x04	0x08	0x10	0x20	0x40	0x80
Flag Parameter Code=0x10; Index=0x44		**4632**	**4633**	**4634**	**4635**	**4636**	**4637**	**4638**	**4639**
Control Flags	**Bit Index**	**AXIS Number**							
		8	**9**	**10**	**11**	**12**	**13**	**14**	**15**
CAM SRC FLZ (CAM)	0	17408	17440	17472	17504	17536	17568	17600	17632
CAM IHPOS SRC (CAM)	1	17409	17441	17473	17505	17537	17569	17601	17633

Control Flags

Field Description	Read/ Write	Description
CAM SRC FLZ	R/W	If this flag is set, the index into the cam table will be set to the CAM FLZ value when CAM ON is issued.
CAM IHPOS SRC	R/W	If this flag is set, the CAM IHPOS setpoint will be compared to the count of the object named in the CAM SRC command.

Aries Controller Parameter Reference

The Aries Controller is a single-axis drive/controller based on the Aries drive platform. It can read up to two encoders, and is configured and programmed within the ACR-View software environment using the AcroBASIC language which combines configuration parameters, status parameters, and text commands.

This guide details the parameters and commands specific to the Aries Controller. The main characteristics of these parameters and commands are detailed in the section Configuration Parameters, with more details on each in the section *Additional Parameter/Command Information*.

Parameter and Command Overview

The following is an overview of the parameters and commands detailed in this guide.

Configuration Parameters			
C0	Encoder Resolution	**C25**	Motor Temperature Switch Type
C1	Continuous Current	**C26**	Motor Ambient Temperature
C2	Continuous Current Derating	**C27**	Motor Winding Thermal Resistance
C3	Peak Current	**C28**	Motor Thermal Time Constant
C4	Motor Inductance	**C29**	Motor Winding Time Constant
C5	Motor Inductance Factor	**C38**	Drive PWM Frequency
C6	Maximum Motor Winding Temperature	**C39**	Thermal Switch Checking
C7	Motor Winding Resistance	**C41**	Output Brake Delay
C8	Motor Rated Speed	**C44**	Error Log Selection
C9	Number of Motor Pole Pairs	**C46**	Fault on Drive Disable
C10	Motor Damping	**C47**	Custom Winding Number
C11	Motor Rotor Inertia / Forcer Mass	**C67**	Drive Control Mode
C12	Motor Electrical Pitch	**C81**	Set Alignment Angle
C14	Torque / Force Limit	**C82**	Encoder Offset
C15	Motor Ke	**C103**	Drive Disable Delay
C16	Current Loop Bandwidth	**C117**	I/O Debounce Time
C18	Current Foldback Enable	**C119**	Hall-Less Commutation Gain
C20	Encoder Polarity	**C120**	Hall-Less Commutation Peak Current
C21	Max. Pre-Quadrature Encoder Frequency	**C121**	Hall-Less Commutation Damping
C22	Hall Sensor Configuration	**C137**	Encoder Loss Time
C23	Hall-Only Commutation		

Status Parameters			
S6	Transfer Continuous Current Rating	**S22**	Transfer Bus Voltage
S7	Transfer Maximum Current Rating	**S24**	Transfer Operating Hours
S9	Current Command	**S25**	Transfer Operating Minutes
S10	Transfer Command Torque / Force	**S26**	Transfer Maximum Current Rating
S11	Transfer Actual Torque / Force	**S27**	Transfer Hall State
S16	Transfer Position of Encoder	**S33**	Transfer Power-Up Hours
S20	Transfer Drive Temperature	**S34**	Transfer Power-Up Minutes
S21	Transfer Mode Temperature	**S35**	Feedback Source

Commands			
CERRLG	Clear the Error Log	**DMTR**	Identify Motor
TERRLG	Transfer the Error Log	**ERASE**	Reset Drive and Motor
DRCONFIG	Configuration Errors and Warnings	**FLASH ERASE**	Erase Stored Programs
DRERROR	Error-Checking Report-Back	**FLASH LOAD**	Load Programs
ALIGN	Align Encoder	**FLASH RES**	Erase Motor Config and Drive Programs
BOOTREV	Revision of Boot Code	**FLASH SAVE**	Save All Programs
STATUS	Status (Full-Text Report)	**PERIOD**	Set the Period

Table 1 Aries Controller Parameters and Commands

Invalid Commands

The following shows the ACR commands that are not needed in the Aries Controller. Entering these commands will return a syntax error.

Invalid Commands			
ESAVE	Save System Parameters	**CLEAR COM**	Clear Memory Allocation
ELOAD	Load System Parameters	**DIM STREAM**	Allocate STREAM Memory
ADC	Analog Input	**DIM FIFO**	Allocate FIFO Memory
DAC	Analog Output Control	**CLEAR FIFO**	Clear Memory Allocation
CLEAR STREAM	Clear Memory Allocation		

Table 2 Invalid Commands

Functional Groups Listing

The tables in this section list the Aries Controller parameters and commands by functional group.

Drive Configuration	
Parameter / Command	**Description**
C18	Current Foldback Enable
C20	Encoder Polarity
C21	Maximum Pre-Quadrature Encoder Frequency
C22	Hall Sensor Configuration
C23	Hall-Only Commutation
C38	Drive PWM Frequency
C46	Fault on Drive Disable
C67	Drive Control Mode
C117	I/O Debounce Time
C119	Hall-Less Commutation Gain
C120	Hall-Less Commutation Peak Current
C121	Hall-Less Commutation Damping
C137	Encoder Loss Time
S35	Feedback Source
DMTR	Identify Motor

Encoder Configuration	
Parameter / Command	Description
C0	Encoder Resolution

Error Handling	
Parameter / Command	Description
C44	Error Log Selection
CERRLG	Clear the Error Log
DRCONFIG	Configuration Errors and Warnings
DRERROR	Error-Checking Report-Back

Motor Configuration	
Parameter / Command	Description
C1	Continuous Current
C2	Continuous Current Derating
C3	Peak Current
C4	Motor Inductance
C5	Motor Inductance Factor
C6	Maximum Motor Winding Temperature
C7	Motor Winding Resistance
C8	Motor Rated Speed
C9	Number of Motor Pole Pairs
C10	Motor Damping
C11	Motor Rotor Inertia/Forcer Mass
C12	Motor Electrical Pitch
C15	Motor KE
C25	Motor Temperature Switch Type
C26	Motor Ambient Temperature
C27	Motor Winding Thermal Resistance
C28	Motor Thermal Time Constant
C29	Motor Winding Time Constant
C39	Thermal Switch Checking
C47	Custom Winding Number
C81	Set Alignment Angle
C82	Encoder Offset

Output	
Parameter / Command	Description
C41	Output Brake Delay
C103	Drive Disable Delay

System	
Parameter / Command	Description
C14	Torque/Force Limit

Transfer	
Parameter / Command	Description
S6	Transfer Continuous Current Rating
S7	Transfer Maximum Current Rating
S9	Transfer the Commanded Current
S10	Transfer Commanded Torque/Force
S11	Transfer Actual Torque/Force
S16	Transfer Position of Encoder
S20	Transfer Drive Temperature
S21	Transfer Mode Temperature
S22	Transfer Bus Voltage
S24	Transfer Operating Hours
S25	Transfer Operating Minutes
S26	Transfer Maximum Current Rating
S27	Transfer Hall State
S33	Transfer Power-Up Hours
S34	Transfer Power-Up Minutes
STATUS	Status (full-text report)
TERRLG	Transfer the Error Log

Tuning	
Parameter / Command	Description
C16	Current Loop Bandwidth

Configuration Parameters

The syntax for the Aries Controller parameters follows the form `PARAMETER=`*`units`*.

C0 Encoder Resolution

Units	Rotary Motor: counts/rev; Linear Motor: counts/electrical pitch
Range	32 to 1073741823
Default	4000
Response	4000
Command	ERES

C1 Continuous Current

Units	Amps (rms)
Range	0.00 to 200.00 ±0.01
Default	0.00
Response	6.50
Command	DMTIC

C2 Continuous Current Derating

Units	% derating at rated speed
Range	0.00 to 100.00 ±0.01
Default	0.00
Response	5
Command	DMTICD

C3 Peak Current

Units	Amps (rms)
Range	0.00 to 400.00 ±0.01
Default	0.00
Response	7.5
Command	DMTIP

C4 Motor Inductance

Units	mH
Range	0.0 to 200.0 ±0.1
Default	0.0
Response	10
Command	DMTIND

C5 Motor Inductance Factor

Units	units
Range	0.00 to 1.00
Default	1
Response	1.00
Command	DMTINF

C6 Max Motor Winding Temp

Units	Degrees Celsius
Range	0.0 to 200.0 ±0.1
Default	125.0
Response	125.0
Command	DMTMAX

C7 Motor Winding Resistance

Units	Ohm (measured line-to-line)
Range	0.00 to 100.00 ±0.01
Default	0.00
Response	7.50
Command	DMTRES

C8 Motor Rated Speed

Units	Rotary Motor: rev/sec; Linear Motor: m/sec
Range	0.0 to 400.0 ±0.1
Default	0.0
Response	150.0
Command	DMTW

C9 Number of Motor Pole Pairs

Units	pole pairs
Range	1 to 200
Default	0
Response	50
Command	DPOLE

C10 Motor Damping

Units	Rotary Motor: uNm/rad/sec; Linear Motor: N/meter/sec
Range	Rotary Motor: 0.000000 to 10000 ±1; Linear Motors: C12 (electrical pitch dependent)
Default	0.000000
Response	DMTD200
Command	DMTD

C11 Motor Rotor Inertia / Forcer Mass

Units	Rotary Motor: kgm2; Linear Motor: kg
Range	Rotary Motor: 0.000 to 1000000.000 ±0.001; Linear Motors: C12 (electrical pitch dependent)
Default	0.000
Response	200.600
Command	DMTJ

C12 Motor Electrical Pitch

Units	mm
Range	0 to 300.00 ±0.01
Default	0
Response	40.00
Command	DMEPIT

C14 Torque / Force Limit

Units	Rotary Motor: Nm; Linear Motor: N
Range	Rotary Motor: 0.0 to 4000.0 ±0.1 (motor/drive dependent); Linear Motor: C12 (electrical pitch dependent)
Default	400.00
Response	10.5
Command	DMTLIM

C15 Motor Ke (Motor Voltage Constant)

Units	Rotary Motor: v / krpm; Linear Motor: v / m / sec [Measured: v (0-peak); krpm (line-to-line); meter/second (line-to-line)]
Range	Rotary Motor: 0.0 to 800.0 ±0.1; Linear Motor: C12 dependent
Default	0.0
Response	15.0
Command	DMTKE

C16 Current Loop Bandwidth

Units	Hz
Range	250 to 2500
Default	500
Response	500
Command	DIBW

C18 Current Foldback Enable

Units	enable bit
Range	0 (disable) or 1 (enable)
Default	1
Response	0
Command	DIBW

C20 Encoder Polarity

Units	polarity bit
Range	0 (normal) or 1 (reverse)
Default	0
Response	0
Command	ENCPOL

C21 Maximum Pre-Quadrature Encoder Frequency

Units	none
Range	0 (266 KHz), 1 (533 KHz), or 2 (1.6 MHz)
Default	0
Response	0
Command	ENCFLT

C22 Hall Sensor Configuration

Units	control option number
Range	0 (do not invert) or 1 (invert)
Default	0
Response	0
Command	SHALL

C23 Hall-Only Commutation

Units	Hall commutation type
Range	0 (sinusoidal), 1 (trapezoidal), 2 (DC brushed motor)
Default	0
Response	0
Command	OHALL

C25 Motor Temperature Switch Type

Units	motor temperature switch type
Range	0 (normally closed), 1 (positive temperature coefficient thermistor), 2 (normally open), 3 (negative temperature coefficient thermistor)
Default	0
Response	0
Command	DMTSWT

C26 Motor Ambient Temperature

Units	degrees Celsius
Range	-50.00 to 250.00 ±0.01
Default	40.0
Response	40.0
Command	DMTAMB

C27 Motor Winding Thermal Resistance

Units	degrees Celsius / Watt
Range	0 to 16.00 ±0.01
Default	0.50
Response	23.60
Command	DMTRWC

C28 Motor Thermal Time Constant

Units	minutes
Range	0.0 to 7200.0 ±0.1
Default	0.0
Response	30.4
Command	DMTTCM

C29 Motor Winding Time Constant

Units	minutes
Range	0.00 to 3600.00 ±0.01
Default	0.00
Response	28.40
Command	DMTTCW

C38 Drive PWM Frequency

Units	kHz
Range	16 or 32
Default	16
Response	16
Command	DPWM

C39 Thermal Switch Checking

Units	enable bit
Range	0 (enable) or 1 (disable)
Default	0
Response	0
Command	DTHERM

C41 Output Brake Delay

Units	milliseconds
Range	0 to 10000
Default	500
Response	250
Command	OUTBD

C44 Error Log Selection

Units	N/A
Range	-2^31 to 2^31-1
Default	1111111111111111
Response	0
Command	ERRORL

C46 Fault on Drive Disable

Units	enable bit
Range	0 (disable) or 1 (enable)
Default	1
Response	1
Command	FLTDSB

C47 Custom Winding Number

Units	none
Range	0 to 2^31-1
Default	0
Response	100
Command	DMTCWN

C67 Drive Control Mode

Units	control mode setting
Range	1 to 13
Default	2
Response	2
Command	DMODE

C81 Set Alignment Angle

Units	encoder offset
Range	-180 to +180
Default	0
Response	0
Command	PVECT

C82 Encoder Offset

Units	encoder offset
Range	-3.142 to 3.142
Default	0
Response	0
Command	ENCOFF

C103 Drive Disable Delay

Units	motor current disable time in milliseconds
Range	0 to 1000
Default	0
Response	0
Command	INUFD

C117 I/O Debounce Time

Units	debounce value in milliseconds
Range	1 to 1000
Default	2
Response	40
Command	INDEB

C119 Hall-Less Commutation Gain

Units	none
Range	0 to 10000
Default	200
Response	200
Command	HGAIN

C120 Hall-Less Commutation Peak Current

Units	none
Range	0 to 1
Default	0.05
Response	0.05
Command	HPEAK

C121 Hall-Less Commutation Damping

Units	none
Range	0 to 200
Default	51
Response	200
Command	HDAMP

C137 Encoder Loss Time

Units	milliseconds
Range	0 to 2000
Default	1000
Response	1000
Command	ENCFT

Status Parameters

The syntax for the Aries Controller Status Parameters follows the form **PRINT** ***parameter***.

S6 Transfer Continuous Current Rating

Units	Amps rms
Range	drive dependant
Default	N/A
Response	10
Command	TDICNT

S7 Transfer Maximum Current Rating

Units	Amps rms
Range	N/A
Default	N/A
Response	10
Command	TDIMAX

S9 Current Command

Units	Amps peak
Range	-S7 to S7
Default	N/A
Response	1.2
Command	N/A

S10 Transfer Command Torque / Force

Units	Rotary Motor: Newton meters; Linear Motor: Newtons
Range	-C14 to C14
Default	N/A
Response	1.20
Command	TTRQ

S11 Transfer Actual Torque / Force

Units	Rotary Motor: Newton meters; Linear Motor: Newtons
Range	Rotary Motor: 0.0 to 500.0 (motor/drive dependant) ±0.1; Linear Motor: C12 (electrical pitch) dependant
Default	N/A
Response	1.20
Command	TTRQA

S16 Transfer Position of Encoder

Units	Encoder counts
Range	-2147483648 to 2147483647
Default	N/A
Response	0
Command	TPE

S20 Transfer Drive Temperature

Units	degrees Celsius
Range	N/A
Default	N/A
Response	50
Command	TDTEMP

S21 Transfer Mode Temperature

Units	degrees Celsius
Range	N/A
Default	N/A
Response	45
Command	TMTEMP

S22 Transfer Bus Voltage

Units	volts
Range	N/A
Default	N/A
Response	170.45
Command	TVBUS

S24 Transfer Operating Hours

Units	lifetime operating hours (resolution is hours)
Range	hour counter rolls over at 536854528 hrs.
Default	N/A
Response	16
Command	TDHRS

S25 Transfer Operating Minutes

Units	minutes
Range	0 to 59
Default	N/A
Response	35
Command	TDMIN

S26 Transfer Maximum Current Rating

Units	milliseconds
Range	0 to 59999
Default	N/A
Response	35678
Command	TDSEC

S27 Transfer Hall State

Units	N/A
Range	1 to 7 (1 to 6 are valid)
Default	N/A
Response	6
Command	THALL

S33 Transfer Power-Up Hours

Units	power-up operating hours (resolution is hours)
Range	hour counter rolls over at 536854528 hrs.
Default	N/A
Response	16
Command	TUPHRS

S34 Transfer Power-Up Minutes

Units minutes
Range 1 to 59
Default N/A
Response 35
Command TUPMIN

S35 Feedback Source

Units N/A
Range N/A
Default 1
Response 2
Command SFB

Commands

The syntax for the Aries Controller commands follows the form ***COMMAND***.

Command	Description	Units	Range	Default	Response
ALIGN	**Align Encoder**	**N/A**	**N/A**	**0**	**none**
BOOTREV	**Shows Revision of Boot Code**	**a: major revision b: minor revision**	**N/A**	**N/A**	**N/A**
CERRLG	**Clear the Error Log**	**N/A**	**N/A**	**N/A**	**N/A**
DMTR	**Identify Motor**	**“Parker motor identification number”**	**N/A**	**“blank”**	**SM232AE**
DRCONFIG	**Configuration Errors and Warnings**	**N/A**	**N/A**	**N/A**	**No Errors**
DRERROR	**Error-Checking Report-Back**	**N/A**	**N/A**	**N/A**	**No Errors**
ERASE	**Erases motor configuration parameters and drive setup parameters and sets them to their defaults. Does not erase stored programs.**				

Command	Description	Units	Range	Default	Response
FLASH	FLASH ERASE **erases stored programs on the drive/controller.** FLASH LOAD **loads programs from flash.** FLASH RES **erases motor configuration and drive/controller programs (**ERASE **+** FLASH ERASE**).** FLASH SAVE **saves all programs to flash. (**FLASH IMAGE **yields the same results.)**				
PERIOD	**Sets the Period**	**seconds**	**0.00025 sec in increments of 0.00025, up to 1.75 ms max.**	**N/A**	**N/A**
STATUS	**Status (Full-Text Report)**	**N/A**	**N/A**	**N/A**	**STATUS**
TERRLG	**Transfer the Error Log**	**N/A**	**N/A**	**N/A**	**N/A**

Additional Parameter/Command Information

This section supplements the parameter and command information in the section Aries Controller Parameter Reference. See DMTR (Identify Motor) for a list of automatically configured commands.

Configuration Parameters

C0 Encoder Resolution

Establishes the number of counts (post quadrature), per unit of travel.

The servo system's resolution is determined by the resolution of the encoder used with the servo motor. If the encoder is mounted directly to the motor, the Aries Controller's resolution (C0 value) must match the encoder's resolution to ensure that the motor will move according to the programmed distance and velocity. For example, Parker's SM and NeoMetric Series motors with the "E" encoder option use 1,000-line encoders, and therefore have a 4,000 count/rev post-quadrature resolution (requires C0-4000).

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to 4000 and it must manually be set to the appropriate number.

C1 Continuous Current

Sets the continuous operating current for a motor.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to the appropriate number. Otherwise, the drive/controller reports the following configuration errors:

```
E0 Motor Configuration Error
E8 Continuous Current=0
```

The internal winding temperature in a Parker rotary motor will reach 125˚C with a specified heatsink in a 40˚C ambient environment. A Parker linear motor winding will reach 90˚C in a 25˚C ambient environment.

C2 Continuous Current Derating

Sets the current derating percentage at rated speed (C8 Motor Rated Speed).

This parameter sets the extent to which continuous current must be reduced at speed to compensate for velocity-related losses in the motor.

For example `C2=3` sets the motor's continuous current derating to 3% [97% of continuous value C1 Continuous Current)] at the motor's rated speed (C8). At half this speed, it will be reduced 1.5%.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to the appropriate number.

C3 Peak Current

Sets a limit that the commanded current cannot exceed.

This parameter is typically set to three times the motor's continuous current rating (C1 Continuous Current) or less. If the C3 parameter is set higher than the full-scale value calculated by C14 (Torque / Force Limit), the new C3 value will be ignored.

If the C3 value exceeds the drive/controller's maximum output current (S7 Transfer Maximum Current Rating), the C3 value will be ignored and the maximum allowable value will be used. See Table **3**. The drive/controller reports:

```
E0 Motor Configuration Warning
E12 Peak Current Too High
```

Aries Controller	Maximum Current Rating (RMS)
AR-04CE	9A
AR-08CE	13.5A
AR-13CE	14.1

*Table **3** Current Rating for **Aries Controllers***

C4 Motor Inductance

Specifies the maximum value of motor inductance.

This value usually differs from the nominal nameplate value because actual inductance is usually position dependent. If this parameter is not automatically set and the maximum value of motor inductance is not known, specify the nominal inductance as listed on the motor's nameplate.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to the appropriate number. Otherwise, the drive/controller reports the following configuration errors:

```
E1 Motor Configuration Error
E3 Maximum Inductance=0
```

and shuts down.

C5 Motor Inductance Factor

Specifies the minimum motor inductance divided by the maximum motor inductance.

Setting C5 does not derate the motor. If this parameter is not set automatically and the minimum value of the motor inductance is not known, use the nominal inductance as listed on the motor's nameplate, or set `C5=1.00`.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to the appropriate number. Otherwise, the drive/controller reports the following configuration errors:

```
E1 Motor Configuration Error
E3 Maximum Inductance=0
```

and shuts down the drive/controller.

C6 Maximum Motor Winding Temperature

Sets the maximum motor winding temperature allowed.

The C6 value, in conjunction with C28 (Motor Thermal Time Constant), C29 (Motor Winding Time Constant), DMTRWC (Motor Thermal Resistance), and C1 (Continuous Current), is used in a real-time estimation of the motor winding temperature. When the winding temperature exceeds C6, a drive/controller fault occurs and the drive/controller reports the following:

```
E35 Motor Thermal Model Fault
```

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number.

C7 Motor Winding Resistance

Sets the motor winding resistance.

This resistance value is measured at 25˚C at the drive/controller end of the motor cable (motor cable included). This resistance is the phase-to-phase resistance measured at terminals U to V, V to W, or W to U.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number. Otherwise, the drive/controller reports the following configuration errors:

```
E1 Motor Configuration Error
E6 Resistance=0
```

and shuts down the drive/controller.

C8 Motor Rated Speed

Specifies the rated speed of the motor.

This value is used in conjunction with C2 (Continuous Current Derating) to protect the motor from thermal damage.

If this value is not automatically set, specify the lesser of the following:

- (Rotary motor) Motor mechanical limited speed
- (Rotary motor) Encoder limit of 5 MHz (pre-quadrature)
- (Linear motor) Speed limitations include encoder resolution and track length
- The corner of the continuous speed/torque or speed/force curve (the point where the continuous and peak torque/force curves meet)

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number. Otherwise, the drive/controller reports the following configuration errors:

E0 Motor Configuration Warning

E4 Rated Speed=0

and shuts down the drive/controller.

C9 Number of Motor Pole Pairs

Sets the number of motor pole pairs.

The number of pole pairs is defined as the number of poles divided by 2 (P/2). The electrical frequency of the current (ω_e) is related to the mechanical speed (ω_m) of the motor by the pole pairs.

NOTE**: All linear motors, regardless of the number of stator poles, are considered one pole-pair (C9=1) machines.**

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number. Otherwise, the drive/controller reports the following configuration errors:

E1 Motor Configuration Error
E5 C9=0

and shuts down the drive/controller.

C10 Motor Damping

Specifies the damping of the motor itself.

This includes both magnetic losses and bearing losses.

This parameter does not take effect until power to the drive/controller is cycled, or the REBOOT command is sent.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number.

C11 Motor Rotor Inertia / Forcer Mass

Sets the motor rotor inertia for rotary motors, or the forcer mass for linear motors.

This parameter does not take effect until power to the drive/controller is cycled, or the REBOOT command is sent.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number. Otherwise, if the drive/controller is powered up when this command is set to zero (for example, if ERASE is executed), the drive/controller reports a motor configuration error with **E13**, and shuts down the drive/controller.

C12 Motor Electrical Pitch

Sets the electrical pitch of the magnets for use with permanent magnet brushless linear motors.

This parameter does not take effect until you cycle power to the drive/controller, or send the REBOOT command.

(The electrical pitch can be equated to one revolution in a rotary motor with one pole-pair.) Mechanically, the definition of the electrical pitch is the linear distance between two magnets comprising a full magnetic cycle.

C14 Torque / Force Limit

Sets a maximum torque/force limit for the system.

Requests for higher torque/force will be clamped to this value. This parameter will default automatically to a value appropriate to the motor selection (DMTR Identify Motor) and the Aries Controller you are using, and in many cases, no changes are required.

If your mechanical system has torque/force limitations (due, for example, to the limitations of a coupler or belt), you can use this command to limit system torque/force without affecting system scaling or gains. During initial tuning, this command can be used to limit the torque/force produced if the system becomes unstable, reducing the rate of motor heating, allowing more reaction time for the person tuning the system, and reducing the chances of damage to the mechanical system. if C14 is set higher than the value allowed by the motor's peak current times the motor's Kt, or the drive/controller's peak current times the motor's Kt (whichever is lower), the new C14 value will be ignored (but not overwritten). In addition, the drive/controller reports the following:

```
E0 Motor Configuration Warning
E11 Torque Rating Too High for Drive
```

and the maximum internal value is used. The warning can be cleared by sending the REBOOT command or cycling power to the drive/controller.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number.

C15 Motor Ke

Specifies the motor voltage constant (Ke).

This value defaults to the nominal Ke of the motor selected with the DMTR (Identify Motor) command.

This parameter does not take effect until power to the drive/controller is cycled, or the REBOOT command is sent.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number. Otherwise, the drive/controller reports the following configuration errors:

```
E1 Motor Configuration Error
E7 Bad Hall State
```

and shuts down the drive/controller.

C16 Current Loop Bandwidth

Sets the current loop bandwidth.

Higher values of C16 will give a faster response to changes in commanded current at the expense of some overshoot. Lower values of C16 will give a slower response with much less overshoot.

C18 Current Foldback Enable

Enables (1) or disables (0) the drive/controller's current foldback protection feature.

The current foldback feature reduces the drive/controller's continuous current output by 20% when sustained current has the potential to overheat the drive/controller.

C20 Encoder Polarity

Reverses the encoder counting direction.

This parameter may be used if the encoder input is counting in the wrong direction (for example, using a custom motor). This reverses the encoder counting direction without having to change the actual wiring to the encoder input.

This parameter does not take effect until power to the drive/controller is cycled, or the REBOOT command is sent.

To reverse the commanded direction of motion, make sure there is a direct correlation between commanded direction and encoder direction. You can then set bit 8455 in order to reverse both the commanded direction and the encoder direction.

C21 Maximum Pre-Quadrature Encoder Frequency

Increases the default maximum pre-quadrature encoder frequency from 266 KHz to 533 KHz or 1.6 MHz.

This parameter allows users to take advantage of the higher input frequency, if necessary, at the expense of some noise immunity.

This parameter does not take effect until power to the drive/controller is cycled, or the REBOOT command is sent.

For increased noise immunity, rotary motors have increased filtering on the encoder input. The maximum input frequency is 266 KHz pre-quadrature for rotary motors by default. If a linear motor is configured, the drive/controller sets a 533 KHz pre-quadrature maximum input encoder frequency by default.

C22 Hall Sensor Configuration

Controls the logic sense of the Hall sensors.

To invert the sensors, use the C22=1 command. To check the present value of the Hall sensors, use the S27 parameter.

This parameter does not take effect until power to the drive/controller is cycled, or the REBOOT command is sent.

C23 Hall-Only Commutation

Sets the commutation type.

Use `C23=1` to set trapezoidal commutation and `C23=2` for DC brushed motors. DC brushed motors should be wired to motor phases U and W, if they are used. The default is `C23=0` (sinusoidal encoder commutation once the first hall transition has occurred).

This parameter requires a reset to take effect.

C25 Motor Temperature Switch Type

Sets the type of motor switch used.

Values of 0 or 1 behave exactly the same and are interchangeable. Sending C25=3 specifies a negative temperature coefficient thermistor. In this case S21 (Transfer Mode Temp) reports the higher of the motor thermal model value or the calculated thermistor temperature, once the thermistor temperature is above 60˚C. The drive/controller faults with a motor temperature fault at a thermistor temp of 105˚C or the motor thermal model setpoint (whichever is lower) when C25 is set to 3. The default value for this command is C25=0, and will work with both positive temperature coefficient thermistors and normally closed switches.

C26 Motor Ambient Temperature

Sets the motor ambient temperature used by the software motor thermal model.

This value, in conjunction with the C28 parameter (Motor Thermal Time Constant), the C29 parameter (Motor Winding Time Constant), the C27 parameter (Motor Winding Thermal Resistance), and the C1 parameter (Continuous Current), is used in a real-time estimation of the motor winding temperature. When the winding temperature exceeds the C6 parameter (Maximum Motor Winding Temperature), the drive/controller faults and reports the following:

```
E35-Motor Thermal Fault
```

C27 Motor Winding Thermal Resistance

Specifies the temperature rise of the motor winding above motor case temperature per watt of winding power dissipation.

Motor heatsinking does not affect this value.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number.

C28 Motor Thermal Time Constant

Specifies the thermal time constant of the motor and its mounting.

The drive/controller uses this value to help protect the motor from thermal damage. It describes the length of time the motor takes to reach 63% of its final temperature, given constant power. Note that the motor mounting affects this measurement.

Continuous current ratings and published time constants for Parker motors are specified when mounted to a 10" x 10" x ¼" aluminum plate in 25°C open air. If your mounting surface provides heat-sinking or thermal mass significantly different from this, a different value may be appropriate to your application. Note also that the C29 parameter value (Motor Winding Time Constant) itself is much faster than this; therefore, the rise in winding temperature will initially be much faster than C28 would suggest.

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number.

C29 Motor Winding Time Constant

Specifies the time constant of the motor winding alone.

This is the time for the winding to reach 63% of its final temperature rise above the rest of the motor, given constant power. Note that this is not the time constant usually specified in motor data sheets (see **C28 Motor Thermal Time Constant**); the C29 value is typically much faster.

C38 Drive PWM Frequency

Selects the drive/controller's PWM frequency.

This value is the internal Pulse Width Modulation (PWM) frequency as seen at the motor windings (the motor ripple current is twice this frequency.) In general, for a given drive/controller power level, the higher the switching frequency, the lower the motor ripple current heating and the lower both the peak and continuous current ratings.

C39 Thermal Switch Checking

This parameter is used to disable drive/controller faults when the motor thermal switch opens.

C39 is useful when no thermal switch is present on the motor. Send the `C39=0` command to re-enable thermal switch checking.

C41 Output Brake Delay

Specifies the amount of time that the brake relay will remain asserted after the current is applied to the motor windings when the drive/controller is enabled.

This allows torque to build up in the motor while the fault output is still high. This is important in vertical applications where the motor must be able to support the load before the brake is released.

C44 Error Log Selection

This parameter is used to choose the conditions that will be included in the error log.

When an error log bit is enabled, the operating system will respond to a specific execution error by making an entry in the error log. Each bit corresponds to a different error condition.

Use the TERRLG command (Transfer the Error Log) to view the error log. Clear it with the CERRLG command (Clear the Error Log).

C46 Fault on Drive Disable

This parameter is used to enable/disable the Fault on Drive Disable mode.

If Fault on Drive Disable is enabled by `C46=1` (the default setting), and the drive/controller is disabled via the Enable input, fault output is activated and the brake relay is opened.

C47 Custom Winding Number

Displays the custom winding number of the motor (if present).

Setup

When using a Parker motor and the ACR-View Configuration Wizard, this parameter is automatically set for the selected motor.

If you did not use the ACR-View Configuration Wizard in the setup, or if you sent an ERASE command or are using a non-Parker motor, this parameter is set to zero (0), and it must manually be set to a non-zero number.

C67 Drive Control Mode

Selects the drive/controller control mode for the Aries Controller.

The following drive/controller modes are valid:

`C67=1` Autorun—Rotates the motor at 1 rps/mps. Current is reduced by 10%

`C67=2` Torque/Force Control (default)—Allows direct control of rotary motor torque, or linear motor force.

`C67=3` Feedback Alignment—Auto configures for feedback setup.

`C67=10` Inertia Detection—Auto detects load to rotor inertia ratio.

C81 Set Alignment Angle

Specifies the encoder angle when in alignment mode.

The angle can vary from -180 degrees to +180 degrees. By changing the angle, the commutation can be determined manually. The motor should count in the positive direction when going from -180 degrees to +180 degrees, the shaft should rotate clockwise, and the hall states should count 6, 2, 3, 1, 5, 4 in that order, with the 4-6 transition occurring
at -180 degrees.

The C81 parameter can be used in conjunction with C82 (Encoder Offset) and S27 (Transfer Hall State) to perform a manual alignment if necessary.

C82 Encoder Offset

Specifies the encoder offset.

All standard (non-smart) Parker encoders have an encoder offset of 0 degrees. The smart encoders store the encoder offset in the motor, which the drive/controller reads (and stores in the C82 parameter) upon power-up. The offset can vary from -180 degrees (corresponding to `C82=-3.142`) to +180 degrees (corresponding to `C82=3.142`).

C117 I/O Debounce Time

Selects the de-bounce value for I/O inputs on the drive in milliseconds.

C103 Drive Disable Delay

Specifies the amount of time that the current will be applied to the windings while the brake is engaged when the drive/controller is disabled.

This allows the brake relay to engage while the drive/controller is still enabled and current is present in the windings. This is important in vertical applications where the motor must be able to support the load before the brake is applied.

C119 Hall-Less Commutation Gain

Selects the gain value for Hall-less commutation algorithm.

C120 Hall-Less Commutation Peak Current

Selects the peak current value for the Hall-less commutation algorithm.

A value of 1 sets the peak current when using the algorithm to the peak current of the drive/controller or motor (whichever is lower).

C121 Hall-Less Commutation Damping

Selects the damping value for the Hall-less commutation algorithm.

A higher value increases the damping, while a lower value reduces the damping.

NOTE: If the damping value is too high, instability can result.

C137 Encoder Loss Time

Selects the timeout value for the encoder loss detection algorithm.

If no encoder signals are noticed, or peak torque is applied for this amount of time without any encoder change, then the drive will fault with an encoder loss fault. Set `C137=0` to disable encoder loss checking.

Status Parameters

Status parameters are read-only parameters.

S6 Transfer Continuous Current Rating

Reports the continuous current rating of the drive/controller in amps rms.

S7 Transfer Maximum Current Rating

Reports the maximum current rating of the drive/controller in amps rms.

S9 Transfer the Commanded Current

Reports the commanded current to the motor in amps (peak).

S10 Transfer Commanded Torque/Force

Reports the commanded motor torque/force.

S11 Transfer Actual Torque/Force

Reports the calculated torque/force based on the motor's current and the motor's Ke. The motor's measured Ke value may vary by ±10%; therefore, the S11 value may vary by ±10% of the actual torque at the motor.

S16 Transfer Position of Encoder

Reports the present feedback device position, based on the encoder resolution (C0).

S20 Transfer Drive Temperature

Reports the measured internal temperature of the drive/controller.

S21 Transfer Mode Temperature

Reports the predicted temperature of the motor winding for Parker motors.

The temperature is estimated using the winding and motor time constants, the rated continuous current, and the winding thermal resistance. The motor will fault (and the drive/controller reports **`E35 Motor Thermal Model Fault`**) at an estimated winding temperature of 125˚C, assuming the ambient temperature is 40˚C.

If C25 (Motor Temperature Switch Type) equals `3`, and the thermal temperature is greater than 60˚C, S21 reports the higher of the motor model thermistor temperature or the Negative Temperature Coefficient (NTC) thermistor temperature.

If a non-Parker motor is used, the S21 value depends on parameters supplied for C27 (Motor Winding Thermal Resistance), C28 (Motor Thermal Time Constant), and C29 (Motor Winding Time Constant).

S22 Transfer Bus Voltage

Reports the DC bus voltage available from the drive/controller in volts.

S24 Transfer Operating Hours

Reports the lifetime number of hours that the Aries Controller has had power applied (Motor Input Power or Control Input Power).

S25 Transfer Operating Minutes

Reports the minutes portion of the lifetime number of operating hours that the Aries Controller has had power applied (Motor Input Power or Control Input Power).

S26 Transfer Maximum Current Rating

Reports the milliseconds portion of the lifetime number of operating hours that the Aries Controller has had power applied (Motor Input Power or Control Input Power).

S27 Transfer Hall State

Reports the present Hall sensor value.

There are six distinct Hall states, from 1 to 6. Rotating the motor shaft clockwise, the Hall state order should be 6, 2, 3, 1, 5, 4, 6, 2, 3, 1, 5, 4, 6 …

Values of 0 and 7 are invalid and will fault the drive/controller, and report **`E37 Bad Hall State`**.

NOTE: For auto-configured “smart encoders,” the S27 parameter only reports the initial Hall state of the encoder when power is applied.

S33 Transfer Power-Up Hours

Reports the number of hours that the Aries Controller has had power supplied (Motor Input Power or Control Input Power).

S34 Transfer Power-Up Minutes

Reports the minutes portion of the number of operating hours that the Aries Controller has had power supplied (Motor Input Power or Control Input Power).

S35 Feedback Source

Reflects the type of motor auto-detected by the drive/controller.

Commands

ALIGN Align Encoder

Aligns the encoder on the motor so that the drive/controller can commutate the motor correctly. This is especially useful for configuring a custom motor.

To align the motor:

1. Remove any load form the shaft. This procedure works best with an unloaded motor.
2. Disable the drive/controller by typing `DRIVE OFF AXIS0` into the terminal and pressing Enter.
3. Type `C67=3` in the terminal and press Enter to enter alignment mode.
4. Enable the drive/controller by typing `DRIVE ON AXIS0` into the terminal and press Enter.
5. Type `ALIGN` into the terminal and press Enter to begin the alignment process.
6. The drive/controller then begins the alignment procedure. This could take up to 20 seconds during which the motor turns up to 90 degrees.
7. The alignment process may modify the following parameters: **C82 Encoder Offset**, **C20 Encoder Polarity**, and **C22 Hall Sensor Configuration**.

BOOTREV Shows Revision of Boot Code

Shows the revision of the boot code stored in the drive/controller in the form of “a.b,” where “a” is the Major revision, and “b” is the Minor revision of the boot code firmware.

CERRLG Clear the Error Log

Erases the stored contents of the error log.

The error log is updated every time an error occurs. Clearing the error log is a helpful diagnostic tool; it allows you to start the diagnostic process when the error log is in a known state so that you can check the error log in response to subsequent events.

DMTR Identify Motor

Records and reports the identification number of the Parker motor entered in the Aries Support Tool.

The syntax for this command requires quotes: **`DMTR”motor name”`**.

When you select a specific Parker motor using the Aries Support Tool, the DMTR setting and various motor parameters (see Table **4 below**) are automatically configured for the associated motor. Using the Aries Support Tool, you can save the parameters in a configuration file.

For the DMTR and all the motor parameters and commands to take effect after downloading the configuration file to the drive/controller, you must cycle drive/controller power or send the RESET command.

Avoid using the DMTR command to change the motor name—the new DMTR value may not represent the actual motor parameters that are currently loaded in the drive/controller.

For a non-Parker motor, the default setting is blank (empty), and you must set all relevant motor parameters manually.

The servo motor parameters automatically configured by the Aries Support Tool are listed in Table **4**. Although the parameter values are auto-configured when you select a Parker motor using the Aries Support Tool, you may individually set the command values with the respective configuration command.

	Parameter		Parameter
C0	**Encoder Resolution**	**C9**	Number of Motor Pole Pairs
C1	**Continuous Current**	**C10**	Motor Damping
C2	**Continuous Current Derating**	**C11**	Motor Rotor Inertia/Forcer Mass
C3	**Peak Current**	**C12**	Motor Electrical Pitch
C4	**Motor Inductance**	**C14**	Torque/Force Limit
C5	**Motor Inductance Factor**	**C15**	Motor Ke
C6	**Maximum Motor Winding Temperature**	**C27**	Motor Winding Thermal Resistance
C7	**Motor Winding Resistance**	**C28**	Motor Thermal Time Constant
C8	**Motor Rated Speed**	**C29**	Motor Winding Time Constant

*Table **4** Servo Motor Data Parameters*

Motor Configuration Error

If not configured (for example, a command remains at its factory default value, or an ERASE command is executed), many of the above motor parameters will report a motor configuration warning or error when powering up the Aries Controller:

E0 Motor Configuration Warning

-or-

E1 Motor Configuration Error

An error also disables the drive/controller—**DRIVE0**.

To resolve the error or warning condition:

1. Complete the configuration by doing one of the following:
   a. Select a Parker motor using the Aries Support Tool, or
   b. Configure each motor parameter command with a value other than zero (0) using a terminal emulator.
2. Download the resulting configuration information.
3. Send the RESET command or cycle power.

DRCONFIG Configuration Errors and Warnings

Gives a text-based status report of current configuration errors and warnings (E0 through E24). See Table **5** for the configuration errors and their resolutions.

Error	Resolution
E0 Motor Configuration Warning	The motor rating is too high for the drive/controller, and the drive/controller is using its own limits for safety reasons.
E1 Motor Configuration Error	One of the motor parameters is set to zero (0). Look at the additional errors to find which parameters are set at zero (0). Refer to your motor specifications for the correct value.
E3 Max Inductance = 0	This parameter is set to zero (0). To correct the error, you must set a non-zero value. Refer to your motor specifications for the correct value. (C4 Motor Inductance)
E4 Rated Speed = 0	This parameter is set to zero (0). To correct the error, you must set a non-zero value. Refer to your motor specifications for the correct value. (C8 Motor Rated Speed)
E5 C9 = 0	This parameter is set to zero (0). To correct the error, you must set a non-zero value. Refer to your motor specifications for the correct value. (C9 Number of Motor Pole Pairs)
E6 Resistance = 0	This parameter is set to zero (0). To correct the error, you must set a non-zero value. Refer to your motor specifications for the correct value. (C7 Motor Winding Resistance)
E7 Ke = 0	This parameter is set to zero (0). To correct the error, you must set a non-zero value. Refer to your motor specifications for the correct value. (C15 Motor Ke)
E8 Continuous Current = 0	This parameter is set to zero (0). To correct the error, you must set a non-zero value. Refer to your motor specifications for the correct value. (C1 Continuous Current)
E9 Peak Current = 0	This parameter is set to zero (0). To correct the error, you must set a non-zero value. Refer to your motor specifications for the correct value. (C3 Peak Current)

Error	Resolution
E10 Used Drive Continuous Current	The continuous current of the motor is higher than the continuous current rating of the drive/controller. Use the continuous current rating for the drive/controller.
E11 Torque Rating > Peak Power Rating	The motor's torque rating is too high for the power level of the drive/controller. Use the drive/controller's torque rating.
E12 Used Drive Peak Current	The peak current of the motor is higher than the peak current rating of the drive/controller. Use the drive/controller's value for peak current.
E13 Inertia = 0	This parameter is set to zero (0). The drive/controller will not enable Velocity or Position Modes. To correct the error, you must set to a non-zero value. Refer to your motor specifications for the correct value. (C11 Motor Rotor Inertia / Forcer Mass)
E14 Damping = 0	This parameter is set to zero (0). The drive/controller will not enable Velocity or Position Modes. To correct the error, you must set to a non-zero value. Refer to your motor specifications for the correct value. (C10 Motor Damping)

*Table **5** Configuration Errors and Warnings*

DRERROR Error-Checking Report-Back

Gives a text-based status report of drive/controller errors (E25 through E46) that currently prevent the drive/controller from enabling.

To re-enable the drive/controller, correct the specified fault, then reset the unit or cycle power to it.

Table 6 contains the possible errors appearing in the text-based report and their descriptions.

Error	Resolution
E26 Drive Faulted	The drive/controller is faulted.
E27 Bridge Hardware Fault	Excessive current or short on the H-bridge.
E29 Drive Over-Voltage	The bus voltage is too high (>410 VDC). Lower AC Mains voltage (Motor Input Power) and check for excessive regeneration power. (**S22** Transfer Bus Voltage)
E30 Drive Under-Voltage	The bus voltage is too low (<85 VDC) or there is overly aggressive acceleration or deceleration. Raise AC Mains voltage (Motor Input Power). (**S22** Transfer Bus Voltage)
E31 Bridge Foldback	Drive/controller current was limited to prevent overheating (warning only).
E32 Power Regeneration Fault	Check the Regeneration resistor for a short.
E34 Drive Temperature Fault	Wait for the drive/controller to cool down.
E35 Motor Thermal Model Fault	The motor thermal model has determined the motor is too hot. Wait for the motor to cool, and then re-enable the drive/controller. (**S21** Transfer Mode Temperature)
E36 Motor Temperature Fault	Motor thermal switch has tripped. Wait for the motor to cool, then re-enable the drive/controller. (**S21** Transfer Mode Temperature)
E37 Bad Hall State	A problem with the Hall sensors exists. Check the Hall state wiring. (**S27** Transfer Hall State)
E38 Feedback Failure	Feedback not present or the signal level is incorrect. (**S16** Transfer Position of Encoder; **S27** Transfer Hall State)

E39 Drive Disabled	The drive/controller is disabled.
E40 PWM Not Active	The H-bridge is not switching.
E41 Power Regeneration Warning	The drive/controller regenerated (warning only).
E42 Shaft Power Limited Warning	Shaft power is limited to the rated output to protect the drive/controller (warning only).
E43 Excessive Speed at Enable	The motor was turning too fast when the drive/controller was enabled.
E47 Low Voltage Enable	No motor power was present when the drive/controller was enabled.
E48 Control Power Active	The drive/controller is in Control power mode. No motor power is present.
E49 Alignment Error	The ALIGN command did not complete successfully. (**S16** Transfer Position of Encoder; **S27** Transfer Hall State)
E52 Encoder Read Fault	The drive/controller determined there was loss of feedback. Check the feedback wiring. (**S16** Transfer Position of Encoder; **S27** Transfer Hall State)
E54 Encoder Loss Fault	The Aries Controller could no longer detect the encoder. Check the encoder connections. Check/modify for value of **C137** or set to zero (0) to disable this error.

Table 6 Error-Checking Report-Back Error Messages

ERASE Reset Drive and Motor

Erases motor configuration parameters and drive setup parameters and sets them to their defaults.

Does not erase stored programs.

The ERASE command will reboot the unit, so make ERASE the last command.

FLASH Save and Restore Drive/Controller Configuration

FLASH ERASE erases stored programs on the drive/controller.

FLASH LOAD loads programs from flash.

FLASH RES erases motor configuration and drive/controller programs (ERASE + FLASH ERASE).

FLASH SAVE saves all programs to flash. (Same function as FLASH IMAGE.)

PERIOD Sets the Period

Sets the value for the period.

The minimum value for this command is 0.25 ms, with increments of 0.25 ms up to a maximum of 1.75 ms.

STATUS Status (Full-Text Report)

Provides full-text report of the current drive/controller status.

This command includes general features such as the OS Revision and Control power mode. (Control power mode is active when TVBUS is less than 85 VDC.) Additionally, it includes motor parameters and drive/controller status.

Following is an example full-text report:

```
<*>GENERAL:
<*>    OS Revision: Aries Revision 1.0
<*>    Power Level: 750W
<*>    Control Power: INACTIVE
<*>MOTOR:
<*>    Motor Name: SM232AE
<*>    Motor Type: ROTARY
<*>    Feedback Type: SMART ENCODER
<*>    Motor Temp: 40C
<*>DRIVE
<*>    Drive: DISABLED
<*>    PWM Frequency: 16 kHz
<*>    Feedback Resolution: 8000
<*>    Drive Temperature: 35C
<*>    Bus Voltage: 85V
```

TERRLG Transfer Error Log

Displays the last ten error conditions or power cycles.

The display is in order or earliest to latest as a text-based status report. When each error is logged, the following parameters are saved:

- Operating Hours (S24, S25, S26)
- Power-on Time
- Drive/Controller Temperature (S20)
- Motor Temperature (S21)
- Bus Voltage (S22)
- Active Errors (ERROR)