Simatic/TI 505 Serial Driver Help

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Simatic/TI 505 Serial Driver Help

Help version 1.019

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Overview

The Simatic/TI 505 Serial Driver provides an easy and reliable way to connect Simatic/TI 505 Serial devices to OPC Client applications, including HMI, SCADA, Historian, MES, ERP and countless custom applications.

The driver is a serial driver intended for use with TI 500/505 PLCs using the programming port of the processor. The driver supports two protocols, Non-Intelligent Terminal Protocol (NITP) and Transparent Byte (TB). Both protocols are point-to-point only, meaning only one processor can be connected at a time.

All TI 500/505 processors support the NITP protocol. The NITP protocol is an ASCII protocol. Most processors also support the TB protocol, which is a binary protocol and faster. Processors do not have to be configured to use one protocol or another. Processors that do not support the TB protocol will ignore TB requests.

The protocol selection is made when configuring a device. If NITP is selected, the parity setting for the COM port must be odd and the number of data bits 7. If TB is selected the parity must be none and the number of data bits 8. The baud rate should match the setting in the PLC. RTS_ALWAYS flow control must be selected for either protocol.

An RS232 cable with a null modem is used to connect the PC to the processor. This is the same cable that is used with the TISOFT programming software.

Device Setup

Supported Devices
TI Series 500/505 processors: 520, 525, 535, 545, 555, 565 and 575.

Communication Protocol
Non-Intelligent Terminal Protocol (NITP)
Transparent Byte protocol (TB)

Supported Communication Parameters*
Baud Rate: 300, 600, 1200, 2400, 9600, 19200, or 38400
Stop Bits: 1
Parity: Odd for NITP, None for TB
Data Bits: 7 for NITP, 8 for TB

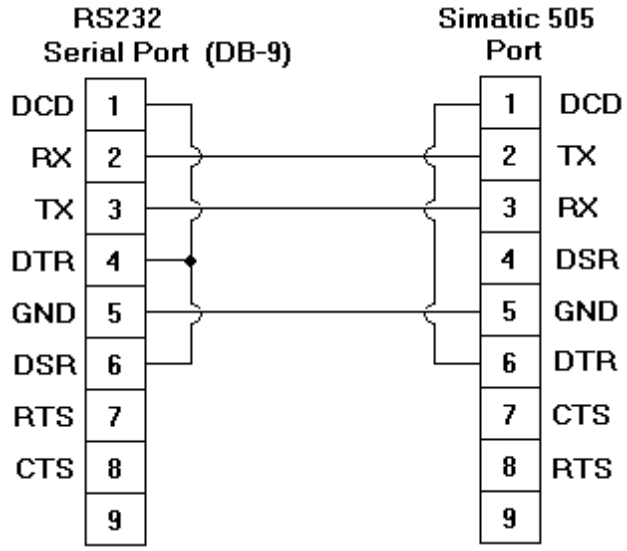
*Not all devices support the listed configurations.

Ethernet Encapsulation
This driver supports Ethernet Encapsulation, which allows the driver to communicate with serial devices attached to an Ethernet network using a terminal server or device server. Ethernet Encapsulation mode is invoked by selecting it from the COM ID dialog on the Channel Properties page. More help on Ethernet Encapsulation can be found in the main OPC Server help file. When used directly with a serial port, this driver supports only a single connection to a single controller per serial port. When operating in the Ethernet Encapsulation mode, the driver will support up to 31 controllers per channel. In this mode a single controller can be paired with a terminal server/device server to form a single node.

Flow Control
When using an RS232/RS485 converter, the type of flow control that is required will depend upon the needs of the converter. Some converters do not require any flow control and others will require RTS flow. Consult the converter's documentation in order to determine its flow requirements. We recommend using an RS485 converted that provides automatic flow control.

Note: When using the manufacturer's supplied communications cable, it is sometimes necessary to choose a flow control setting of **RTS** or **RTS Always** under Channel Properties. For the Simatic/TI 505 Serial select RTS_ ALWAYS for either protocol.

Cable Connections



Modem Setup

This driver supports modem functionality. For more information, please refer to the topic "Modem Support" in the OPC Server Help documentation.

Addressing Options

0/1-Based Bit Addressing

Memory types that allow bit within Word (for example, V) can be referenced as a Boolean. The addressing notation for doing this is as follows:

<memory type><address>.<bit>

where <bit> represents the bit number within the Word or DWord, depending on the memory type. 0/1-Based Bit Addressing provides two ways of addressing a bit within the given Word or DWord: 0-Based and 1-Based. 0-Based addressing simply means the "first bit" begins at 0. With 1-Based, the first bit begins at 1. The bit order for the Word or DWord is irrelevant with this option. In other words, it doesn't matter whether the first bit is the Most Significant Bit or the Least Significant Bit.

Note: In this driver, the first bit will either be bit 0 or bit 1 depending on this 0/1-Based Bit Addressing setting.

0-Based (Default Setting)

Data Type	Bit Range
Word	Bits 0 – 15
DWord	Bits 0 – 31

1-Based

Data Type	Bit Range
Word	Bits 1 – 16
DWord	Bits 1 – 32

Note: 0/1-Based Bit Addressing does not apply to non-bit addresses such as Word addresses in V memory. These addresses are always 1-Based and are not configurable.

Bit Order for V, K, STW

This option is used to select the order in which bits will be presented to V, K, and STW memory types when bit-accessed.

Note: For the following example, the 1st through 16th bit signifies either 0-15 bits or 1-16 bits depending on if the driver is set at 0-Based Bit Addressing or 1-Based.

DWord follows the same bit order logic as Words except instead of 16 bits, there are 32 bits.

Bit 0 Is MSB of Word

MSB															LSB
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Bit 1 Is LSB (Default Setting) of Word

MSB															LSB
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

See Also: Device Setup

Data Types Description

Data Type	Description
Boolean	Single bit
Word	Unsigned 16 bit value bit 0 is the low bit bit 15 is the high bit
Short	Signed 16 bit value bit 0 is the low bit bit 14 is the high bit bit 15 is the sign bit
DWord	Unsigned 32 bit value bit 0 is the low bit bit 31 is the high bit
Long*	Signed 32 bit value bit 0 is the low bit bit 30 is the high bit bit 31 is the sign bit
Float*	32 bit floating point value. The driver interprets two consecutive registers as a floating-point value by making the first register the high word and the second register the low word.

*Long is the same as Double in the TISOFT programming software.

*Float is the same as Real in the TISOFT programming software.

Address Descriptions

Address specifications vary depending on the model in use. Select a link from the following list to obtain specific address information for the model of interest.

NITP Addressing
Transparent Byte Addressing
Status Words

NITP Addressing

The Simatic/TI 505 Serial driver supports the following addresses when using the NITP protocol. The default data type for each address type is indicated in **bold**.

Address Type	Format	Range	Data Types	Access
Discrete Inputs	X<address>	1-65536	**Boolean**	Read/Write
Discrete Outputs	Y<address>	1-65536	**Boolean**	Read/Write
Word Inputs	WX<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read/Write
Word Outputs	WY<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read/Write
Discrete Control	C<address>	1-65536	**Boolean**	Read/Write
Word Memory	V<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read/Write
Word Memory Bit Access	V<address> .bit	address: 1-65536* bit: 0-15	**Boolean**	Read/Write
Constant Memory	K<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read Only
Constant Memory Bit Access	K<address> .bit	address: 1-65536* bit: 0-15	**Boolean**	Read Only
Status Words	STW<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read/Write
Status Words Bit Access	STW<address> .bit	address: 1-65536* bit: 0-15	**Boolean**	Read/Write
Timer/Counter Preset	TCP<address>	1-65535	Short, **Word**	Read/Write
Timer/Counter Current	TCC<address>	1-65535	Short, **Word**	Read/Write
Drum Step Preset	DSP<address>	1-32767	Short, **Word**	Read/Write
Drum Step Current	DSC<address>	1-32767	Short, **Word**	Read/Write
Drum Step Current Count	DCC<address>	1-32767	Short, **Word**	Read Only
Drum Time Base	DTB<address>	1-32767	Short, **Word**	Read/Write
Drum Count Preset	DCP<drum] .<step>	drum 1-32767 step 1-16	Short, **Word**	Read/Write

*For more information, refer to **0/1-Based Bit Addressing Option**.

The actual number of addresses available for of each type is dependent on the configuration of the PLC.
If at runtime the driver finds that an address is not present in the device, the driver will post an error message and remove the tag from its scan list.

V Memory Access as Arrays

The Simatic/TI 505 Serial driver supports access to V memory in an array. The size of the array for NITP mode is limited to 100 V memory registers per array. When accessing large arrays, multiple read/write commands are used to access consecutive V memory addresses and may require additional time to process. To access V memory as an array, array notation must be used when entering an address. Array notation is shown in the following examples:

V100[5]	This denotes an array starting at V100 with a length of 5. This means that the array contains V100, V101, V102, V103, and V104.
V100[2][3]	This denotes a two dimensional array starting at V100 and containing V100, V101, V102, V103, V104, and V105 in a 2 by 3 array.

Note: Arrays can be either the Word or SHORT data type, with a default of Word.

Transparent Byte Addressing

The Simatic/TI 505 Serial driver supports the following addresses when using the Tranparent Byte protocol. The default data type for each address type is indicated in **bold**.

Address Type	Format	Range	Data Types	Access
Discrete Inputs	X<address>	1-65536	**Boolean**	Read/Write
Discrete Outputs	Y<address>	1-65536	**Boolean**	Read/Write
Word Inputs	WX<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read/Write
Word Outputs	WY<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read/Write
Discrete Control	C<address>	1-65536	**Boolean**	Read/Write
Word Memory	V<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read/Write
Word Memory Bit Access	V<address> .bit	address: 1-65536* bit: 0-15	**Boolean**	Read/Write
Constant Memory	K<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read Only
Constant Memory Bit Access	K<address> .bit	address: 1-65536* bit: 0-15	**Boolean**	Read Only
Status Words	STW<address>	1-65536 1-65535	Short, **Word** Long, DWord, Float	Read/Write
Status Words Bit Access	STW<address> .bit	address: 1-65536* bit: 0-15	**Boolean**	Read/Write
Timer/Counter Preset	TCP<address>	1-65535	Short, **Word**	Read/Write
Timer/Counter Current	TCC<address>	1-65535	Short, **Word**	Read/Write
Drum Step Preset	DSP<address>	1-32767	Short, **Word**	Read/Write
Drum Step Current	DSC<address>	1-32767	Short, **Word**	Read/Write
Drum Step Current Count	DCC<address>	1-32767	Short, **Word**	Read Only
Drum Time Base	DTB<address>	1-32767	Short, **Word**	Read/Write
Drum Count Preset	DCP<drum] .<step>	drum 1-32767 step 1-16	Short, **Word**	Read/Write

*For more information, refer to **0/1-Based Bit Addressing Option**.

The actual number of addresses available for of each type is dependent on the configuration of the PLC.
If at runtime the driver finds that an address is not present in the device, the driver will post an error message and remove the tag from its scan list.

V Memory Access as Arrays

The Simatic/TI 505 Serial driver supports access to V memory in an array. The size of the array for Transparent Byte mode is limited to 100 V memory registers per array. When accessing large arrays, multiple read/write commands are used to access consecutive V memory addresses and may require additional time to process. To access V memory as an array, array notation must be used when entering an address. Array notation is shown in the following examples:

V100[10]	This denotes an array starting at V100 with a length of 10. This means that the array contains V100, V101, V102, V103, V104, V105, V106, V107, V108, and V109.
V100[3][3]	This denotes a two dimensional array starting at V100 and containing V100, V101, V102, V103, V104, V105, V106, V107, and V108 in a 3 by 3 array.

Note: Arrays can be either the Word or SHORT data type, with a default of Word.

Status Words

For all Status Words, Bit 1 is the Most Significant Bit (MSB) and Bit 16 is the Least Significant Bit (LSB) in order from left to right. Users can configure bit addressing to be 0-15 or 1-16 addressing, and can also set the driver to use 1 or 15 as the MSB (thus changing the bit referencing). For more information, refer to **Addressing Options**.

Note: Only addresses that are not used by the controller can be written to.

Register	Description	CP525	CP545	CP565	CTI 2500
STW00001	Non-Fatal Errors. Bit 4, 1 = Password has been entered. Bit 5, 1 = Password has been entered and disabled. Bit 6, 1 = User program error.* Bit 7, 1 = Subroutine stack overflow. Bit 8, 1 = Time of day clock failure. Bit 10 = Special function module communication error. Bit 11, 1 = Previous RLL instruction failed. Bit 12, 1 = I/O module failure or I/O module configuration mismatch. Bit 13, 1 = Communication port failure. Bit 14, 1 = Scan overrun. Bit 15, 1 = Battery low.	x	x	x	x
STW00002	Base Control Status. Each bit reflects the status of a single base. 0 = Status is good. 1 = Base is not present or has a problem. Bit 1, Base 15 Bit 2, Base 14 Bit 3, Base 13 Bit 4, Base 12 Bit 5, Base 11 Bit 6, Base 10 Bit 7, Base 9 Bit 8, Base 8 Bit 9, Base 7 Bit 10, Base 6 Bit 11, Base 5 Bit 12, Base 4 Bit 13, Base 3 Bit 14, Base 2 Bit 15, Base 1 Bit 16, Base 0	x	x	x	x
STW00003-00009	Profibus DP Slave Status. Each bit is 0 if a slave is present, or 1 if the slave is missing or failed. STW03 Bit 1-16 slave addresses 16-1. STW04 Bit 1-16 slave addresses 32-17. STW05 Bit 1-16 slave addresses 48-33. STW06 Bit 1-16 slave addresses 64-49. STW07 Bit 1-16 slave addresses 80-65. STW08 Bit 1-16 slave addresses 96-81. STW09 Bit 1-16 slave addresses 112-97.	x	x	x	x
STW00010	Contains the value of the previous dynamic scan time.	x	x	x	x
STW00011	Indicates the status of the modules in the Local Base (Base 0). Each bit indicates a module in a slot. 0 = Good. 1 = Module not present or failed. Bit 1 - 16 = Module 16 - 1.	x	x	x	x
STW00012-00026	Status bits for modules in Bases 1 - 15, STW012 = Base 1… Bit range is the same as for STW011.	x	x	x	x
STW00027-00138	This range of Status Words apply to the Profibus	x	x	x	x

	DP Slave channels if present. STW027 is slave 1…STW138 is slave 112. Bit range is the same as for STW011.				
STW00139	This Status Word provides a count of the discrete points (X/Y or C) that are currently forced.	x	x	x	x
STW00140	This Status Word provides a count of the word points (WX/WY) that are currently forced.	x	x	x	x
STW00141-00144	Date, Time, and Day of Week.	N/A.	N/A.	N/A.	N/A.
STW141	Bit 1-4, Year tens digit. Bit 5-8, Year units digit. Bit 9-12, Month tens digit. Bits 13-16, Month units.	x	x	x	x
STW142	Bit 1-4, Day - Tens digit. Bit 5-8, Day - Units digit. Bit 9-12, Hour - Tens digit. Bit 13-16, Hour - Units digit.	x	x	x	x
STW143	Bit 1-4, Minute - Tens digit. Bit 5-8, Minute - Units digit. Bit 9-12, Seconds - Tens digit. Bit 13-16, Seconds - Units digit.	x	x	x	x
STW144	Bit 1-4, Seconds - Tenths digit. Bit 5-8, Seconds - Hundredths digit. Bit 9-12, Not used - Always 0. Bit 13-16, Day of the week.	x	x	x	x
STW00145	Receive Error Counts.	x	x	x	x
STW00146	Timeout Counts.	x	x	x	x
STW00147	This Status Word records the number of times that the Profibus-DP Slaves have failed to respond to a request from the Series 505 or CTI 2500 CPU since the most recent restart.	x	x	x	x
STW00148	This Status Word records the number of times that the Profibus-DP I/O channel has experienced a loss of token since the most recent restart.	x	x	x	x
STW00149-00160	Reserved.	N/A.	N/A.	N/A.	N/A.
STW00161	Special Function Processor Fatal Error. Bit 1, 1 = ROM error. Bit 2, 1 = RAM error. Bit 3, 1 = Operating System error. Bit 4, 1 = Invalid control block encountered. Bit 5, 1 = Diagnostic failure. Bit 7, 1 = S Memory is inconsistent. Bit 8 = Special function program received from RLL is invalid.	x	x	x	x
STW00162	Special Function Processor Non-Fatal Errors. Bit 1, 1 = Port 1 communication error.** Bit 3, 1 = Port overrun error. Bit 4, 1 = Analog alarm overrun error. Bit 5, 1 = Cyclic special function programs overrun error. Bit 6, 1 = Normal special function program queue is full. Bit 7, 1 = Priority special function program queue is full. Bit 8, 1 = Cyclic special function program queue is full. Bit 9, 1 = Loop calculation error. Bit 10, 1 = Analog alarm calculation error. Bit 11, 1 = Control block disabled. Bit 12, 1 = Attempt to execute undefined special function program or subroutine.	x	x	x	x

	Bit 13, 1 = Attempt to invoke restricted special function program or subroutine.				
STW00163	Contains the number of the ladder subroutine that caused the stack overflow.	x	x	x	x
STW00164-00165	Contains the source RLL checksum (32 Bit integer).	x	x	x	x
STW00166-00167	Contains the compiled RLL checksum (32 Bit integer).	x	x	x	x
STW00168	Dual RBC Status. Bit 1-16 are bases 15-0. For each Bit: 0 = Dual RBC present and good. 1 = Error or single RBC.	x	x	x	x
STW00169-00175	Not used.	x	x	x	x
'STW00176	Dual Power Supply Status. Bit 1-16 are bases 15-0. For each Bit: 0 = Dual power supply present and good. 1 = Error or single power supply.	x	x	x	x
STW00177-00183	Not used.	x	x	x	x
STW00184	Module Mismatch Indicator. Bit 1, 1 = Module mismatch error. Bit 5-8 = Indicates the number of the base with the error.	x	x	x	x
STW00185-00190	Not used.	x	x	x	x
STW00191	Serial Port Print Status.	N/A,	N/A.	N/A.	x
STW00192	Discrete Execution Scan Time - The time spent on the last scan.	x	x	x	x
STW00193-199	Not used.	x	x	x	x
STW00200	User Program Error Cause (associated with Bit 6 of STW001). Codes are as follows: 0 = No error. 1 = Reference to an application that is not installed.*** 2 = Attempted to unlock a flag that is not held by an application.*** 3 = Mismatched lock/unlock instructions.*** 4 = Subroutine nesting level exceeded. 5 = Table overflow. 6 = Attempted to call a non-existent subroutine. 7 = VMEbus access failed due to a bus error.*** 8 = Special function program has not been compiled or does not exist. 9 = Special function program has been disabled. 10= Special function program type is restricted or cyclic. 11 = Special function program or subroutine is being edited. 12 = Special function program or subroutine is being executed by an interrupt task. 13 = User-scheduled fast loop is not configured. 14 = User-scheduled fast loop is disabled.	x	x	x	x
STW00201	First Scan Flags. Bit 1, 1 = First Run Mode scan or single scan after compile. Bit 2, 1 = First Run Mode scan or single scan after Program Mode.	x	x	x	x

	Bit 3, 1 = First Run Mode scan after transition from Hold Mode. Bit 9, 1 = First scan after battery bad power-up restart. Bit 10, 1 = First scan after battery good power-up restart. Bit 11, 1 = First scan after compile restart. Bit 12, 1 = First scan after partial restart.				
STW00202-00205	Not used.	x	x	x	x
STW00206-00207	U-Memory Checksum C0 (32 bit integer).	x	x	x	N/A.
STW00208-00209	U-Memory Checksum C1 (32 bit integer).	x	x	x	N/A.
STW00210	Base Poll Enabled Flags. Bit 1-16 are bases 15-0. For each Bit: 0 = Base cannot be polled. 1 = Base can be polled.	x	x	x	x
STW00211-00217	Profibus Poll Enable Flags. Each bit is 1 if the slave is defined and enabled. STW211 Bit 1-16 slave addresses 16-1. STW212 Bit 1-16 slave addresses 32-17. STW213 Bit 1-16 slave addresses 48-33. STW214 Bit 1-16 slave addresses 64-49. STW215 Bit 1-16 slave addresses 80-65. STW216 Bit 1-16 slave addresses 96-81. STW217 Bit 1-16 slave addresses 112-97.	x	x	x	x
STW00218	Not used.	x	x	x	x
STW00219	RLL Task Overrun. Bit 1, Task 1: 0 = Good, 1 = Task scan cycle overrun. Bit 2, Task 2: 0 = Good, 1 = Task scan cycle overrun.	x	x	x	N/A.
STW00220	Interrupting Slots in Local Base. Bit 1-16 are slots 16-1. For each Bit: 1 = Interrupt request active at module located in this slot.	x	x	N/A.	N/A.
STW00221	Module Interrupt Request Count.	x	x	N/A.	N/A.
STW00222	Spurious Interrupt Count.	N/A.	N/A.	x	N/A.
STW00223-00224	Binary Time of Day (32 bit integer).	x	x	x	x
STW00225	Binary Relative Day (with 1/1/1984 being day 0).	x	x	x	x
STW00226	Time of Day Status. Bit 1, 1 = Current time is prior to the time reported in the last task 1 RLL scan. Bit 2-9, Reserved. Bit 10, 1 = Time is valid. Bit 11, 1 = Time synchronization is over a network. Bit 12-13, Time Resolution. 00 = .001 second. 01 = .01 second. 02 = .1 second. 03 = 1 second. Bit 14, 1 = Time synchronization error. Bit 15, 1 = No time synchronization input for the time transmitter.	x	x	x	x
STW00227-00228	Bus Error Access Address.	N/A.	N/A.	x	N/A.
STW00229-00230	Bus Error Program Offset.	N/A.	N/A.	x	N/A.

STW0231	Profibus DP I/O Status. Bit 1, 1 = DP in operate state. Bit 2, 1 = DP in clear state. Bit 3, 1 = Error: Unable to download configuration to the Profibus interface. Bit 4, 1 = Error: Unable to retrieve slave diagnostics from the interface. Bit 5, 1 = DP bus error. Bit 16, 1 = DP I/O bus system in not configured.	x	x	x	x
STW00232-00238	Profibus I/O Diagnostics Status. Each bit is 1 if the slave signals a diagnostic that has not been read by a RSD RLL instruction. STW232 Bit 1-16 slave addresses 16-1. STW233 Bit 1-16 slave addresses 32-17. STW234 Bit 1-16 slave addresses 48-33. STW235 Bit 1-16 slave addresses 64-49. STW236 Bit 1-16 slave addresses 80-65. STW237 Bit 1-16 slave addresses 96-81. STW238 Bit 1-16 slave addresses 112-97.	x	x	x	x
STW00239-00240	Source Special Function Program/Subroutine Checksum.	x	x	x	x
STW00241-00242	Compiled Special Function Program/Subroutine Checksum.	x	x	x	x
STW00243	Reserved.	N/A.	N/A.	N/A.	x
STW00244	Additional Control Status Flags. Bit 1, Controller Mode 0 = Program Mode, 1 = Run Mode. Bit 2, Scan Mode 0 = Variable, 1 = Fixed. Bit 3, User Program Source 0 = Ram, 1 = Flash. Bit 4, Ethernet Port Link Status 1 = Connected. Bit 5, TCP/IP Network Status 1 = Operational. Bit 6, Duplicate IP Address Status 1 = Duplicate Detected.	N/A.	N/A.	N/A.	x
STW00245	Additional Controller Error Status. Bit 1, 1 = Fatal error present. Bit 2, Reserved. Bit 3, 1 = One or more remote bases are not communicating.	N/A.	N/A.	N/A.	x
STW00246	Fatal Error Code. This contains the fatal error code when a fatal error is present.	N/A.	N/A.	N/A.	x
STW00247-00257	CTI Support Diagnostics.	N/A.	N/A.	N/A.	x
STW00259	Product Serial Number.	N/A.	N/A.	N/A.	x
STW00260	Firmware Major Release Number.	N/A.	N/A.	N/A.	x
STW00261	Firmware Minor Release Number.	N/A.	N/A.	N/A.	x
STW00262-00298	CTI Support Diagnostics.	N/A.	N/A.	N/A.	x
STW00299	Peak Scan Time.	N/A.	N/A.	N/A.	x
STW00300-454	CTI Support Statistics.	N/A.	N/A.	N/A.	x
STW00455-00469	Remote Base Receive Errors. This contains the number of times that the controller encountered an error reading the response message from the remote base. STW 455 corresponds to remote base 1. STW 456 – STW 469 correspond to remote bases 2 – 15.	N/A.	N/A.	N/A.	x
STW00470	Not used.	N/A.	N/A.	N/A.	x
STW00471-00485	Abnormal Logoff Count – Remote Base 1 - 15. This contains the number of times that the controller	N/A.	N/A.	N/A.	x

	stopped communicating with the remote base due to communications errors or response timeouts. STW 471 corresponds to remote base 1. STW 472 – STW 485 correspond to remote bases 2 – 15.				
STW00486	Not used.	N/A.	N/A.	N/A.	x
STW00487-00501	Timeout Count – Remote Base 1 – 15. This contains the number of times that the base failed to respond to a request from the controller within the specified time. STW 487 corresponds to remote base 1. STW 488 – STW 501 correspond to remote bases 2 – 15.	N/A.	N/A.	N/A.	x

*For more information, refer to the register "STW200".
**Not used by the CTI 2500.
***This is only for CP575.

Error Descriptions

The following error/warning messages may be generated. Click on the link for a description of the message.

Address Validation

Missing address
Device address '<address>' contains a syntax error
Address '<address>' is out of range for the specified device or register
Data Type '<type>' is not valid for device address '<address>'
Device address '<address>' is Read Only
Array size is out of range for address '<address>'
Array support is not available for the specified address: '<address>'

Serial Communications

COMn does not exist
Error opening COMn
COMn is in use by another application
Unable to set comm parameters on COMn
Communications error on '<channel name>' [<error mask>]

Device Status Messages

Device '<device name>' is not responding
Unable to write to '<address>' on device '<device name>'

Simatic/TI 505 Serial Device Specific Messages

Unable to write tag '<address>' for device '<device name> : Error code <code>
Unable to read block starting at '<address>' for device '<device name>' : Error code <code>
Bad address in block [<start address> to <end address>] on device '<device name>'

See Also:

Error Codes

Address Validation

The following error/warning messages may be generated. Click on the link for a description of the message.

Address Validation

Missing address
Device address '<address>' contains a syntax error
Address '<address>' is out of range for the specified device or register
Data Type '<type>' is not valid for device address '<address>'
Device address '<address>' is Read Only
Array size is out of range for address '<address>'
Array support is not available for the specified address: '<address>'

Missing address

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically has no length.

Solution:

Re-enter the address in the client application.

Device address '<address>' contains a syntax error

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically contains one or more invalid characters.

Solution:
Re-enter the address in the client application.

Address '<address>' is out of range for the specified device or register

Error Type:
Warning

Possible Cause:
A tag address that has been specified dynamically references a location that is beyond the range of supported locations for the device.

Solution:
Verify that the address is correct; if it is not, re-enter it in the client application.

Data Type '<type>' is not valid for device address '<address>'

Error Type:
Warning

Possible Cause:
A tag address that has been specified dynamically has been assigned an invalid data type.

Solution:
Modify the requested data type in the client application.

Device address '<address>' is Read Only

Error Type:
Warning

Possible Cause:
A tag address that has been specified dynamically has a requested access mode that is not compatible with what the device supports for that address.

Solution:
Change the access mode in the client application.

Array size is out of range for address '<address>'

Error Type:
Warning

Possible Cause:
A tag address that has been specified dynamically is requesting an array size that is too large for the address type or block size of the driver.

Solution:
Re-enter the address in the client application to specify a smaller value for the array or a different starting point.

Array support is not available for the specified address: '<address>'

Error Type:
Warning

Possible Cause:
A tag address that has been specified dynamically contains an array reference for an address type that doesn't support arrays.

Solution:
Re-enter the address in the client application to remove the array reference or correct the address type.

Serial Communications

The following error/warning messages may be generated. Click on the link for a description of the message.

Serial Communications

COMn does not exist

Error Type:
Fatal

Possible Cause:
The specified COM port is not present on the target computer.

Solution:
Verify that the proper COM port has been selected.

Error opening COMn

Error Type:
Fatal

Possible Cause:
The specified COM port could not be opened due an internal hardware or software problem on the target computer.

Solution:
Verify that the COM port is functional and may be accessed by other Windows applications.

COMn is in use by another application

Error Type:
Fatal

Possible Cause:
The serial port assigned to a device is being used by another application.

Solution:
Verify that the correct port has been assigned to the channel.

Unable to set comm parameters on COMn

Error Type:
Fatal

Possible Cause:
The serial parameters for the specified COM port are not valid.

Solution:
Verify the serial parameters and make any necessary changes.

Communications error on '<channel name>' [<error mask>]

Error Type:
Serious

Error Mask Definitions:
B = Hardware break detected.
F = Framing error.
E = I/O error.
O = Character buffer overrun.
R = RX buffer overrun.
P = Received byte parity error.

T = TX buffer full.

Possible Cause:
1. The serial connection between the device and the host PC is bad.
2. The communications parameters for the serial connection are incorrect.

Solution:
1. Verify the cabling between the PC and the device.
2. Verify that the specified communications parameters match those of the device.

Device Status Messages

The following error/warning messages may be generated. Click on the link for a description of the message.

Device Status Messages
Device '<device name>' is not responding
Unable to write to '<address>' on device '<device name>'

Device '<device name>' is not responding

Error Type:
Serious

Possible Cause:
1. The serial connection between the device and the host PC is broken.
2. The response from the device took longer to receive than the amount of time specified in the "Request Timeout" device setting.
3. The communications parameters for the serial connection are incorrect.

Solution:
1. Verify the cabling between the PC and the device.
2. Increase the Request Timeout setting so that the entire response can be handled.
3. Verify the baud rate selected matches that of the device.
4. If NITP protocol is selected, ensure that odd parity and 7 data bits are selected.
5. If TB protocol is selected, ensure that no parity and 8 data bits are selected.
6. Make sure that RTS_ALWAYS flow control is selected.

Unable to write to '<address>' on device '<device name>'

Error Type:
Serious

Possible Cause:
1. The serial connection between the device and the host PC is broken.
2. The communications parameters for the serial connection are incorrect.

Solution:
1. Verify the cabling between the PC and the device.
2. Verify that the specified communications parameters match those of the device.

Simatic/TI 505 Serial Device Specific Messages

The following error/warning messages may be generated. Click on the link for a description of the message.

Simatic/TI 505 Serial Device Specific Messages
Unable to write tag '<address>' for device '<device name> : Error code <code>
Unable to read block starting at '<address>' for device '<device name>' : Error code <code>
Bad address in block [<start address> to <end address>] on device '<device name>'

Unable to write tag <address> for device <device name>: Error code <code>

Error Type:
Serious

Possible Cause:
1. The address does not exist in the device.

2. The location is read only in the device.
3. The device could not perform the write operation.

Solution:
Refer to the list of error codes.

See Also:
Error Codes

Unable to read block starting at <address> for device <device name>: Error code <code>

Error Type:
Serious

Possible Cause:
1. The address does not exist in the device.
2. The device could not perform the read operation.

Solution:
Refer to the list of error codes.

See Also:
Error Codes

Bad address in block [<start address> to <end address>] on device '<device name>'

Error Type:
Serious

Possible Cause:
An attempt has been made to reference a nonexistent location in the specified device.

Solution:
Verify the tags assigned to addresses in the specified range on the device and eliminate ones that reference invalid locations.

Error Codes

Error Code	Description
2	Address out of range
3	Requested data not found
4	Illegal task code requested
7	Fatal error detected
9	Incorrect amount of data sent with request
10	Illegal request in current operational mode
12	Attempted write operation did not verify
13	Illegal number of ASCII characters received (NITP)
15	Data not inserted
16	Data not written
17	Invalid data sent with command
19	The store and forward buffer is busy
22	Attempted to write to a protected variable
28	Processor busy - Cannot complete the requested operation

Note: If the error code returned is 2, the driver will remove the tags in the block from its scan list.

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