

# **Yokogawa Darwin Serial Driver Help**

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## Yokogawa Darwin Serial Driver Help

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Help version 1.015

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### Overview

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The Yokogawa Darwin Serial Driver provides an easy and reliable way to connect Yokogawa Darwin Serial devices to OPC Client applications, including HMI, SCADA, Historian, MES, ERP and countless custom applications. It is intended for use with Yokogawa Data Acquisition and Data Recorder devices that support RS-232 and RS-422 communications.

## Device Setup

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### Supported Yokogawa Devices

DA100-1  
DA100-2  
DR131  
DR231  
DR232  
DR241  
DR242  
DC100-1  
DC100-2

### Supported Communication Parameters

Baud Rate: 300, 600, 1200, 2400, 9600, 19200 or 38400  
Parity: None, Even or Odd  
Data Bits: 8  
Stop Bits: 1 or 2  
Flow Control: None, RTS or DTR

**Note 1:** Software handshaking is not available.

**Note 2:** This driver makes use of binary data formatting when reading information from Yokogawa devices. This requires that data bit setting 8 be used.

### RS-232 and RS-422/485 Operation

Yokogawa Darwin devices can support RS-232 or RS-422/485 operation. The mode used depends on the configuration of the OPC server project.

If intending to connect to a Darwin device using RS-232, select a Device ID of zero (0). This tells the driver to use the RS-232 mode for communications. If intending to use either RS-422 or RS-485 communications, select a Device ID for each station that is between 1 and 16 for RS-422 and 1 and 31 for RS-485. When using RS-232, only configure one device on the channel.

### Request Timeout

This parameter specifies the amount of time that the driver will wait for a response from the device before giving up and going on to the next request. Long timeouts will only affect performance if a device is not responding. The default setting is 5000 milliseconds. The valid range is 100 to 30000 milliseconds.

### Retry Attempts

This parameter specifies the number of times that the driver will retry a message before giving up and going on to the next message. The default setting is 3 retries. The valid range is 1 to 10.

**Note:** For more information, refer to the OPC server's help documentation.

### Device Configuration Parameters

#### Special Data Handling

The Special Data Handling setting allows the driver to be configured to return specific data values for numerical out of range and error conditions returned from the device.

Special Data Handling options are **None**, **+INF**, and **-INF**. If Special Data Handling is set to None, special data values will be returned with the actual data value received from the device. For example, the data value of a measuring channel Over Range would be returned as 32,767 and the data value of a math channel Over Range would be returned as 2,147,450,879.

If Special Data Handling is set to +INF, special data values will be returned as a numerical representation of positive infinity (**#INF**), with the exception of an Under Range condition that is always returned as negative infinity. When Special Data Handling is set to NEG INF, special data values will be returned as a numerical representation of negative infinity (**-#INF**), with the exception of an Over Range condition that is always returned as positive infinity.

#### Start math when start

When checked, this option will inform the driver to send a command to the device at communication startup that will start the math computation.

#### Date & Time

This parameter specifies the origin of the data value of the Date and Time data types, which represent the date and time of the latest data. Options include **Device Time** and **System Time**. If Device Time is selected, the tags will return the date and time read from the device. This represents the date and time of the latest data that was measured or computed based on the internal device clock. If System Time is selected, the tags will return the date and time of the requested data that was returned from the device based on the PC system clock.

#### Date Format

This parameter specifies the format of the return string for the Date data type. Date formats can be specified as **MM/DD/YY** (month/day/year), **YY/MM/DD** (year/month/day) or **DD/MM/YY** (day/month/year).

#### Set clock when start

When checked, this option will inform the driver to send a command to the device at communication startup that will set the device clock to the date and time settings of the system clock.

#### Generate tag database using:

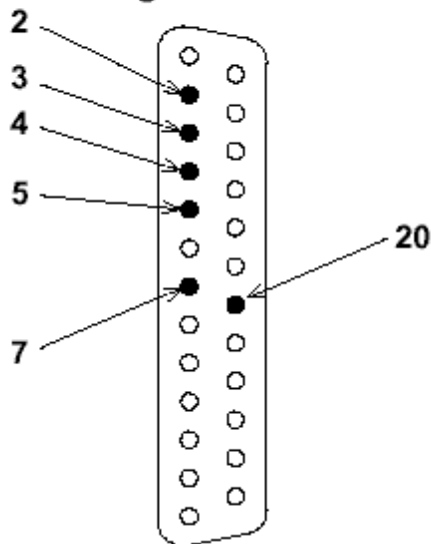
This parameter specifies the origin of the tag name used when automatically generating a tag database. The options are **Physical Channel Number** and **Device Tag name**. If Physical Channel Number is selected, the driver will generate tag names based on the channel number of an item. For example, CH001 or CH001\_alarm1. If Device Tag name is selected, the driver will generate tag names using the tag name returned by the device for a channel. For example, Flow or Flow\_alarm1.

#### Device ID

When operating in RS-232 mode, the Device ID has no meaning for this driver. When the driver is operating in the RS-422 mode, the Device ID has a valid range of 1 to 31. The default setting is 1.

#### Cable Diagrams

##### RS-232 Connector and Signal Names

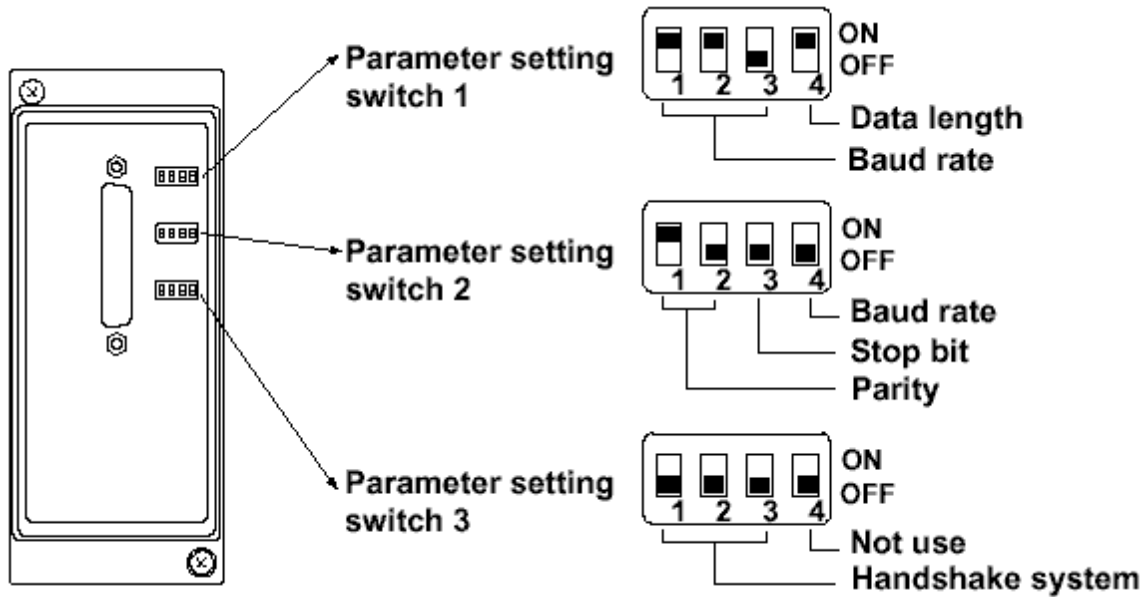


2. **TXD (Send Data)**: Data transmitted to the host computer.
3. **RXD (Received Data)**: Data received from the host computer.
4. **RTS (Request to Send)**: Handshake signal used for reception of data from the host computer.
5. **CTS (Clear to Send)**: Handshake signal used for transmission of data to the host computer.
7. **GND (Signal Ground)**: Signal ground connection.
20. **DTR (Equipment Ready)**: Handshake signal used for reception of data from the host computer.

**Note:** Pin numbers 1, 6 and 8 to 19 are not used.

#### RS-232 Communications Module Settings

The default settings are shown in bold.



**Baud Rate (No.1 to 3 of Setting Switch 1 and No.4 of Setting Switch 2)**  
**Baud Rate No.1 No.2 No.3 No.4 (Switch 2)**

00	OFF	OFF	ON	OFF
600	OFF	ON	OFF	OFF
1200	OFF	ON	ON	OFF
2400	ON	OFF	OFF	OFF
4800	ON	OFF	ON	OFF
<b>9600</b>	<b>ON</b>	<b>ON</b>	<b>OFF</b>	<b>OFF</b>
19200	ON	ON	ON	OFF
8400	OFF	OFF	OFF	ON

**Data Length (Switch No.4 of Parameter Setting Switch 1)**  
**Data Length No.4**

- 7. OFF
- 8. ON -Default

**Parity (Switch No.1 and 2 of Parameter Setting Switch 2)**  
**Parity No.1 No.2**

NONE	OFF	OFF
ODD	OFF	ON
<b>EVEN</b>	<b>ON</b>	<b>OFF</b>

**Stop Bit (Switch No.3 of Parameter Setting Switch 2)**  
**Stop Bit No.4**

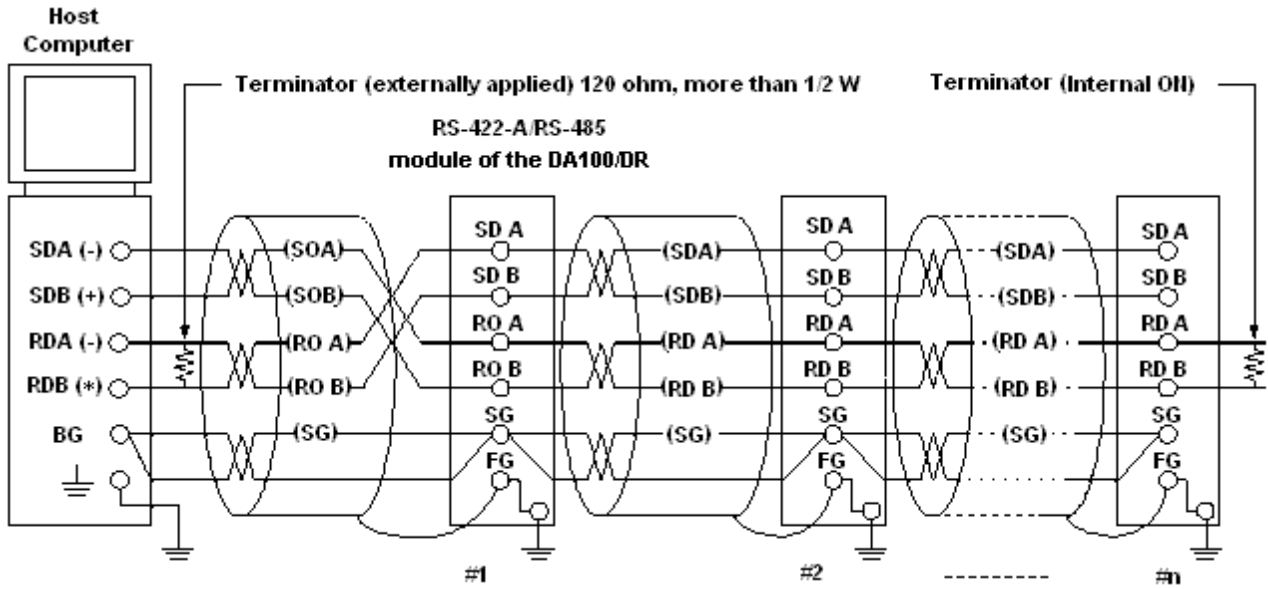
- 1. OFF - Default
- 2. ON

**Handshake System (Switch No.1 to 3 of Parameter Setting Switch 3)**  
**Handshake System No.1 No.2 No.3**

<b>No Handshake</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>
XON-ER*	OFF	OFF	ON
XON-RS*	OFF	ON	OFF
CS-ER	OFF	ON	ON
CS-RS	ON	OFF	OFF

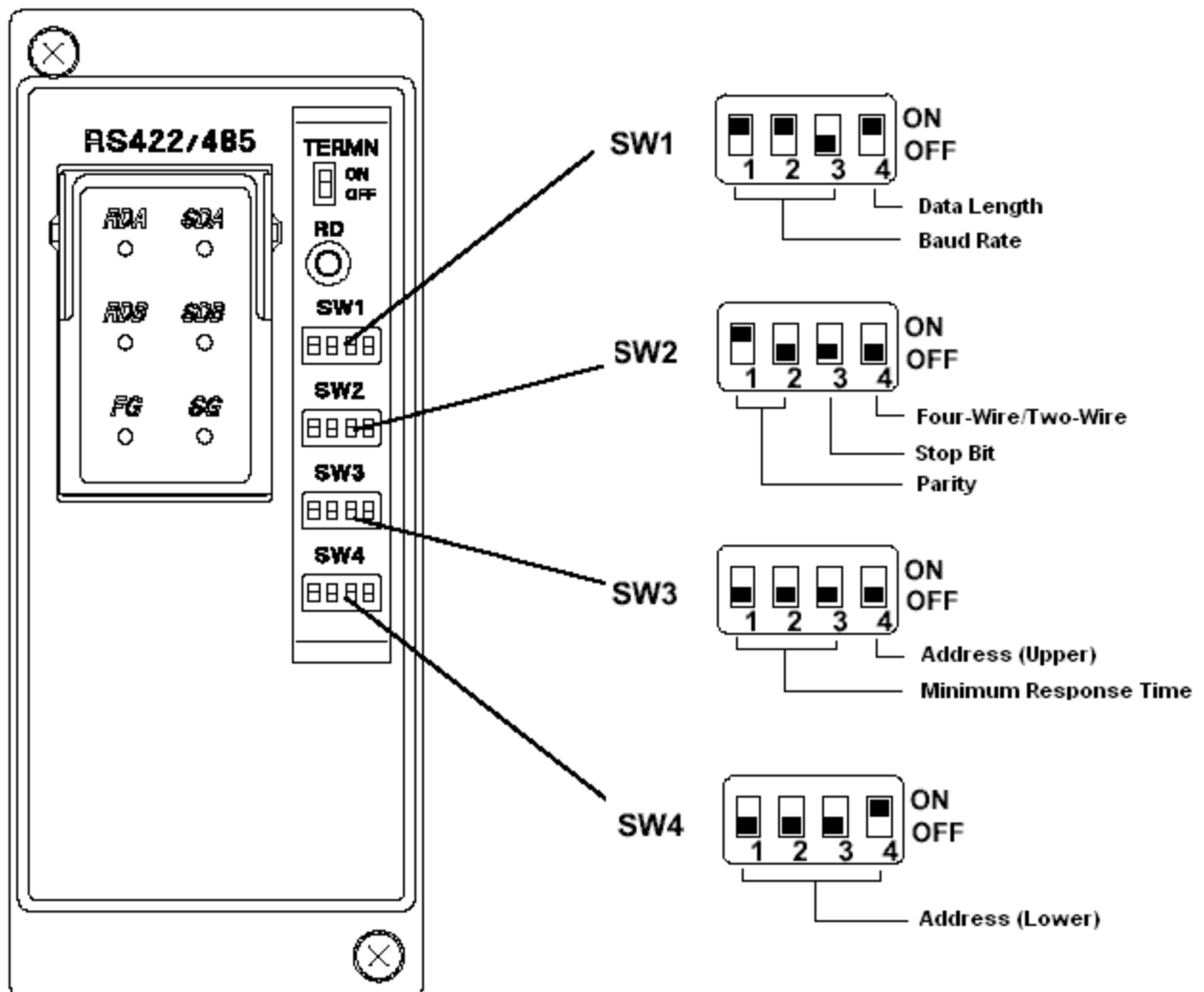
\*When the baud rate is set to 38400, there is no handshaking.

**Note:** Handshaking must be set to **No Handshake** at all times.



**Note:** No terminators are inserted between #1 through #n-1 (terminator OFF).

**RS-422 Cable Diagram**



**RS-232 Communications Module Settings****Baud Rate (No.1 to 3 of SW1)****Baud Rate No.1 No.2 No.3**

00	OFF	OFF	ON
600	OFF	ON	OFF
1200	OFF	ON	ON
2400	ON	OFF	OFF
4800	ON	OFF	ON
<b>9600</b>	<b>ON</b>	<b>ON</b>	<b>OFF</b>
19200	ON	ON	ON
38400	OFF	OFF	OFF

**Data Length (No.4 of SW1)****Data Length No.4**

7. OFF

8. ON- Default Setting

**Parity (No.1 to 2 of SW2)****Parity No.1 No.2**

NONE	OFF	OFF
ODD	OFF	ON
<b>EVEN</b>	<b>ON</b>	<b>OFF</b>

**Stop Bit (No.3 of SW2)****Stop Bit No.3**

1. OFF - Default Setting

2. ON

**Switch Between Four-Wire/Two-Wire Systems (No.4 of SW2)****Four-Wire/Two-Wire No.4**

<b>Four-Wire</b>	<b>OFF</b>
Two-Wire	ON

**Minimum Response Time (No.1 to 3 of SW3)****Minimum Response Time No.1 No.2 No.3**

<b>0ms</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>
10ms	OFF	OFF	ON
20ms	OFF	ON	OFF
50ms	OFF	ON	ON
100ms	ON	OFF	OFF

**Address (No.4 of SW3 and No.1 to 4 of SW4)****Address No.4 (SW3) No.1 (SW4) No.2 (SW4) No.3 (SW4) No.4 (SW4)**

<b>1</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>ON</b>
2	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	ON	ON
4	OFF	OFF	ON	OFF	OFF
5	OFF	OFF	ON	OFF	ON
6	OFF	OFF	ON	ON	OFF
7	OFF	OFF	ON	ON	ON
8	OFF	ON	OFF	OFF	OFF
9	OFF	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON	OFF
11	OFF	ON	OFF	ON	ON



12	OFF	ON	ON	OFF	OFF
13	OFF	ON	ON	OFF	ON
14	OFF	ON	ON	ON	OFF
15	OFF	ON	ON	ON	ON
16	ON	OFF	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON
18	ON	OFF	OFF	ON	OFF
19	ON	OFF	OFF	ON	ON
20	ON	OFF	ON	OFF	OFF
21	ON	OFF	ON	OFF	ON
22	ON	OFF	ON	ON	OFF
23	ON	OFF	ON	ON	ON
24	ON	ON	OFF	OFF	OFF
25	ON	ON	OFF	OFF	ON
26	ON	ON	OFF	ON	OFF
27	ON	ON	OFF	ON	ON
28	ON	ON	ON	OFF	OFF
29	ON	ON	ON	OFF	ON
30	ON	ON	ON	ON	OFF
31	ON	ON	ON	ON	ON

### Modem Setup

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This driver supports modem functionality. For more information, please refer to the topic "Modem Support" in the OPC server's help documentation.

## Data Types Description

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<b>Data Type</b>	<b>Description</b>
Boolean	Single bit
Byte	Unsigned 8 bit value
Word	Unsigned 16 bit value
Short	Signed 16 bit value
Float	32 bit floating point value
Double	64 bit floating point value
String	Null terminated ASCII string

## 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.

[DA100-1 Addressing](#)

[DA100-2 Addressing](#)

[DR130 Addressing](#)

[DR231 Addressing](#)

[DR232 Addressing](#)

[DR241 Addressing](#)

[DR242 Addressing](#)

[DC100-1 Addressing](#)

[DC100-2 Addressing](#)

## DA100-1 Addressing

The driver supports the following addresses for this device. The default data type for each address type is shown in **bold**.

### Measured Channels

Address Type	Format	Range	Data Types	Access
Process Value of Channel	CHxxx or CHxxx.PV	001-060	<b>Double</b> , Float	Read Only
Alarm Summary of Channel	CHxxx.Alarm	001-060	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Channel	CHxxx.Alarm1	001-060	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Channel	CHxxx.Alarm2	001-060	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Channel	CHxxx.Alarm3	001-060	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Channel	CHxxx.Alarm4	001-060	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHxxx.ASP1	001-060	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHxxx.ASP2	001-060	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHxxx.ASP3	001-060	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHxxx.ASP4	001-060	<b>Double</b> , Float	Read/Write
Upper Scale Value of Channel*	CHxxx.scale_Hi	001-060	<b>Double</b> , Float	Read Only
Lower Scale Value of Channel*	CHxxx.scale_Lo	001-060	<b>Double</b> , Float	Read Only
Unit String of Channel*	CHxxx.unit	001-060	<b>String</b>	Read Only
Tagname of Channel*	CHxxx.tag	001-060	<b>String</b>	Read Only
Status of Channel*	CHxxx.status	001-060	<b>String</b>	Read Only
Lowest Measuring Channel*	CH.Low		<b>Short</b> , Word, Byte	Read Only
Highest Measuring Channel*	CH.High		<b>Short</b> , Word, Byte	Read Only

### Math Channels

Address Type	Format	Range	Data Types	Access
Process Value of Math Channel	CHAxX or CHAxX.PV	01-30	<b>Double</b> , Float	Read Only
Alarm Summary of Math Channel	CHAxX.Alarm	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Math Channel	CHAxX.Alarm1	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Math Channel	CHAxX.Alarm2	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Math Channel	CHAxX.Alarm3	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Math Channel	CHAxX.Alarm4	01-30	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHAxX.ASP1	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHAxX.ASP2	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHAxX.ASP3	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHAxX.ASP4	01-30	<b>Double</b> , Float	Read/Write
Upper Scale Value of Math Channel*	CHAxX.scale_Hi	01-30	<b>Double</b> , Float	Read Only
Lower Scale Value of Math Channel*	CHAxX.scale_Lo	01-30	<b>Double</b> , Float	Read Only
Unit String of Math Channel*	CHAxX.unit	01-30	<b>String</b>	Read Only
Tagname of Math Channel*	CHAxX.tag	01-30	<b>String</b>	Read Only
Status of Math Channel*	CHAxX.status	01-30	<b>String</b>	Read Only
Lowest Math Channel*	CHA.Low		<b>Short</b> , Word, Byte	Read Only
Highest Math Channel*	CHA.High		<b>Short</b> , Word, Byte	Read Only

\*Data associated with these addresses are read from the device only at the start of a communications session. Once read, the values will not be refreshed until the server has been restarted or the "Reset" tag has been invoked. To invoke a reset, write a non zero value to the Reset tag. Once the Reset tag has been invoked, the driver will reinitialize all startup data from the device.

### Alarm Setpoints

Data values for alarm setpoints that are undefined in the device will be returned as +INF. Data values can only be written to alarm setpoints that are defined in the device. Write operations to undefined alarm setpoints will return an error. Alarm setpoint values are read one channel at a time. For devices with a large number of channels, increasing the scan rate of ASP items and/or reducing the number of active ASP items will increase the read performance of the PV and alarm data.

### Scales

Data values for Scale\_Hi and Scale\_Lo for channels that are skipped will be returned as +INF.

### Tag Names

For devices that do not support tag names (and channels that have unspecified tag names) the driver will construct an internal tag name based on the channel number. For example, the tag name of address 'CH001' will be returned as 'CH001'.

### General Device Data

Address Type	Format	Range	Data Types	Access
Date of Last Data	Date		<b>String</b>	Read Only
Time of Last Data	Time		<b>String</b>	Read Only
Model Name of Device*	Model		<b>String</b>	Read Only
Digital Output (Main Unit)	DOxxx	001-060	<b>Boolean</b>	Read/Write
Digital Output (Internal Switch)	DOSxx	01-60	<b>Boolean</b>	Read/Write
Math Communication Data**	CDxx	01-30	<b>Short, Word, Byte</b>	Write Only
Control Math Execution	MathControl		<b>Short, Word, Byte</b>	Write Only
Reset Alarms	AlarmReset		<b>Boolean</b>	Write Only
Control Command and Response	Command		<b>String</b>	Read/Write
Direct Reloading of Configuration	Reset		<b>Boolean</b>	Write Only

\*The model address type that returns the model name of the device may return 'DR231' for models of type DR241 and 'DR232' for models of type DR242.

\*\*The CD address type is only valid for devices equipped with the math option. Write operations to CD addresses for non-math equipped devices will return an error. The range of valid data for addresses 'CDxx' is -32000 to 32000. CD data values are converted in the device from a whole number to a real number based on the decimal point placement specified for the associated math channel. For example, the device would interpret a data value of 32000 written to a CD address location with a decimal point placement of .000 as 32.000.

### Control Math Execution

The MathControl address type is only available for devices equipped with the math option. Write operations to the MathControl tag for non-math equipped devices will return an error.

### Control Command and Response

The Command address allows the user to send a string command and receive a string response to and from the device. This means that any command can be sent to the device, including commands not directly supported by the driver. Write operations using the Command address should be performed with extreme caution.

**Note 1:** The actual number of addresses available for of each type depends on the Yokogawa device's configuration. If the driver finds at Runtime that an address is not present in the device, it will post an error message and remove the tag from its scan list.

**Note 2:** Addresses that have Write Only access are assigned a default access of Read/Write. Data values are unreadable for these addresses, however, and the associated tags are not included in the scan list. The current data value for these tags will always be 0 for numeric data types and null string for string data types.

## DA100-2 Addressing

The driver supports the following addresses for this device. The default data type for each address type is shown in **bold**.

### Measured Channels

Address Type	Format	Range	Data Types	Access
Process Value of Channel	CHxxx or CHxxx.PV	001-560	<b>Double</b> , Float	Read Only
Alarm Summary of Channel	CHxxx.Alarm	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Channel	CHxxx.Alarm1	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Channel	CHxxx.Alarm2	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Channel	CHxxx.Alarm3	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Channel	CHxxx.Alarm4	001-560	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHxxx.ASP1	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHxxx.ASP2	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHxxx.ASP3	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHxxx.ASP4	001-560	<b>Double</b> , Float	Read/Write
Upper Scale Value of Channel*	CHxxx.scale_Hi	001-560	<b>Double</b> , Float	Read Only
Lower Scale Value of Channel*	CHxxx.scale_Lo	001-560	<b>Double</b> , Float	Read Only
Unit String of Channel*	CHxxx.unit	001-560	<b>String</b>	Read Only
Tagname of Channel*	CHxxx.tag	001-560	<b>String</b>	Read Only
Status of Channel*	CHxxx.status	001-560	<b>String</b>	Read Only
Lowest Measuring Channel*	CH.Low		<b>Short</b> , Word, Byte	Read Only
Highest Measuring Channel*	CH.High		<b>Short</b> , Word, Byte	Read Only

### Math Channels

Address Type	Format	Range	Data Types	Access
Process Value of Math Channel	CHAxX or CHAxX.PV	01-60	<b>Double</b> , Float	Read Only
Alarm Summary of Math Channel	CHAxX.Alarm	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Math Channel	CHAxX.Alarm1	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Math Channel	CHAxX.Alarm2	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Math Channel	CHAxX.Alarm3	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Math Channel	CHAxX.Alarm4	01-60	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHAxX.ASP1	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHAxX.ASP2	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHAxX.ASP3	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHAxX.ASP4	01-60	<b>Double</b> , Float	Read/Write
Upper Scale Value of Math Channel*	CHAxX.scale_Hi	01-60	<b>Double</b> , Float	Read Only
Lower Scale Value of Math Channel*	CHAxX.scale_Lo	01-60	<b>Double</b> , Float	Read Only
Unit String of Math Channel*	CHAxX.unit	01-60	<b>String</b>	Read Only
Tagname of Math Channel*	CHAxX.tag	01-60	<b>String</b>	Read Only
Status of Math Channel*	CHAxX.status	01-60	<b>String</b>	Read Only
Lowest Math Channel*	CHA.Low		<b>Short</b> , Word, Byte	Read Only
Highest Math Channel*	CHA.High		<b>Short</b> , Word, Byte	Read Only

\*Data associated with these addresses are read from the device only at the start of a communications session. Once read, the values will not be refreshed until the server has been restarted or the "Reset" tag has been invoked. To invoke a reset, write a non-zero value to the Reset tag. Once the Reset tag has been invoked, the driver will reinitialize all startup data from the device.

### Alarm Setpoints

Data values for alarm setpoints that are undefined in the device will be returned as +INF. Data values can only be written to alarm setpoints that are defined in the device. Write operations to undefined alarm setpoints will return an error. Alarm setpoint values are read one channel at a time. For devices with a large number of channels, increasing the scan rate of ASP items and/or reducing the number of active ASP items will increase the read performance of the PV and alarm data.

### Scales

Data values for Scale\_Hi and Scale\_Lo for channels that are skipped will be returned as +INF.

### Tag Names

For devices that do not support tag names (and channels that have unspecified tag names) the driver will construct an internal tag name based on the channel number. For example, the tag name of address 'CH001' will be returned as 'CH001'.

### General Device Data

Address Type	Format	Range	Data Types	Access
Date of Last Data	Date		<b>String</b>	Read Only
Time of Last Data	Time		<b>String</b>	Read Only
Model Name of Device*	Model		<b>String</b>	Read Only
Digital Output (Main Unit)	DOIxx	01-60	<b>Boolean</b>	Read/Write
Digital Output (Internal Switch)	DOSxx	01-60	<b>Boolean</b>	Read/Write
Digital Output (Sub Units)	DOxxx	001-560	<b>Boolean</b>	Read/Write
Math Communication Data**	CDxx	01-60	<b>Short, Word, Byte</b>	Write Only
Control Math Execution	MathControl		<b>Short, Word, Byte</b>	Write Only
Reset Alarms	AlarmReset		<b>Boolean</b>	Write Only
Control Command and Response	Command		<b>String</b>	Read/Write
Direct Reloading of Configuration	Reset		<b>Boolean</b>	Write Only

\*The model address type that returns the model name of the device may return 'DR231' for models of type DR241 and 'DR232' for models of type DR242.

\*\*The CD address type is only valid for devices equipped with the math option. Write operations to CD addresses for non-math equipped devices will return an error. The range of valid data for addresses 'CDxx' is -32000 to 32000. CD data values are converted in the device from a whole number to a real number based on the decimal point placement specified for the associated math channel. For example, the device would interpret a data value of 32000 written to a CD address location with a decimal point placement of .000 as 32.000.

### Control Math Execution

The MathControl address type is only available for devices equipped with the math option. Write operations to the MathControl tag for non-math equipped devices will return an error.

### Control Command and Response

The Command address allows the user to send a string command and receive a string response to and from the device. This means that any command can be sent to the device, including commands not directly supported by the driver. Write operations using the Command address should be performed with extreme caution.

**Note 1:** The actual number of addresses available for of each type depends on the Yokogawa device's configuration. If the driver finds at Runtime that an address is not present in the device, it will post an error message and remove the tag from its scan list.

**Note 2:** Addresses that have Write Only access are assigned a default access of Read/Write. Data values are unreadable for these addresses, however, and the associated tags are not included in the scan list. The current data value for these tags will always be 0 for numeric data types and null string for string data types.

## DR130 Addressing

The driver supports the following addresses for this device. The default data type for each address type is shown in **bold**.

### Measured Channels

Address Type	Format	Range	Data Types	Access
Process Value of Channel	CHxxx or CHxxx.PV	001-020	<b>Double</b> , Float	Read Only
Alarm Summary of Channel	CHxxx.Alarm	001-020	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Channel	CHxxx.Alarm1	001-020	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Channel	CHxxx.Alarm2	001-020	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Channel	CHxxx.Alarm3	001-020	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Channel	CHxxx.Alarm4	001-020	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHxxx.ASP1	001-020	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHxxx.ASP2	001-020	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHxxx.ASP3	001-020	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHxxx.ASP4	001-020	<b>Double</b> , Float	Read/Write
Upper Scale Value of Channel*	CHxxx.scale_Hi	001-020	<b>Double</b> , Float	Read Only
Lower Scale Value of Channel*	CHxxx.scale_Lo	001-020	<b>Double</b> , Float	Read Only
Unit String of Channel*	CHxxx.unit	001-020	<b>String</b>	Read Only
Tagname of Channel*	CHxxx.tag	001-020	<b>String</b>	Read Only
Status of Channel*	CHxxx.status	001-020	<b>String</b>	Read Only
Lowest Measuring Channel*	CH.Low		<b>Short</b> , Word, Byte	Read Only

Highest Measuring Channel*	CH.High		<b>Short</b> , Word, Byte	Read Only
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### Math Channels

Address Type	Format	Range	Data Types	Access
Process Value of Math Channel	CHAxX or CHAxX.PV	01-30	<b>Double</b> , Float	Read Only
Alarm Summary of Math Channel	CHAxX.Alarm	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Math Channel	CHAxX.Alarm1	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Math Channel	CHAxX.Alarm2	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Math Channel	CHAxX.Alarm3	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Math Channel	CHAxX.Alarm4	01-30	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHAxX.ASP1	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHAxX.ASP2	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHAxX.ASP3	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHAxX.ASP4	01-30	<b>Double</b> , Float	Read/Write
Upper Scale Value of Math Channel*	CHAxX.scale_Hi	01-30	<b>Double</b> , Float	Read Only
Lower Scale Value of Math Channel*	CHAxX.scale_Lo	01-30	<b>Double</b> , Float	Read Only
Unit String of Math Channel*	CHAxX.unit	01-30	<b>String</b>	Read Only
Tagname of Math Channel*	CHAxX.tag	01-30	<b>String</b>	Read Only
Status of Math Channel*	CHAxX.status	01-30	<b>String</b>	Read Only
Lowest Math Channel*	CHA.Low		<b>Short</b> , Word, Byte	Read Only
Highest Math Channel*	CHA.High		<b>Short</b> , Word, Byte	Read Only

\*Data associated with these addresses are read from the device only at the start of a communications session. Once read, the values will not be refreshed until the server has been restarted or the "Reset" tag has been invoked. To invoke a reset, write a non-zero value to the Reset tag. Once the Reset tag has been invoked, the driver will reinitialize all startup data from the device.

### Alarm Setpoints

Data values for alarm setpoints that are undefined in the device will be returned as +INF. Data values can only be written to alarm setpoints that are defined in the device. Write operations to undefined alarm setpoints will return an error. Alarm setpoint values are read one channel at a time. For devices with a large number of channels, increasing the scan rate of ASP items and/or reducing the number of active ASP items will increase the read performance of the PV and alarm data.

### Scales

Data values for Scale\_Hi and Scale\_Lo for channels that are skipped will be returned as +INF.

### Tag Names

For devices that do not support tag names (and channels that have unspecified tag names) the driver will construct an internal tag name based on the channel number. For example, the tag name of address 'CH001' will be returned as 'CH001'.

### General Device Data

Address Type	Format	Range	Data Types	Access
Date of Last Data	Date		<b>String</b>	Read Only
Time of Last Data	Time		<b>String</b>	Read Only
Model Name of Device*	Model		<b>String</b>	Read Only
Math Communication Data**	CDxx	01-30	<b>Short</b> , Word, Byte	Write Only
Control Math Execution	MathControl		<b>Short</b> , Word, Byte	Write Only
Reset Alarms	AlarmReset		<b>Boolean</b>	Write Only
Control Command and Response	Command		<b>String</b>	Read/Write
Direct Reloading of Configuration	Reset		<b>Boolean</b>	Write Only

\*The model address type that returns the model name of the device may return 'DR231' for models of type DR241 and 'DR232' for models of type DR242.

\*\*The CD address type is only valid for devices equipped with the math option. Write operations to CD addresses for non-math equipped devices will return an error. The range of valid data for addresses 'CDxx' is -32000 to 32000. CD data values are converted in the device from a whole number to a real number based on the decimal point placement specified for the associated math channel. For example, the device would interpret a data value of 32000 written to a CD address location with a decimal point placement of .000 as 32.000.

**Control Math Execution**

The MathControl address type is only available for devices equipped with the math option. Write operations to the MathControl tag for non-math equipped devices will return an error.

**Control Command and Response**

The Command address allows the user to send a string command and receive a string response to and from the device. This means that any command can be sent to the device, including commands not directly supported by the driver. Write operations using the Command address should be performed with extreme caution.

**Note 1:** The actual number of addresses available for of each type depends on the Yokogawa device's configuration. If the driver finds at Runtime that an address is not present in the device, it will post an error message and remove the tag from its scan list.

**Note 2:** Addresses that have Write Only access are assigned a default access of Read/Write. Data values are unreadable for these addresses, however, and the associated tags are not included in the scan list. The current data value for these tags will always be 0 for numeric data types and null string for string data types.

**DR231 Addressing**

The driver supports the following addresses for this device. The default data type for each address type is shown in **bold**.

**Measured Channels**

Address Type	Format	Range	Data Types	Access
Process Value of Channel	CHxxx or CHxxx.PV	001-040	<b>Double</b> , Float	Read Only
Alarm Summary of Channel	CHxxx.Alarm	001-040	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Channel	CHxxx.Alarm1	001-040	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Channel	CHxxx.Alarm2	001-040	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Channel	CHxxx.Alarm3	001-040	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Channel	CHxxx.Alarm4	001-040	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHxxx.ASP1	001-040	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHxxx.ASP2	001-040	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHxxx.ASP3	001-040	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHxxx.ASP4	001-040	<b>Double</b> , Float	Read/Write
Upper Scale Value of Channel*	CHxxx.scale_Hi	001-040	<b>Double</b> , Float	Read Only
Lower Scale Value of Channel*	CHxxx.scale_Lo	001-040	<b>Double</b> , Float	Read Only
Unit String of Channel*	CHxxx.unit	001-040	<b>String</b>	Read Only
Tagname of Channel*	CHxxx.tag	001-040	<b>String</b>	Read Only
Status of Channel*	CHxxx.status	001-040	<b>String</b>	Read Only
Lowest Measuring Channel*	CH.Low		<b>Short</b> , Word, Byte	Read Only
Highest Measuring Channel*	CH.High		<b>Short</b> , Word, Byte	Read Only

**Math Channels**

Address Type	Format	Range	Data Types	Access
Process Value of Math Channel	CHAxX or CHAxX.PV	01-30	<b>Double</b> , Float	Read Only
Alarm Summary of Math Channel	CHAxX.Alarm	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Math Channel	CHAxX.Alarm1	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Math Channel	CHAxX.Alarm2	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Math Channel	CHAxX.Alarm3	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Math Channel	CHAxX.Alarm4	01-30	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHAxX.ASP1	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHAxX.ASP2	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHAxX.ASP3	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHAxX.ASP4	01-30	<b>Double</b> , Float	Read/Write
Upper Scale Value of Math Channel*	CHAxX.scale_Hi	01-30	<b>Double</b> , Float	Read Only
Lower Scale Value of Math Channel*	CHAxX.scale_Lo	01-30	<b>Double</b> , Float	Read Only
Unit String of Math Channel*	CHAxX.unit	01-30	<b>String</b>	Read Only
Tagname of Math Channel*	CHAxX.tag	01-30	<b>String</b>	Read Only
Status of Math Channel*	CHAxX.status	01-30	<b>String</b>	Read Only



Lowest Math Channel*	CHA.Low		<b>Short</b> , Word, Byte	Read Only
Highest Math Channel*	CHA.High		<b>Short</b> , Word, Byte	Read Only

\*Data associated with these addresses are read from the device only at the start of a communications session. Once read, the values will not be refreshed until the server has been restarted or the "Reset" tag has been invoked. To invoke a reset, write a non-zero value to the Reset tag. Once the Reset tag has been invoked, the driver will reinitialize all startup data from the device.

### Alarm Setpoints

Data values for alarm setpoints that are undefined in the device will be returned as +INF. Data values can only be written to alarm setpoints that are defined in the device. Write operations to undefined alarm setpoints will return an error. Alarm setpoint values are read one channel at a time. For devices with a large number of channels, increasing the scan rate of ASP items and/or reducing the number of active ASP items will increase the read performance of the PV and alarm data.

### Scales

Data values for Scale\_Hi and Scale\_Lo for channels that are skipped will be returned as +INF.

### Tag Names

For devices that do not support tag names (and channels that have unspecified tag names) the driver will construct an internal tag name based on the channel number. For example, the tag name of address 'CH001' will be returned as 'CH001'.

### General Device Data

Address Type	Format	Range	Data Types	Access
Date of Last Data	Date		<b>String</b>	Read Only
Time of Last Data	Time		<b>String</b>	Read Only
Model Name of Device*	Model		<b>String</b>	Read Only
Math Communication Data**	CDxx	01-30	<b>Short</b> , Word, Byte	Write Only
Control Math Execution	MathControl		<b>Short</b> , Word, Byte	Write Only
Reset Alarms	AlarmReset		<b>Boolean</b>	Write Only
Control Command and Response	Command		<b>String</b>	Read/Write
Direct Reloading of Configuration	Reset		<b>Boolean</b>	Write Only

\*The model address type that returns the model name of the device may return 'DR231' for models of type DR241 and 'DR232' for models of type DR242.

\*\*The CD address type is only valid for devices equipped with the math option. Write operations to CD addresses for non-math equipped devices will return an error. The range of valid data for addresses 'CDxx' is -32000 to 32000. CD data values are converted in the device from a whole number to a real number based on the decimal point placement specified for the associated math channel. For example, the device would interpret a data value of 32000 written to a CD address location with a decimal point placement of .000 as 32.000.

### Control Math Execution

The MathControl address type is only available for devices equipped with the math option. Write operations to the MathControl tag for non-math equipped devices will return an error.

### Control Command and Response

The Command address allows the user to send a string command and receive a string response to and from the device. This means that any command can be sent to the device, including commands not directly supported by the driver. Write operations using the Command address should be performed with extreme caution.

**Note 1:** The actual number of addresses available for of each type depends on the Yokogawa device's configuration. If the driver finds at Runtime that an address is not present in the device, it will post an error message and remove the tag from its scan list.

**Note 2:** Addresses that have Write Only access are assigned a default access of Read/Write. Data values are unreadable for these addresses, however, and the associated tags are not included in the scan list. The current data value for these tags will always be 0 for numeric data types and null string for string data types.

### DR232 Addressing

The driver supports the following addresses for this device. The default data type for each address type is shown in **bold**.

### Measured Channels

Address Type	Format	Range	Data Types	Access
Process Value of Channel	CHxxx or CHxxx.PV	001-560	<b>Double</b> , Float	Read Only
Alarm Summary of Channel	CHxxx.Alarm	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Channel	CHxxx.Alarm1	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Channel	CHxxx.Alarm2	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Channel	CHxxx.Alarm3	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Channel	CHxxx.Alarm4	001-560	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHxxx.ASP1	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHxxx.ASP2	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHxxx.ASP3	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHxxx.ASP4	001-560	<b>Double</b> , Float	Read/Write
Upper Scale Value of Channel*	CHxxx.scale_Hi	001-560	<b>Double</b> , Float	Read Only
Lower Scale Value of Channel*	CHxxx.scale_Lo	001-560	<b>Double</b> , Float	Read Only
Unit String of Channel*	CHxxx.unit	001-560	<b>String</b>	Read Only
Tagname of Channel*	CHxxx.tag	001-560	<b>String</b>	Read Only
Status of Channel*	CHxxx.status	001-560	<b>String</b>	Read Only
Lowest Measuring Channel*	CH.Low		<b>Short</b> , Word, Byte	Read Only
Highest Measuring Channel*	CH.High		<b>Short</b> , Word, Byte	Read Only

### Math Channels

Address Type	Format	Range	Data Types	Access
Process Value of Math Channel	CHAxX or CHAxX.PV	01-60	<b>Double</b> , Float	Read Only
Alarm Summary of Math Channel	CHAxX.Alarm	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Math Channel	CHAxX.Alarm1	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Math Channel	CHAxX.Alarm2	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Math Channel	CHAxX.Alarm3	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Math Channel	CHAxX.Alarm4	01-60	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHAxX.ASP1	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHAxX.ASP2	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHAxX.ASP3	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHAxX.ASP4	01-60	<b>Double</b> , Float	Read/Write
Upper Scale Value of Math Channel*	CHAxX.scale_Hi	01-60	<b>Double</b> , Float	Read Only
Lower Scale Value of Math Channel*	CHAxX.scale_Lo	01-60	<b>Double</b> , Float	Read Only
Unit String of Math Channel*	CHAxX.unit	01-60	<b>String</b>	Read Only
Tagname of Math Channel*	CHAxX.tag	01-60	<b>String</b>	Read Only
Status of Math Channel*	CHAxX.status	01-60	<b>String</b>	Read Only
Lowest Math Channel*	CHA.Low		<b>Short</b> , Word, Byte	Read Only
Highest Math Channel*	CHA.High		<b>Short</b> , Word, Byte	Read Only

\*Data associated with these addresses are read from the device only at the start of a communications session. Once read, the values will not be refreshed until the server has been restarted or the "Reset" tag has been invoked. To invoke a reset, a non zero value must be written to the Reset tag. Once the Reset tag has been invoked, the driver will reinitialize all startup data from the device.

### Alarm Setpoints

Data values for alarm setpoints that are undefined in the device will be returned as +INF. Data values can only be written to alarm setpoints that are defined in the device. Write operations to undefined alarm setpoints will return an error. Alarm setpoint values are read one channel at a time. For devices with a large number of channels, increasing the scan rate of ASP items and/or reducing the number of active ASP items will increase the read performance of the PV and alarm data.

### Scales

Data values for Scale\_Hi and Scale\_Lo for channels that are skipped will be returned as +INF.

### Tag Names

For devices that do not support tag names (and channels that have unspecified tag names) the driver will construct an internal tag name based on the channel number. For example, the tag name of address 'CH001' will be returned as 'CH001'.

### General Device Data

Address Type	Format	Range	Data Types	Access
Date of Last Data	Date		<b>String</b>	Read Only
Time of Last Data	Time		<b>String</b>	Read Only
Model Name of Device*	Model		<b>String</b>	Read Only
Math Communication Data**	CDxx	01-60	<b>Short</b> , Word, Byte	Write Only
Control Math Execution	MathControl		<b>Short</b> , Word, Byte	Write Only
Reset Alarms	AlarmReset		<b>Boolean</b>	Write Only
Control Command and Response	Command		<b>String</b>	Read/Write
Direct Reloading of Configuration	Reset		<b>Boolean</b>	Write Only

\*The model address type that returns the model name of the device may return 'DR231' for models of type DR241 and 'DR232' for models of type DR242.

\*\*The CD address type is only valid for devices equipped with the math option. Write operations to CD addresses for non-math equipped devices will return an error. The range of valid data for addresses 'CDxx' is -32000 to 32000. CD data values are converted in the device from a whole number to a real number based on the decimal point placement specified for the associated math channel. For example, the device would interpret a data value of 32000 written to a CD address location with a decimal point placement of .000 as 32.000.

### Control Math Execution

The MathControl address type is only available for devices equipped with the math option. Write operations to the MathControl tag for non-math equipped devices will return an error.

### Control Command and Response

The Command address allows the user to send a string command and receive a string response to and from the device. This means that any command can be sent to the device, including commands not directly supported by the driver. Write operations using the Command address should be performed with extreme caution.

**Note 1:** The actual number of addresses available for of each type depends on the Yokogawa device's configuration. If the driver finds at Runtime that an address is not present in the device, it will post an error message and remove the tag from its scan list.

**Note 2:** Addresses that have Write Only access are assigned a default access of Read/Write. Data values are unreadable for these addresses, however, and the associated tags are not included in the scan list. The current data value for these tags will always be 0 for numeric data types and null string for string data types.

## DR241 Addressing

The driver supports the following addresses for this device. The default data type for each address type is shown in **bold**.

### Measured Channels

Address Type	Format	Range	Data Types	Access
Process Value of Channel	CHxxx or CHxxx.PV	001-040	<b>Double</b> , Float	Read Only
Alarm Summary of Channel	CHxxx.Alarm	001-040	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Channel	CHxxx.Alarm1	001-040	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Channel	CHxxx.Alarm2	001-040	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Channel	CHxxx.Alarm3	001-040	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Channel	CHxxx.Alarm4	001-040	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHxxx.ASP1	001-040	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHxxx.ASP2	001-040	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHxxx.ASP3	001-040	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHxxx.ASP4	001-040	<b>Double</b> , Float	Read/Write
Upper Scale Value of Channel*	CHxxx.scale_Hi	001-040	<b>Double</b> , Float	Read Only
Lower Scale Value of Channel*	CHxxx.scale_Lo	001-040	<b>Double</b> , Float	Read Only
Unit String of Channel*	CHxxx.unit	001-040	<b>String</b>	Read Only
Tagname of Channel*	CHxxx.tag	001-040	<b>String</b>	Read Only
Status of Channel*	CHxxx.status	001-040	<b>String</b>	Read Only
Lowest Measuring Channel*	CH.Low		<b>Short</b> , Word, Byte	Read Only
Highest Measuring Channel*	CH.High		<b>Short</b> , Word, Byte	Read Only

### Math Channels

Address Type	Format	Range	Data Types	Access
Process Value of Math Channel	CHAx or CHAx.PV	01-30	<b>Double</b> , Float	Read Only
Alarm Summary of Math Channel	CHAx.Alarm	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Math Channel	CHAx.Alarm1	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Math Channel	CHAx.Alarm2	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Math Channel	CHAx.Alarm3	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Math Channel	CHAx.Alarm4	01-30	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHAx.ASP1	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHAx.ASP2	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHAx.ASP3	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHAx.ASP4	01-30	<b>Double</b> , Float	Read/Write
Upper Scale Value of Math Channel*	CHAx.scale_Hi	01-30	<b>Double</b> , Float	Read Only
Lower Scale Value of Math Channel*	CHAx.scale_Lo	01-30	<b>Double</b> , Float	Read Only
Unit String of Math Channel*	CHAx.unit	01-30	<b>String</b>	Read Only
Tagname of Math Channel*	CHAx.tag	01-30	<b>String</b>	Read Only
Status of Math Channel*	CHAx.status	01-30	<b>String</b>	Read Only
Lowest Math Channel*	CHA.Low		<b>Short</b> , Word, Byte	Read Only
Highest Math Channel*	CHA.High		<b>Short</b> , Word, Byte	Read Only

\*Data associated with these addresses are read from the device only at the start of a communications session. Once read, the values will not be refreshed until the server has been restarted or the "Reset" tag has been invoked. To invoke a reset, write a non-zero value to the Reset tag. Once the Reset tag has been invoked, the driver will reinitialize all startup data from the device.

### Alarm Setpoints

Data values for alarm setpoints that are undefined in the device will be returned as +INF. Data values can only be written to alarm setpoints that are defined in the device. Write operations to undefined alarm setpoints will return an error. Alarm setpoint values are read one channel at a time. For devices with a large number of channels, increasing the scan rate of ASP items and/or reducing the number of active ASP items will increase the read performance of the PV and alarm data.

### Scales

Data values for Scale\_Hi and Scale\_Lo for channels that are skipped will be returned as +INF.

### Tag Names

For devices that do not support tag names (and channels that have unspecified tag names) the driver will construct an internal tag name based on the channel number. For example, the tag name of address 'CH001' will be returned as 'CH001'.

### General Device Data

Address Type	Format	Range	Data Types	Read/Write
Date of Last Data	Date		<b>String</b>	Read Only
Time of Last Data	Time		<b>String</b>	Read Only
Model Name of Device*	Model		<b>String</b>	Read Only
Math Communication Data**	CDxx	01-30	<b>Short</b> , Word, Byte	Write Only
Control Math Execution	MathControl		<b>Short</b> , Word, Byte	Write Only
Reset Alarms	AlarmReset		<b>Boolean</b>	Write Only
Control Command and Response	Command		<b>String</b>	Read/Write
Direct Reloading of Configuration	Reset		<b>Boolean</b>	Write Only

\*The model address type that returns the model name of the device may return 'DR231' for models of type DR241 and 'DR232' for models of type DR242.

\*\*The CD address type is only valid for devices equipped with the math option. Write operations to CD addresses for non-math equipped devices will return an error. The range of valid data for addresses 'CDxx' is -32000 to 32000. CD data values are converted in the device from a whole number to a real number based on the decimal point placement specified for the associated math channel. For example, the device would interpret a data value of 32000 written to a CD address location with a decimal point placement of .000 as 32.000.

### Control Math Execution

The MathControl address type is only available for devices equipped with the math option. Write operations to the MathControl tag for non-math equipped devices will return an error.

### Control Command and Response

The Command address allows the user to send a string command and receive a string response to and from the device. This means that any command can be sent to the device, including commands not directly supported by the driver. Write operations using the Command address should be performed with extreme caution.

**Note 1:** The actual number of addresses available for of each type depends on the Yokogawa device's configuration. If the driver finds at Runtime that an address is not present in the device, it will post an error message and remove the tag from its scan list.

**Note 2:** Addresses that have Write Only access are assigned a default access of Read/Write. Data values are unreadable for these addresses, however, and the associated tags are not included in the scan list. The current data value for these tags will always be 0 for numeric data types and null string for string data types.

## DR242 Addressing

The driver supports the following addresses for this device. The default data type for each address type is shown in **bold**.

### Measured Channels

Address Type	Format	Range	Data Types	Access
Process Value of Channel	CHxxx or CHxxx.PV	001-560	<b>Double</b> , Float	Read Only
Alarm Summary of Channel	CHxxx.Alarm	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Channel	CHxxx.Alarm1	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Channel	CHxxx.Alarm2	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Channel	CHxxx.Alarm3	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Channel	CHxxx.Alarm4	001-560	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHxxx.ASP1	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHxxx.ASP2	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHxxx.ASP3	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHxxx.ASP4	001-560	<b>Double</b> , Float	Read/Write
Upper Scale Value of Channel*	CHxxx.scale_Hi	001-560	<b>Double</b> , Float	Read Only
Lower Scale Value of Channel*	CHxxx.scale_Lo	001-560	<b>Double</b> , Float	Read Only
Unit String of Channel*	CHxxx.unit	001-560	<b>String</b>	Read Only
Tagname of Channel*	CHxxx.tag	001-560	<b>String</b>	Read Only
Status of Channel*	CHxxx.status	001-560	<b>String</b>	Read Only
Lowest Measuring Channel*	CH.Low		<b>Short</b> , Word, Byte	Read Only
Highest Measuring Channel*	CH.High		<b>Short</b> , Word, Byte	Read Only

### Math Channels

Address Type	Format	Range	Data Types	Access
Process Value of Math Channel	CHAxX or CHAxX.PV	01-60	<b>Double</b> , Float	Read Only
Alarm Summary of Math Channel	CHAxX.Alarm	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Math Channel	CHAxX.Alarm1	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Math Channel	CHAxX.Alarm2	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Math Channel	CHAxX.Alarm3	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Math Channel	CHAxX.Alarm4	01-60	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHAxX.ASP1	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHAxX.ASP2	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHAxX.ASP3	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHAxX.ASP4	01-60	<b>Double</b> , Float	Read/Write
Upper Scale Value of Math Channel*	CHAxX.scale_Hi	01-60	<b>Double</b> , Float	Read Only
Lower Scale Value of Math Channel*	CHAxX.scale_Lo	01-60	<b>Double</b> , Float	Read Only
Unit String of Math Channel*	CHAxX.unit	01-60	<b>String</b>	Read Only
Tagname of Math Channel*	CHAxX.tag	01-60	<b>String</b>	Read Only
Status of Math Channel*	CHAxX.status	01-60	<b>String</b>	Read Only
Lowest Math Channel*	CHA.Low		<b>Short</b> , Word, Byte	Read Only
Highest Math Channel*	CHA.High		<b>Short</b> , Word, Byte	Read Only

\*Data associated with these addresses are read from the device only at the start of a communications session. Once read, the values will not be refreshed until the server has been restarted or the "Reset" tag has been

invoked. To invoke a reset, write a non-zero value to the Reset tag. Once the Reset tag has been invoked, the driver will reinitialize all startup data from the device.

### Alarm Setpoints

Data values for alarm setpoints that are undefined in the device will be returned as +INF. Data values can only be written to alarm setpoints that are defined in the device. Write operations to undefined alarm setpoints will return an error. Alarm setpoint values are read one channel at a time. For devices with a large number of channels, increasing the scan rate of ASP items and/or reducing the number of active ASP items will increase the read performance of the PV and alarm data.

### Scales

Data values for Scale\_Hi and Scale\_Lo for channels that are skipped will be returned as +INF.

### Tag Names

For devices that do not support tag names (and channels that have unspecified tag names) the driver will construct an internal tag name based on the channel number. For example, the tag name of address 'CH001' will be returned as 'CH001'.

### General Device Data

Address Type	Format	Range	Data Types	Access
Date of Last Data	Date		<b>String</b>	Read Only
Time of Last Data	Time		<b>String</b>	Read Only
Model Name of Device*	Model		<b>String</b>	Read Only
Math Communication Data**	CDxx	01-60	<b>Short</b> , Word, Byte	Write Only
Control Math Execution	MathControl		<b>Short</b> , Word, Byte	Write Only
Reset Alarms	AlarmReset		<b>Boolean</b>	Write Only
Control Command and Response	Command		<b>String</b>	Read/Write
Direct Reloading of Configuration	Reset		<b>Boolean</b>	Write Only

\*The model address type that returns the model name of the device may return 'DR231' for models of type DR241 and 'DR232' for models of type DR242.

\*\*The CD address type is only valid for devices equipped with the math option. Write operations to CD addresses for non-math equipped devices will return an error. The range of valid data for addresses 'CDxx' is -32000 to 32000. CD data values are converted in the device from a whole number to a real number based on the decimal point placement specified for the associated math channel. For example, the device would interpret a data value of 32000 written to a CD address location with a decimal point placement of .000 as 32.000.

### Control Math Execution

The MathControl address type is only available for devices equipped with the math option. Write operations to the MathControl tag for non-math equipped devices will return an error.

### Control Command and Response

The Command address allows the user to send a string command and receive a string response to and from the device. This means that any command can be sent to the device, including commands not directly supported by the driver. Write operations using the Command address should be performed with extreme caution.

**Note 1:** The actual number of addresses available for of each type depends on the Yokogawa device's configuration. If the driver finds at Runtime that an address is not present in the device, it will post an error message and remove the tag from its scan list.

**Note 2:** Addresses that have Write Only access are assigned a default access of Read/Write. Data values are unreadable for these addresses, however, and the associated tags are not included in the scan list. The current data value for these tags will always be 0 for numeric data types and null string for string data types.

### DC100-1 Addressing

The driver supports the following addresses for this device. The default data type for each address type is shown in **bold**.

### Measured Channels

Address Type	Format	Range	Data Types	Access
Process Value of Channel	CHxx or CHxx.PV	001-060	<b>Double</b> , Float	Read Only
Alarm Summary of Channel	CHxx.Alarm	001-060	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Channel	CHxx.Alarm1	001-060	<b>Short</b> , Word, Byte	Read Only

Alarm Level2 Status of Channel	CHxxx.Alarm2	001-060	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Channel	CHxxx.Alarm3	001-060	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Channel	CHxxx.Alarm4	001-060	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHxxx.ASP1	001-060	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHxxx.ASP2	001-060	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHxxx.ASP3	001-060	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHxxx.ASP4	001-060	<b>Double</b> , Float	Read/Write
Upper Scale Value of Channel*	CHxxx.scale_Hi	001-060	<b>Double</b> , Float	Read Only
Lower Scale Value of Channel*	CHxxx.scale_Lo	001-060	<b>Double</b> , Float	Read Only
Unit String of Channel*	CHxxx.unit	001-060	<b>String</b>	Read Only
Tagname of Channel*	CHxxx.tag	001-060	<b>String</b>	Read Only
Status of Channel*	CHxxx.status	001-060	<b>String</b>	Read Only
Lowest Measuring Channel*	CH.Low		<b>Short</b> , Word, Byte	Read Only
Highest Measuring Channel*	CH.High		<b>Short</b> , Word, Byte	Read Only

### Math Channels

Address Type	Format	Range	Data Types	Access
Process Value of Math Channel	CHAxX or CHAxX.PV	01-30	<b>Double</b> , Float	Read Only
Alarm Summary of Math Channel	CHAxX.Alarm	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Math Channel	CHAxX.Alarm1	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Math Channel	CHAxX.Alarm2	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Math Channel	CHAxX.Alarm3	01-30	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Math Channel	CHAxX.Alarm4	01-30	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHAxX.ASP1	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHAxX.ASP2	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHAxX.ASP3	01-30	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHAxX.ASP4	01-30	<b>Double</b> , Float	Read/Write
Upper Scale Value of Math Channel*	CHAxX.scale_Hi	01-30	<b>Double</b> , Float	Read Only
Lower Scale Value of Math Channel*	CHAxX.scale_Lo	01-30	<b>Double</b> , Float	Read Only
Unit String of Math Channel*	CHAxX.unit	01-30	<b>String</b>	Read Only
Tagname of Math Channel*	CHAxX.tag	01-30	<b>String</b>	Read Only
Status of Math Channel*	CHAxX.status	01-30	<b>String</b>	Read Only
Lowest Math Channel*	CHA.Low		<b>Short</b> , Word, Byte	Read Only
Highest Math Channel*	CHA.High		<b>Short</b> , Word, Byte	Read Only

\*Data associated with these addresses are read from the device only at the start of a communications session. Once read, the values will not be refreshed until the server has been restarted or the "Reset" tag has been invoked. To invoke a reset, write a non-zero value to the Reset tag. Once the Reset tag has been invoked, the driver will reinitialize all startup data from the device.

### Alarm Setpoints

Data values for alarm setpoints that are undefined in the device will be returned as +INF. Data values can only be written to alarm setpoints that are defined in the device. Write operations to undefined alarm setpoints will return an error. Alarm setpoint values are read one channel at a time. For devices with a large number of channels, increasing the scan rate of ASP items and/or reducing the number of active ASP items will increase the read performance of the PV and alarm data.

### Scales

Data values for Scale\_Hi and Scale\_Lo for channels that are skipped will be returned as +INF.

### Tag Names

For devices that do not support tag names (and channels that have unspecified tag names) the driver will construct an internal tag name based on the channel number. For example, the tag name of address 'CH001' will be returned as 'CH001'.

### General Device Data

Address Type	Format	Range	Data Types	Access
Date of Last Data	Date		<b>String</b>	Read Only
Time of Last Data	Time		<b>String</b>	Read Only



Model Name of Device*	Model		<b>String</b>	Read Only
Math Communication Data**	CDxx	01-30	<b>Short</b> , Word, Byte	Write Only
Control Math Execution	MathControl		<b>Short</b> , Word, Byte	Write Only
Reset Alarms	AlarmReset		<b>Boolean</b>	Write Only
Control Command and Response	Command		<b>String</b>	Read/Write
Direct Reloading of Configuration	Reset		<b>Boolean</b>	Write Only

\*The model address type that returns the model name of the device may return 'DR231' for models of type DR241 and 'DR232' for models of type DR242.

\*\*The CD address type is only valid for devices equipped with the math option. Write operations to CD addresses for non-math equipped devices will return an error. The range of valid data for addresses 'CDxx' is -32000 to 32000. CD data values are converted in the device from a whole number to a real number based on the decimal point placement specified for the associated math channel. For example, the device would interpret a data value of 32000 written to a CD address location with a decimal point placement of .000 as 32.000.

### Control Math Execution

The MathControl address type is only available for devices equipped with the math option. Write operations to the MathControl tag for non-math equipped devices will return an error.

### Control Command and Response

The Command address allows the user to send a string command and receive a string response to and from the device. This means that any command can be sent to the device, including commands not directly supported by the driver. Write operations using the Command address should be performed with extreme caution.

**Note 1:** The actual number of addresses available for of each type depends on the Yokogawa device's configuration. If the driver finds at Runtime that an address is not present in the device, it will post an error message and remove the tag from its scan list.

**Note 2:** Addresses that have Write Only access are assigned a default access of Read/Write. Data values are unreadable for these addresses, however, and the associated tags are not included in the scan list. The current data value for these tags will always be 0 for numeric data types and null string for string data types.

## DC100-2 Addressing

The driver supports the following addresses for this device. The default data type for each address type is shown in **bold**.

### Measured Channels

Address Type	Format	Range	Data Types	Access
Process Value of Channel	CHxxx or CHxxx.PV	001-560	<b>Double</b> , Float	Read Only
Alarm Summary of Channel	CHxxx.Alarm	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Channel	CHxxx.Alarm1	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Channel	CHxxx.Alarm2	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Channel	CHxxx.Alarm3	001-560	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Channel	CHxxx.Alarm4	001-560	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHxxx.ASP1	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHxxx.ASP2	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHxxx.ASP3	001-560	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHxxx.ASP4	001-560	<b>Double</b> , Float	Read/Write
Upper Scale Value of Channel*	CHxxx.scale_Hi	001-560	<b>Double</b> , Float	Read Only
Lower Scale Value of Channel*	CHxxx.scale_Lo	001-560	<b>Double</b> , Float	Read Only
Unit String of Channel*	CHxxx.unit	001-560	<b>String</b>	Read Only
Tagname of Channel*	CHxxx.tag	001-560	<b>String</b>	Read Only
Status of Channel*	CHxxx.status	001-560	<b>String</b>	Read Only
Lowest Measuring Channel*	CH.Low		<b>Short</b> , Word, Byte	Read Only
Highest Measuring Channel*	CH.High		<b>Short</b> , Word, Byte	Read Only

### Math Channels

Address Type	Format	Range	Data Types	Access
Process Value of Math Channel	CHAxX or CHAxX.PV	01-60	<b>Double</b> , Float	Read Only



Alarm Summary of Math Channel	CHAx.x.Alarm	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level1 Status of Math Channel	CHAx.x.Alarm1	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level2 Status of Math Channel	CHAx.x.Alarm2	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level3 Status of Math Channel	CHAx.x.Alarm3	01-60	<b>Short</b> , Word, Byte	Read Only
Alarm Level4 Status of Math Channel	CHAx.x.Alarm4	01-60	<b>Short</b> , Word, Byte	Read Only
Set and Read Level1 Alarm Setpoint	CHAx.x.ASP1	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level2 Alarm Setpoint	CHAx.x.ASP2	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level3 Alarm Setpoint	CHAx.x.ASP3	01-60	<b>Double</b> , Float	Read/Write
Set and Read Level4 Alarm Setpoint	CHAx.x.ASP4	01-60	<b>Double</b> , Float	Read/Write
Upper Scale Value of Math Channel*	CHAx.x.scale_Hi	01-60	<b>Double</b> , Float	Read Only
Lower Scale Value of Math Channel*	CHAx.x.scale_Lo	01-60	<b>Double</b> , Float	Read Only
Unit String of Math Channel*	CHAx.x.unit	01-60	<b>String</b>	Read Only
Tagname of Math Channel*	CHAx.x.tag	01-60	<b>String</b>	Read Only
Status of Math Channel*	CHAx.x.status	01-60	<b>String</b>	Read Only
Lowest Math Channel*	CHA.Low		<b>Short</b> , Word, Byte	Read Only
Highest Math Channel*	CHA.High		<b>Short</b> , Word, Byte	Read Only

\*Data associated with these addresses are read from the device only at the start of a communications session. Once read, the values will not be refreshed until the server has been restarted or the "Reset" tag has been invoked. To invoke a reset, write a non-zero value to the Reset tag. Once the Reset tag has been invoked, the driver will reinitialize all startup data from the device.

### Alarm Setpoints

Data values for alarm setpoints that are undefined in the device will be returned as +INF. Data values can only be written to alarm setpoints that are defined in the device. Write operations to undefined alarm setpoints will return an error. Alarm setpoint values are read one channel at a time. For devices with a large number of channels, increasing the scan rate of ASP items and/or reducing the number of active ASP items will increase the read performance of the PV and alarm data.

### Scales

Data values for Scale\_Hi and Scale\_Lo for channels that are skipped will be returned as +INF.

### Tag Names

For devices that do not support tag names (and channels that have unspecified tag names) the driver will construct an internal tag name based on the channel number. For example, the tag name of address 'CH001' will be returned as 'CH001'.

### General Device Data

Address Type	Format	Range	Data Types	Access
Date of Last Data	Date		<b>String</b>	Read Only
Time of Last Data	Time		<b>String</b>	Read Only
Model Name of Device*	Model		<b>String</b>	Read Only
Math Communication Data**	CDxx	01-60	<b>Short</b> , Word, Byte	Write Only
Control Math Execution	MathControl		<b>Short</b> , Word, Byte	Write Only
Reset Alarms	AlarmReset		<b>Boolean</b>	Write Only
Control Command and Response	Command		<b>String</b>	Read/Write
Direct Reloading of Configuration	Reset		<b>Boolean</b>	Write Only

\*The model address type that returns the model name of the device may return 'DR231' for models of type DR241 and 'DR232' for models of type DR242.

\*\*The CD address type is only valid for devices equipped with the math option. Write operations to CD addresses for non-math equipped devices will return an error. The range of valid data for addresses 'CDxx' is -32000 to 32000. CD data values are converted in the device from a whole number to a real number based on the decimal point placement specified for the associated math channel. For example, the device would interpret a data value of 32000 written to a CD address location with a decimal point placement of .000 as 32.000.

### Control Math Execution

The MathControl address type is only available for devices equipped with the math option. Write operations to the MathControl tag for non-math equipped devices will return an error.

### Control Command and Response

The Command address allows the user to send a string command and receive a string response to and from the device. This means that any command can be sent to the device, including commands not directly supported by the driver. Write operations using the Command address should be performed with extreme caution.

**Note 1:** The actual number of addresses available for of each type depends on the Yokogawa device's configuration. If the driver finds at Runtime that an address is not present in the device, it will post an error message and remove the tag from its scan list.

**Note 2:** Addresses that have Write Only access are assigned a default access of Read/Write. Data values are unreadable for these addresses, however, and the associated tags are not included in the scan list. The current data value for these tags will always be 0 for numeric data types and null string for string data types.

## Automatic Tag Database Generation

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The Automatic OPC Tag Database Generation features of this driver are designed to make the setting up the OPC application a plug and play operation. This driver can be configured to automatically build a list of OPC tags within OPC server that correspond to device specific data. The automatically generated OPC tags can then be browsed from the OPC client. The OPC tags that are generated are dependent upon the nature of the driver.

If the target device supports its own local tag database, the driver will read the device's tag information and use this data to generate OPC tags within the OPC server. If the device does not natively support its own named tags, the driver will create a list of tags based on information specific to the driver. An example of these two conditions may be as follows:

1. A data acquisition system that supports its own local tag database. The driver will use the tags names found in the device to build the OPC server's OPC tags.
2. An Ethernet I/O system that supports detection of I/O module type. The driver in this case will automatically generate OPC tags in the OPC server that are based on the types of I/O modules plugged into the Ethernet I/O rack.

The mode of operation for automatic tag database generation is completely configurable. The dialog below shows how the user is able to configure how the OPC server and the associated communications driver will handle automatic OPC tag database generation:

The **Automatic tag database generation on device startup** selection is used to to configure when OPC tags will be automatically generated. There are three possible selections:

- **Do not generate on startup**, the default condition, prevents the driver from adding any OPC tags to the tag space of the OPC server.
- **Always generate on startup** causes the driver to always evaluate the device for tag information and to add OPC tags to the tag space of the server each time the server is launched.
- **Generate on first startup** causes the driver to evaluate the target device for tag information the first time this OPC server project is run and to add any OPC tags to the server tag space as needed.

When the automatic generation of OPC tags is selected, any tags that are added to the server's tag space must be saved with the project. The OPC server project can be configured to auto save from the **Tools | Options** menu.

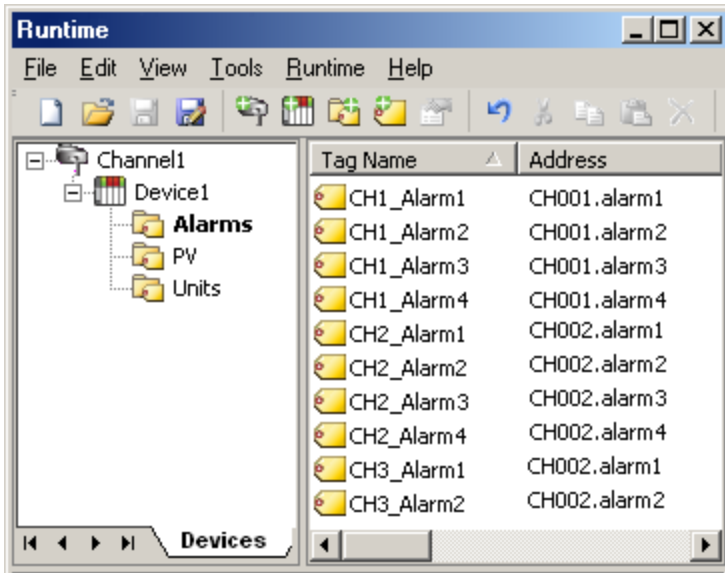
When automatic tag generation is enabled, the server needs to know what to do with OPC tags that it may have added from a previous run or with OPC tags that may have been added or modified after the communications driver added them. **Perform the following action** controls how the server will handle OPC tags that were automatically generated and currently exist in the OPC server project. This feature prevents automatically generated tags from piling up in the server. This would occur if, using the Ethernet I/O example above, the I/O modules continued to change in the rack with the OPC server configured to always generate new OPC tags on startup. Under this condition every time the communications driver detected a new I/O module, the tags would be added to the server. If the old tags are not removed, a number of unused tags could accumulate in the server's tag space. This parameter tailors the server's operation to best fit the application's needs. Descriptions of the selections are as follows:

1. **Delete on create**, the default condition, allows the server to remove any tags that had previous been added to the tag space before the communications driver can add any new tags.
2. **Overwrite as necessary** allows the server to remove only tags the communications driver is replacing with new tags. Any tags that are not being overwritten will remain in the server's tag space.
3. **Do not overwrite** prevents the server from removing any tags that had been previous generated or may have already existed in the server. With this selection, the communications driver can only add tags that are completely new.
4. **Do not overwrite, log error** has the same effect as the third with the addition, an error message will be posted to the OPC server's event log when a tag overwrite would have occurred.

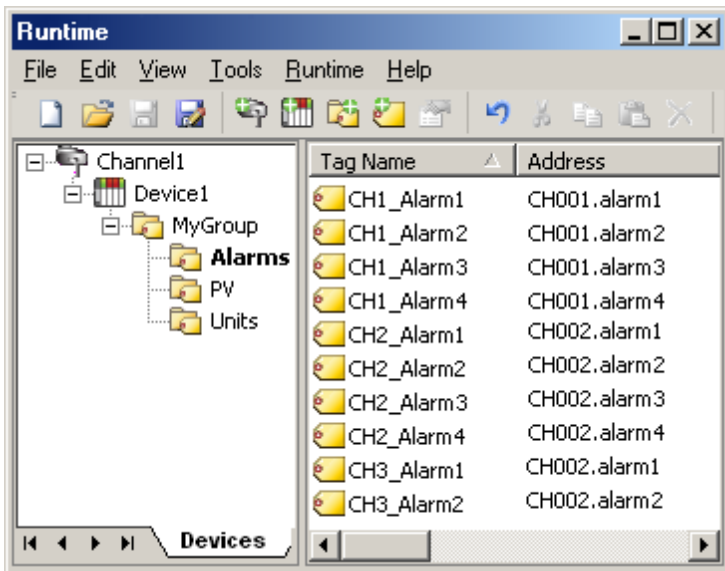
**Note:** The removal of OPC tags affects tags that have been automatically generated by the communications driver and any tags that have been added using names that match generated tags. It is recommended that users avoid adding tags to the server using names that match tags that may be automatically generated by the driver.

**Add generated tags to the following group** can be used to help keep automatically generated tags from mixing with tags that have been entered manually. This parameter is used to to specify a sub group that will be used when adding all automatically generated tags for this device. The name of the sub group can be up to 31 characters in length. The following displays demonstrate how this parameter affects where automatically generated

tags are placed in the server's tag space. As shown in the image below, this parameter provides a root branch to which all automatically generated tags will be added.



**No sub group specified.**



**Sub group named MyGroup specified.**

**Auto Create** is used to manually initiate the creation of automatically generated OPC tags. It forces the communications driver to reevaluate the device for possible tag changes after the device's configuration is modified. Auto Create can be accessed from the System Tags for this device, allowing the OPC client application to initiate tag database creation.

## Error Descriptions

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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](#)

[The device '<device name>' responded with a NAK to a read request starting at address '<address>'. The requested address may not exist in the device](#)

### 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>'](#)

## Address Validation

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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](#)

[The device '<device name>' responded with a NAK to a read request starting at address '<address>'. The requested address may not exist in the device](#)

## Missing address

---

### Error Type:

Warning

### Possible Cause:

A tag address that has been specified statically 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 statically 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 statically 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 statically 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 statically 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.

**The device '<device name>' responded with a NAK to a read request starting at address '<address>'. The requested address may not exist in the device**

---

**Error Type:**

Warning

**Possible Cause:**

The requested address may not exist in the device.

**Solution:**

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

**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 opening COMn](#)

[COMn is in use by another application](#)

[Unable to set comm parameters on COMn](#)

[Communications error on '<channel name>' \[<error mask>\]](#)

**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:**

1. Verify that the correct port has been assigned to the channel.
2. Verify that only one copy of the current project is running.

---

## 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 PLC 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 connection between the device and the Host PC is broken.
2. The IP address assigned to the device is incorrect.
3. The connection cannot be established in the specified timeout period.
4. The response cannot be received in the specified timeout period.
5. The response from the device took longer to receive than the amount of time specified in the "Request Timeout" device setting.

**Solution:**

1. Verify the cabling between the PC and the PLC device.
2. Verify the IP address given to the named device matches that of the actual device.
3. Increase the Connect Timeout value in the Timeout page of Device Properties.
4. Increase the Request Timeout value in the Timeout page of Device Properties.
5. Increase the Request Timeout setting so that the entire response can be handled.

---

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

---

**Error Type:**

Serious

**Possible Cause:**

1. The connection between the device and the Host PC is broken.
2. The named device may have been assigned an incorrect IP address.
3. The address specified may be Read Only or may not exist in the current device.

**Solution:**

1. Verify the cabling between the PC and the PLC device.
2. Verify the IP address given to the named device matches that of the actual device.
3. Check address availability for the device.



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