

Scanivalve Ethernet Driver Help

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Table of Contents

Table of Contents	2
Scanivalve Ethernet Driver Help	3
Overview	3
Device Setup	4
TCP/IP	5
Optimizing Your Scanivalve Ethernet Communications	6
Data Types Description	7
Address Descriptions	8
DSA 3200 Addressing	8
DTS 3250 Addressing	8
Error Descriptions	10
Address Validation	10
Missing address.....	10
Device address '<address>' contains a syntax error.....	10
Address '<address>' is out of range for the specified device or register.....	10
Device address '<address>' is not supported by model '<model name>'.....	11
Data Type '<type>' is not valid for device address '<address>'.....	11
Device address '<address>' is Read Only.....	11
Device Status Messages	11
Device '<device name>' is not responding.....	11
Scanivalve Ethernet Device Specific Messages	11
Failure to initiate 'winsock.dll'.....	12
Device '<device name>' received bad response on tag '<address>'.....	12
Index	13

Scanivalve Ethernet Driver Help

Help version 1.011

CONTENTS

[Overview](#)

What is the Scanivalve Ethernet Driver?

[Device Setup](#)

How do I configure a device for use with this driver?

[Optimizing your Scanivalve Ethernet Communications](#)

How do I get the best performance from the Scanivalve Ethernet driver?

[Data Types Description](#)

What data types does this driver support?

[Address Descriptions](#)

How do I address a data location on a Scanivalve Ethernet device?

[Error Descriptions](#)

What error messages does the Scanivalve Ethernet driver produce?

Overview

The Scanivalve Ethernet Driver provides an easy and reliable way to connect Scanivalve Ethernet devices to OPC Client applications, including HMI, SCADA, Historian, MES, ERP and countless custom applications.

Device Setup

Supported Devices

DSA 3200
DTS 3250

Communication Protocol

Scanivalve Ethernet

Connection

The Scanivalve devices listed above support only one connection at a time. In order for the driver to properly communicate with the device, no other applications should be connected to the device.

Connection Timeout

This parameter specifies the amount of time that the driver will wait for a connection to be made with a device. Depending on network load, the connect time may vary with each connection attempt. The default setting is 3 seconds. The valid range is 1 to 60 seconds.

Request Timeout

This parameter specifies the time that the driver will wait on a response from the device before giving up and going on to the next request. Longer timeouts only affect performance if a device is not responding. The default setting is 1000 milliseconds. The valid range is 100 to 9999 milliseconds.

Retry Attempts

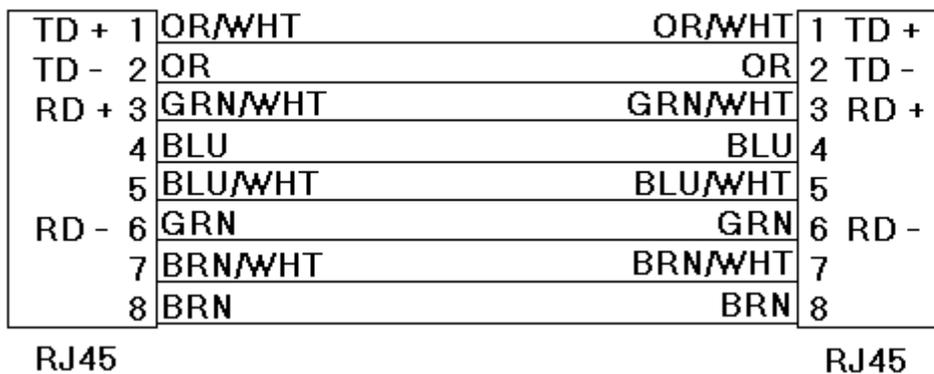
This parameter specifies the number of times that the driver will retry a message before giving up and going on to the next message. The default setting is 3. The valid range is 1 to 10.

Device IDs

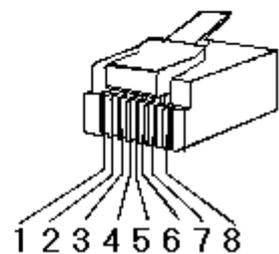
Device IDs are specified as YYY.YYY.YYY.YYY, where YYY designates the device IP address. Each YYY byte should be in the range of 0 to 255.

Cable Connections

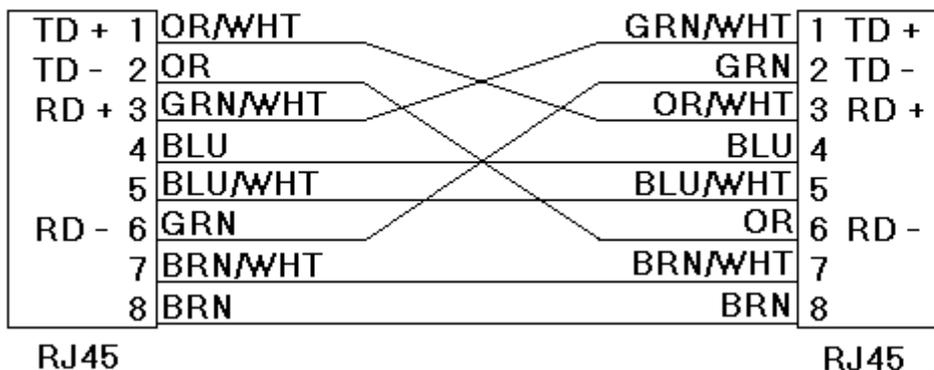
Patch Cable (Straight Through)



10 BaseT



Crossover Cable



8-pin RJ45

TCP/IP

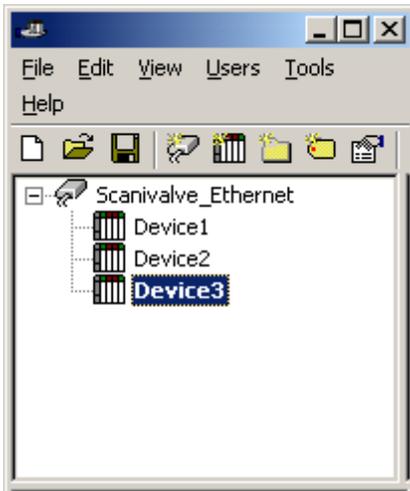
Port Number

This parameter specifies the TCP/IP port number that the remote device is configured to use. The default port number is 23. The valid range is 1 to 65535.

Optimizing Your Scanivalve Ethernet Communications

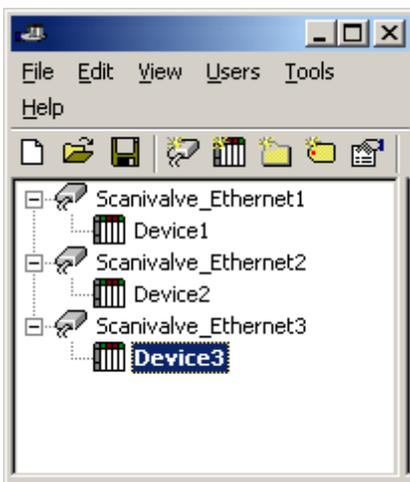
The Scanivalve Ethernet driver has been designed to provide the best performance with the least amount of impact on the system's overall performance. While the Scanivalve Ethernet driver is fast, there are a couple of guidelines that can be used in order to control and optimize the application and gain maximum performance.

Our server refers to communications protocols like Scanivalve Ethernet as a channel. Each channel defined in the application represents a separate path of execution in the server. Once a channel has been defined, a series of devices must then be defined under that channel. Each of these devices represents a single Scanivalve Ethernet controller from which data will be collected. While this approach to defining the application will provide a high level of performance, it won't take full advantage of the Scanivalve Ethernet driver or the network. An example of how the application may appear when configured using a single channel is shown below.



Each device appears under a single Scanivalve Ethernet channel. In this configuration, the driver must move from one device to the next as quickly as possible in order to gather information at an effective rate. As more devices are added or more information is requested from a single device, the overall update rate begins to suffer.

If the Scanivalve Ethernet driver could only define one single channel, then the example shown above would be the only option available; however, the Scanivalve Ethernet driver can define up to 100 channels. Using multiple channels distributes the data collection workload by simultaneously issuing multiple requests to the network. An example of how the same application may appear when configured using multiple channels to improve performance is shown below.



Each device has now been defined under its own channel. In this new configuration, a single path of execution is dedicated to the task of gathering data from each device. If the application has 100 or fewer channels, it can be optimized exactly how it is shown here.

The performance will improve even if the application has more than 100 channels. While 100 or fewer channels may be ideal, the application will still benefit from additional channels. Although spreading the device load across all channels will cause the server to move from device to device again, it can now do so with far less devices to process on a single channel.

Data Types Description

Data Type	Description
Boolean	Single bit
Word	Unsigned 16 bit value
Short	Signed 16 bit value
Char	Signed 8 bit value
Float	32 bit floating point value
String	Zero terminated character array

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.

[DSA 3200](#)

[DTS 3250](#)

DSA 3200 Addressing

The Scanivalve Ethernet Driver automatically generates all addressable tags for the device. The default data types for dynamically defined tags are shown in **bold**.

Address	Range	Data Type	Access
CalibrateZero	N/A	Boolean	Read/Write*
ClearErrors	N/A	Boolean	Read/Write*
DO (Digital Output)	0-7	Boolean	Read/Write*
ErrorString	0-15 (Optional)	String	Read Only
EU (Engineering Units)	N/A	Boolean	Read/Write
Pressure	1-16	Float	Read Only
Status	N/A	String	Read Only
Stop	N/A	Boolean	Read/Write*
Temperature	1-16	Short, Word	Read Only

*Addresses with Read/Write (Write Only) access are not actually readable from the device. They are initialized by the Scanivalve Ethernet Driver to a value of 0 (false) and will be returned by the OPC server to a client with a read value of 0 (false). All Write Only tags are Boolean and will cause the driver to send the command when a value is written to the tag.

ErrorString

The ErrorString tag will return up to 16 error strings from the device error buffer. If no address range is specified, ErrorString will return the last error from the device error buffer.

Status

Any Status value other than 'READY' indicates that the device is not ready to receive commands or requests for data. Scanned read addresses (Pressure and Temperature) and read values (ErrorString and EU) will not be updated while Status is not 'READY'. Likewise, commands CalibrateZero, ClearErrors, DO, and Stop will not be writable while Status is not 'READY'.

Note: A Status value other than 'READY' may occur while the device is processing a CalibrateZero command. In this case, the Status value will be returned as 'CALZ'.

DTS 3250 Addressing

The Scanivalve Ethernet Driver automatically generates all addressable tags for the device. The default data types for dynamically defined tags are shown in **bold**.

Address	Range	Data Type	Access
ADCalibrate	N/A	Boolean	Read/Write*
ClearErrors	N/A	Boolean	Read/Write*
ErrorString	0-15 (Optional)	String	Read Only
EU (Engineering Units)	N/A	Char	Read/Write
OpenTCTest	N/A	Boolean	Read/Write*
Pressure	1-16	Float	Read Only
Status	N/A	String	Read Only
Stop	N/A	Boolean	Read/Write*
Temperature	1-16	Float	Read Only
Temperature[x].Status	1-16	Short, Word	Read Only

*Addresses with Read/Write (Write Only) access are not actually readable from the device. They are initialized by the Scanivalve Ethernet Driver to a value of 0 (false) and will be returned by the OPC server to a client with a read

value of 0 (false). All Write Only tags are Boolean and will cause the driver to send the command when a value is written to the tag.

ErrorString

The ErrorString tag will return up to 16 error strings from the device error buffer. If no address range is specified, ErrorString will return the last error from the device error buffer.

Status

Any Status value other than 'READY' indicates that the device is not ready to receive commands or requests for data. Scanned read addresses (Pressure, Temperature and Temperature[x].Status) and read values (ErrorString and EU) will not be updated while Status is not 'READY'. Likewise, commands ADCalibrate, ClearErrors, OpenTCTest, and Stop will not be writable while Status is not 'READY'.

Note: A Status value other than 'READY' may occur while the device is processing the ADCalibrator OpenTCTest commands. In this case, the Status value will be returned as 'ADCAL' or 'OTC', respectively.

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](#)

[Device address '<address>' is not supported by model '<model name>'](#)

[Data Type '<type>' is not valid for device address '<address>'](#)

[Device address '<address>' is Read Only](#)

Device Status Messages

[Device '<device name>' is not responding](#)

Scanivalve Ethernet Device Specific Messages

[Failure to initiate 'winsock.dll'](#)

[Device '<device name>' received bad response on tag '<address>'](#)

Address Validation

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

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[Data Type '<type>' is not valid for device address '<address>'](#)

[Device address '<address>' is Read Only](#)

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.

Device address '<address>' is not supported by model '<model name>'

Error Type:

Warning

Possible Cause:

A tag address that has been specified dynamically references a location that is valid for the communications protocol but not supported by the target device.

Solution:

Verify that the address is correct; if it is not, re-enter it in the client application. Also verify that the selected model name for the device is correct.

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.

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](#)

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 communication parameters for the connection are incorrect.
3. The named device may have been assigned an incorrect Network ID.
4. 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 device.
2. Verify that the specified communication parameters match those of the device.
3. Verify that the Network ID given to the named device matches that of the actual device.
4. Increase the Request Timeout setting so that the entire response can be handled.

Scanivalve Ethernet Device Specific Messages

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

Scanivalve Device Specific Messages**[Failure to initiate 'winsock.dll'](#)****[Device '<device name>' received bad response on tag '<address>'](#)****Failure to initiate 'winsock.dll'**

Error Type:

Fatal

Possible Cause:

Could not negotiate with the operating systems winsock 1.1 functionality.

Solution:

Verify that the winsock.dll is properly installed on the system.

Device '<device name>' received bad response on tag '<address>'

Error Type:

Serious

Possible Cause:

The device is sending a response packet that is not expected by the driver. This can occur if multiple connections are made to a device. Response packets may be received by the driver that are in response to requests made by another connection.

Solution:

Verify that no other applications are connected to the device.

Index

A

Address '<address>' is out of range for the specified device or register.....	10
Address Descriptions.....	8
Address Validation.....	10

B

Boolean.....	7
--------------	---

C

Cable Connections.....	4
Connection Timeout.....	4

D

Data Type '<type>' is not valid for device address '<address>'.....	11
Data Types Description.....	7
Device '<device name>' is not responding.....	11
Device '<device name>' received bad response on tag '<address>'.....	12
Device address '<address>' contains a syntax error.....	10
Device address '<address>' is not supported by model '<model name>'.....	11
Device address '<address>' is Read Only.....	11
Device ID.....	4
Device Setup.....	4
Device Status Messages.....	11
DSA 3200 Addressing.....	8
DTS 3250 Addressing.....	8

E

Error Descriptions.....	10
-------------------------	----

F

Failure to initiate 'winsock.dll'.....	12
Float	7

M

Missing address	10
-----------------------	----

N

Network.....	4
--------------	---

O

Optimizing your Scanivalve Ethernet Communications.....	6
Overview.....	3

P

Port Number.....	5
------------------	---

R

Request Timeout.....	4
Retry Attempts.....	4

S

Scanivalve Ethernet Device Specific Messages.....	11
Short.....	7
String.....	7

T

TCP/IP..... 5

W

Word..... 7