Analog Devices 6B Series Device Driver Help

Table of Contents

1 Getting Started 2
Help Contents 2
Overview 2
2 Driver Setup 2
Driver Setup 2
3 Device Setup 3
Device Setup 3
Modem Setup 3
4 Data Types Description 4
Data Types Description 4
5 Address Descriptions 4
Address Descriptions 4
6B11 Addresses 4
6B12 Addresses 5
6B13 Addresses 5
6B21 Addresses 5
6B50 Addresses 5
6 Error Descriptions 6
Error Descriptions 6
Address Validation 6
Address Validation 6
Missing address 6
Device address '<address>' contains a syntax error 6
Address '<address>' is out of range for the specified device or register 7
Device address '<address>' is not supported by model '<model name>' 7
Data Type '<type>' is not valid for device address '<address>' 7
Device address '<address>' is Read Only 7
Serial Communications 7
Serial Communications 7
COMn does not exist 8
Error opening COMn 8
COMn is in use by another application 8
Unable to set comm parameters on COMn 8
Communications error on COMn [<error mask>] 8
Device Status Messages 9
Device Status Messages 9
Device '<device name>' is not responding 9
Unable to write to '<address>' on device '<device name>' 9
Device Specific Messages 9
Device Specific Messages 9
Value out of range writing to address '<address>' on device '<device name>.' 10
Index 11

Analog Devices 6B Series Device Driver Help

Help version 1.007

CONTENTS

Overview
What is the Analog Devices 6B Series Device Driver?

Driver Setup
How do I configure the driver to communicate with a network of 6B Series devices?

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

Data Types Description
What data types does this driver support?

Address Descriptions
How do I address a data location on a Analog Devices 6B Series device?

Error Descriptions
What error messages does this driver produce?

Overview

The Analog Devices 6B Series Device Driver was designed specifically for use with 32 bit OPC Server products running on Intel microprocessor based computers. It is intended for use with Analog Devices 6B Series devices. Refer to the Server Help documentation for operating system (OS) requirements.

Driver Setup

This page describes the driver specific settings that can be modified when defining a new channel using the New Channel Wizard.

Ethernet Encapsulation

This driver supports Ethernet Encapsulation. Ethernet Encapsulation allows the driver to communicate with serial devices attached to an Ethernet network using a terminal server. Ethernet Encapsulation mode is invoked by selecting it from the COM ID dialog in Channel Properties. For more information, refer to the main OPC Server help file.

Use Checksum

Select this box if the device has been configured to use checksum verification. All devices must have the same checksum parameters. The default setting for **Checksum Verification** is disabled.

Acquisition Mode

- **Asynchronous Mode** should be selected if users do not require synchronously sampled data from all network devices.
- **Synchronous Mode** should be selected in order to have the driver issue a synchronous sample command to all devices at the interval specified in the edit control. When synchronous data is sampled, the client application will receive an update for that data as soon as it is available, rather than on the interval specified by the scan time of the tag to which the data is assigned.

  Note: Valid synchronous sampling intervals range from 100 to 86400000 ms in increments of 10 ms. Keep in mind that a certain minimum amount of time will be required to obtain the data from all devices. If users have 10 or more devices connected, they will be unable to obtain a sample from each device within 100 ms if the serial communications rate is 9600 baud (or less.)
- **Synchronous Acquisition Mode**, when selected, may have the flow of data from sources other than synchronous sampling disrupted while devices on the network are sampling their inputs.

Device Setup

Supported Devices

6B11, 6B12 and 6B13 Analog Input modules
6B21 Analog Output module
6B50 Digital I/O module

Communication Protocol

RS232, ASCII with optional checksum

Supported Communication Parameters

Baud Rate: 300, 600, 1200, 2400, 9600, or 19200
Parity: None
Data Bits: 8
Stop Bits: 1

Device IDs

Device IDs range from 0 to 255.

Data Format

The data format selected for each module must match the format chosen when the device was last configured. This driver provides no configuration options.

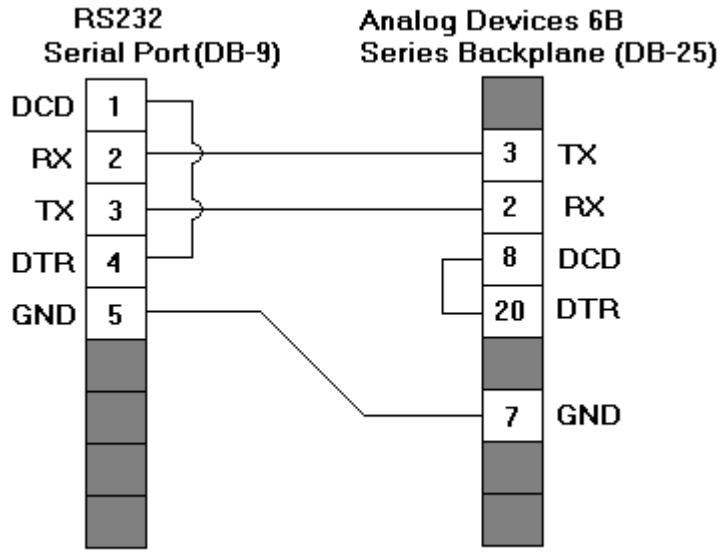
Flow Control

The Analog Devices 6B Series driver does not normally require flow control since the 6B back plane features a built-in RS-485 converter. This information is provided for reference.

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

Note: When using the manufacturer's supplied communications cable, it is sometimes necessary to choose a flow control setting of **RTS** or **RTS Always** under the Channel Properties.

Cable Connections



Modem Setup

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

Server Help documentation.

Data Types Description

It is important that the correct data type be chosen when defining a tag for a specific piece of data. Because each device can be configured to output data in either integer or Floating-point format, care should be taken to match the selected data type with the data format. When defining tags dynamically, the default data type will be chosen based on the data format for the device where applicable.

Data Type	Description
Boolean	Single bit
Byte	Unsigned 8 bit value bit 0 is the low bit bit 7 is the high bit
Char	Signed 8 bit value bit 0 is the low bit bit 6 is the high bit bit 7 is the sign bit
Word	Unsigned 16 bit value bit 0 is the low bit bit 15 is the high bit
Short	Signed 16 bit value bit 0 is the low bit bit 14 is the high bit bit 15 is the sign bit
Double	64 bit double precision Floating point value.
Float	32 bit single precision Floating point value.

Address Descriptions

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

6B11 Addresses
6B12 Addresses
6B13 Addresses
6B21 Addresses
6B50 Addresses

6B11 Addresses

The default data types for dynamically defined tags are shown in **bold**.

Address Type	Specification	Valid Data Types*	Access
Input Value	IV	**Float**, Double (EU and %FSR) **Short**, Word (2's Comp.)	Read Only
CJC Status	CJC	**Float**, Double	Read Only
Synchronous Data	SD	**Float**, Double (EU and % FSR) **Short**, Word (2's Comp.)	Read Only

*Valid data types are dependent on the data format selected for the device.

6B12 Addresses

The default data types for dynamically defined tags are shown in **bold**.

Address Type	Specification	Valid Data Types*	Access
Input Value	IV	**Float**, Double (EU and %FSR) **Short**, Word (2's Comp.)	Read Only
Synchronous Data	SD	**Float**, Double (EU and % FSR) **Short**, Word (2's Comp.)	Read Only

*Valid data types are dependent on the data format selected for the device.

6B13 Addresses

The default data types for dynamically defined tags are shown in **bold**.

Address Type	Specification	Valid Data Types*	Access
Input Value	IV	**Float**, Double (EU,%FSR and Ohms) **Short**, Word (2's Comp.)	Read Only

*Valid data types are dependent on the data format selected for the device.

6B21 Addresses

The default data types for dynamically defined tags are shown in **bold**.

Address Type	Specification	Valid Data Types*	Access
Output Value	OV	**Float**, Double (EU and %Span) **Short**, Word (Hexadecimal)	Read/Write
Current Readback	CR	**Float**, Double (EU and %Span) **Short**, Word (Hexadecimal)	Read Only
Reset Status	RS	**Boolean**	Read Only

*Valid data types are dependent on the data format selected for the device.

6B50 Addresses

The default data types for dynamically defined tags are shown in **bold**.

Address Type	Specification	Valid Data Types	Access
Port Data	DA DB DC	**Byte**, Char	Read/Write
Channel Data	DA.<Channel> DB.<Channel> DC.<Channel>	**Boolean**	Read/Write
Sync. Port Data*	SDA SDB SDC	**Byte**, Char	Read Only
Sync. Channel Data*	SDA.<Channel> SDB.<Channel> SDC.<Channel>	**Boolean**	Read Only
Reset Status	RS	**Boolean**	Read Only

*Only valid if **synchronous acquisition** mode is enabled.

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

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 COMn [<error mask>]

Device Status Messages

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

Device Specific Messages

Value out of range writing to address '<address>' on device '<device name>'

Address Validation

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

Address Validation

Missing address
Device address '<address>' contains a syntax error
Address '<address>' is out of range for the specified device or register
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

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 the address is correct; if it is not, re-enterit 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 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.

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 COMn [<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:
Verify that the correct port has been assigned to the channel.

Unable to set comm parameters on COMn

Error Type:
Fatal

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

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

Communications error on COMn [<error mask>]

Error Type:
Serious

Error Mask Definitions:

B = Hardware break detected.
F = Framing error.
E = I/O error.
O = Character buffer overrun.
R = RX buffer overrun.
P = Received byte parity error.
T = TX buffer full.

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

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

Device Status Messages

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

Device Status Messages

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

Device '<device name>' is not responding

Error Type:
Serious

Possible Cause:
1. The serial connection between the device and the host PC is broken.
2. The communications parameters for the serial connection are incorrect.
3. The named device may have been assigned an incorrect Network ID.

Solution:
1. Verify the cabling between the PC and the device.
2. Verify the specified communications parameters match those of the device.
3. Verify the Network ID given to the named device matches that of the actual device.

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

Error Type:
Serious

Possible Cause:
1. The serial connection between the device and the host PC is broken.
2. The communications parameters for the serial connection are incorrect.
3. The named device may have been assigned an incorrect Network ID.

Solution:
1. Verify the cabling between the PC and the device.
2. Verify the specified communications parameters match those of the device.
3. Verify the Network ID given to the named device matches that of the actual device.

Device Specific Messages

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

Device Specific Messages

Value out of range writing to address '<address>' on device '<device name>'

Value out of range writing to address '<address>' on device '<device name>'

Error Type:
Warning

Possible Cause:
The value you are attempting to write is not within the range of valid input for the specified address.

Solution:
Verify that the device is configured for the proper data range.

Index

- 6 -

6B11 Addresses 4
6B12 Addresses 5
6B13 Addresses 5
6B21 Addresses 5
6B50 Addresses 5

- A -

Acquisition 2
Address '<address>' is out of range for the specified device or register 7
Address Descriptions 4
Address Validation 6

- B -

Boolean 4

- C -

Communications error on COMn [<error mask>] 8
COMn does not exist. 8
COMn is in use by another application 8

- D -

Data Type '<type>' is not valid for device address '<address>' 7
Data Types Description 4
Device '<device name>' is not responding 9
Device address '<address>' contains a syntax error 6
Device address '<address>' is not supported by model '<model name>' 7
Device address '<address>' is read only 7
Device ID 3
Device Specific Messages 9
Device Status Messages 9
Double 4
Driver Setup 2

- E -

Error 4
Error Descriptions 6
Error opening COMn 8

- F -

Float 4
framing 8

- M -

mask 8
Missing address 6
Modem Setup 3

- N -

Network 3

- O -

overrun 8
Overview 2

- P -

parity 8

- S -

Serial Communications 7
Short 4
Synchronized 2

- U -

Unable to set comm parameters on COMn 8
Unable to write tag '<address>' on device '<device name>' 9

- V -

Value out of range writing to address '<address>'
on device '<device name>' 10

- W -

Word 4