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ASEA Interface Reference

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# Planning considerations for installing and configuring ASEA controllers

This reference describes how to set up, configure, and test ASEA controller communications with the server.

## Revision history

Revision	Date	Description
A	February 2015	Initial release of document.

## How to use this guide

Steps for connecting and configuring ASEA.

Complete each step before commencing the next step.

Step	Go to
Set up the controller and network	Communication settings for ASEA
Use Quick Builder to define channels	<ul style="list-style-type: none"><li>• <i>Quick Builder User's Guide</i></li><li>• ASEA channel and controller reference</li></ul>
Use Quick Builder to define controllers	<ul style="list-style-type: none"><li>• <i>Quick Builder User's Guide</i></li><li>• ASEA channel and controller reference</li></ul>
Download channel and controller definitions to the server	<i>Quick Builder User's Guide</i>
Test communications	Testing ASEA communications with the server
Use Quick Builder to define points	ASEA points reference

## Related topics

“Devices supported by the ASEA interface” on page 6

“Other documentation for ASEA” on page 7

“Architectures for ASEA” on page 8

“Communication settings for ASEA” on page 10

“ASEA channel and controller reference” on page 11

“Testing ASEA communications with the server” on page 24

“Communication settings for ASEA” on page 10

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## Devices supported by the ASEA interface

The server supports the ASEA controller via an RS-232 link.

Indirect connection via MasterView 800 is not supported.

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## Other documentation for ASEA

The following ASEA manuals provide information about installing and programming ASEA controller:

- *ASEA MasterPiece 100/200 Buyers Guide*, 7650 033-201/3
- *ASEA MasterPiece 200 User Manual*, 7650 039-201
- *ASEA Master Excom User's Manual*, 7650 056-201

# Architectures for ASEA

The following figure shows examples of point-to-point and multi-dropped RS-232 links.

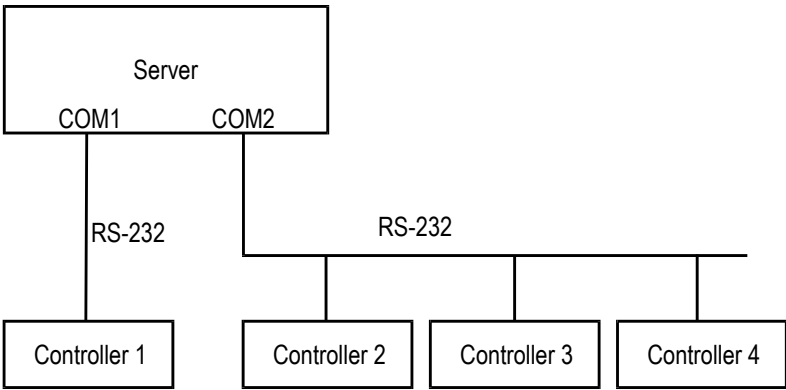



Figure 1: Point-to-point and multi-dropped links

## ASEA data files

Data in an ASEA controller is stored in data files. The server can access the following types of files via the EXCOM protocol.

Because the server cannot write to the AO and DO files, you need to write output data to the DAT file and configure the controller so that the data is transferred to the appropriate output addresses. See the ASEA documentation for details.

**Attention**  
The server cannot access the DSD file type.

File Type	Description	Controller Type	Data Type	Server Access
AI	Analog Input	3	AISTS, AIVAL	Read only
AO	Analog Output	4	AOSTS, AOVAL	Read only
DAT	Data Exchange File	5	DAT	Read/write
DI	Digital Input	1	DISTS, DIVAL	Read only
DO	Digital Output	2	DOSTS, DOVAL	Read only

In Quick Builder, you have to define a “logical” controller for each file type that the server needs to access in a physical controller. For example, if the server needs to access the DI and AI files in a particular controller, you must define two controllers in Quick Builder: a Type 1 for the DI file and a Type 3 for the AI file.

### Related topics

“Main properties for an ASEA controller” on page 15

## Using offsets with ASEA controllers

The ASEA files contain 32,767 records, but the server can only access a maximum of 4,096 records in a particular file. Therefore if the server needs to access records beyond that limit, you may need to define several “logical” controllers in Quick Builder, each with an appropriate offset.



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If the server needs to access records 0 to 8,191 and 10,000 to 14,095, you must define three controllers, with the following offsets:

- *0*, which can access records 0 to 4,095
  - *4096*, which can access records 4,096 to 8,191
  - *10000*, which can access records 10,000 to 14,095
- 

**Related topics**

“Main properties for an ASEA controller” on page 15

# Communication settings for ASEA

The ASEA controller is connected to the server via an RS-232 link. RS-232 allows direct connection over distances less than 15 meters. For longer distances, you need to connect the controller via a modem.

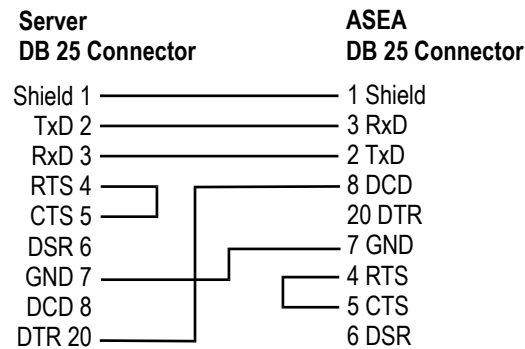


Figure 2: Wiring for direct connection to server's COM port

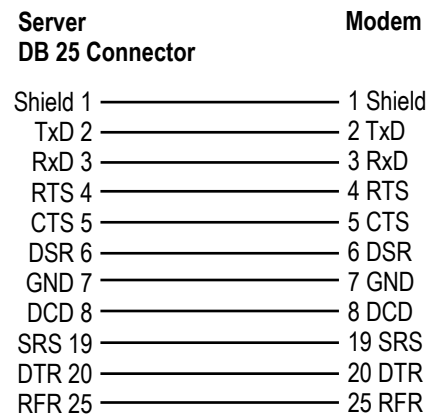


Figure 3: Wiring for connection via a modem

**Related topics**

- “Testing ASEA communications with the server” on page 24
- “Planning considerations for installing and configuring ASEA controllers” on page 5
- “ASEA channel and controller reference” on page 11

# ASEA channel and controller reference

This section describes the configuration and addressing information specific to ASEA channels and controllers.

In addition to the information contained in this reference, and for help to build channels and controllers, see the section titled "Building controllers or channels" in the *Quick Builder User's Guide*.

## Related topics

"Main properties for an ASEA channel" on page 12

"Port properties for an ASEA channel" on page 14

"Main properties for an ASEA controller" on page 15

"Optimizing ASEA scanning performance" on page 17

"Planning considerations for installing and configuring ASEA controllers" on page 5

"Testing ASEA communications with the server" on page 24

"Communication settings for ASEA" on page 10

## Main properties for an ASEA channel

The Main tab defines the basic properties for an ASEA channel.

For information about how to create a channel, see the topic titled "Building controllers and channels" in the *Quick Builder User's Guide*.

Property	Description
Name	The unique name of the channel. A maximum of <b>10</b> alphanumeric characters (no spaces or double quotes). Note: In Station displays, underscore characters ( <b>_</b> ) appear as spaces.
Description	(Optional) A description of the channel. A maximum of <b>132</b> alphanumeric characters, including spaces.
Associated Asset	The Tag Name of the Asset to be associated with the alarm group.
Marginal Alarm Limit	<p>The communications alarm marginal limit at which the channel is declared to be marginal. When this limit is reached, a high priority alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the <i>Server and Client Configuration Guide</i>. To change the priority of the alarm for one channel, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the <i>Server and Client Configuration Guide</i>.</p> <p>A channel barometer monitors the total number of requests and the number of times the controller did not respond or response was incorrect. The barometer increments by two or more, depending on the error, and decrements for each good call.</p> <p>To calculate an acceptable marginal alarm limit, use the formula: Square root of the number of controllers on the channel <math>\times</math> Marginal Alarm Limit defined on those controllers (Normally, you specify the same value for all controllers on a channel).</p> <p>For example, if there are 9 controllers on the channel and their Marginal Alarm Limit is set to 25, the value would be 3 (which is the square root of 9) <math>\times</math> 25 = 75.</p>
Fail Alarm Limit	<p>The communications alarm fail limit at which the channel is declared to have failed. When this barometer limit is reached, an urgent alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the <i>Server and Client Configuration Guide</i>. To change the priority of the alarm for one channel, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the <i>Server and Client Configuration Guide</i>.</p> <p>Set this to double the value specified for the channel Marginal Alarm Limit.</p>
Connect Timeout	<p>The length of time that the server attempts to connect to the controller. The server will stop trying to connect to the controller once the timeout period passes. The default value <b>10</b> seconds.</p> <p>Use the default value unless the communications line has a high error rate, or unless you are using modems.</p>
Read Timeout	<p>The length of time that the server will wait for a reply from the controller. The server will stop waiting once the timeout period passes. The default value is <b>2</b> seconds.</p> <p>Use the default value unless the communications line has a high error rate, or unless you are using modems.</p>
Item Type	The type of channel specified when this item was created.
Last Modified	The date and time the channel properties were modified.
Last Downloaded	The date and time the channel was last downloaded to the server.

Property	Description
Item Number	<p>The unique item number currently assigned to this channel, in the format <i>CHNCC</i>, where <i>cc</i> is the channel number.</p> <p>You can change the item number if you need to match your current server database configuration. The number must be between <i>01</i> and the maximum number of channels allowed for your system. For more information about setting the maximum value, see the topic titled "Adjusting sizing of non-licensed items" in the <i>Supplementary Installation Tasks Guide</i>.</p>

# Port properties for an ASEA channel

The Port tab defines the communication-related properties for an ASEA channel.

The **Port Type** for ASEA channels is *Serial*. (*TerminalServer* and *LANVendor* are not applicable to ASEA controllers.)



## Attention

Set the port properties to the same values as those specified when configuring the controller.

## Serial port properties

Property	Description
Serial Port Name	The device name of the serial port.
Baud	The number of data bits per second. The default is <i>9600</i> .
Number of Data Bits	The number of data bits used for transmission. The default is <i>8</i> .
Stop Bits	The number of stop bits used for transmission The default is <i>1</i> .
Parity	Defines parity verification of each character and must match configuration on the end device. The default is <i>NONE</i> .
Checksum	The type of checksum error detection used for the port. Select the value that matches the setting on the communication device. <ul style="list-style-type: none"> <li><i>NONE</i> (Default)</li> <li><i>CRC16_0</i></li> <li><i>CRC16_1</i></li> </ul>
XON/XOFF	The type of XON/XOFF software flow control used to stop a receiver from being overrun with messages from a sender. The types are: <ul style="list-style-type: none"> <li><i>Input</i> (use XON/XOFF to control the flow of data on the receive line)</li> <li><i>None</i> (default)</li> <li><i>Output</i> (use XON/XOFF to control the flow of data on the transmit line)</li> </ul>
RS-232	These options are applicable to the RS-232 link: <ul style="list-style-type: none"> <li><b>Enable RTS/CTS flow control.</b> Select this if you want to use RTS/CTS for flow control to stop a receiver from being overrun with messages from a sender.</li> <li><b>Detect DCD.</b> Select this if the Data Carrier Detect communication status line of the COM port requires monitoring (usually when using modem or microwave linking). When selected, the communications fails if the desired COM status line is not high—for example, on a dial-up link connection for a modem.</li> <li><b>Detect DSR.</b> Select this if the Data Set Ready communication status line of the COM port requires monitoring (usually when using modem or microwave linking). When selected, the communications fails if the desired COM status is not achieved.</li> </ul>

## Main properties for an ASEA controller

The Main tab defines the basic properties for an ASEA controller.

For information about how to create a controller, see the topic titled "Building controllers and channels" in the *Quick Builder User's Guide*.

Property	Description
Name	The unique name of the controller. A maximum of 10 alphanumeric characters (no spaces or double quotes). Note: In Station displays, underscore characters ( _ ) appear as spaces.
Description	(Optional) A description of the controller. A maximum of 132 alphanumeric characters, including spaces.
Associated Asset	The Tag Name of the Asset to be associated with the alarm group.
Channel Name	The name of the channel on which the controller communicates with the server. (You must have already defined a channel for it to appear in this list.)
Controller Type	The controller type, which determines what type of file is being accessed: <ul style="list-style-type: none"> <li>• DI</li> <li>• DO</li> <li>• AI</li> <li>• AO</li> <li>• DAT</li> </ul> For more information about data files, see the topic "ASEA data files."
Offset	The offset the server uses when accessing the controller file. For more information about offsets, see the topic "Using offsets with ASEA controllers."
Marginal Alarm Limit	The communications alarm marginal limit at which the controller is declared to be marginal. When this limit is reached, a high priority alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the <i>Server and Client Configuration Guide</i> . To change the priority of the alarm for one controller, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the <i>Server and Client Configuration Guide</i> .  A controller barometer monitors the total number of requests and the number of times the controller did not respond or response was incorrect. The barometer increments by two or more, depending on the error, and decrements for each good call.  The default value is 25.
Fail Alarm Limit	The communications alarm fail limit at which the controller is declared to have failed. When this barometer limit is reached, an urgent alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the <i>Server and Client Configuration Guide</i> . To change the priority of the alarm for one controller, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the <i>Server and Client Configuration Guide</i> .  Set this to double the value specified for the controller Marginal Alarm Limit.  The default is 50.
Item Type	The type of controller specified when this item was created.
Last Modified	The date and time the controller properties were modified.
Last Downloaded	The date and time the controller was last downloaded to the server.

Property	Description
Item Number	<p>The unique item number currently assigned to this controller, in the format <i>RTUnnnnn</i>.</p> <p>You can change the item number if you need to match your current server database configuration. The number must be between <i>01</i> and the maximum number of controllers allowed for your system. For more information about setting the maximum value, see the topic titled "Adjusting sizing of non-licensed items" in the <i>Supplementary Installation Tasks Guide</i>.</p>

#### Related topics

“ASEA data files” on page 8

“Using offsets with ASEA controllers” on page 8



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## Optimizing ASEA scanning performance

Minimize the number of scan packets — and the burden on the server — by using a small number of available scan periods for all your point definitions.

Example scan periods:

- 5 seconds for fast changing, important parameters
- 60 seconds for 1 minute PV history, parameters that change every few minutes
- 300 seconds for slow changing parameters

The scan packets that have been built can be listed by using the utility **lisscn** (list scan). Listing scan packets helps verify the scanning strategy.

For more information about **lisscn**, see the section titled "Command Reference" in the *Server and Client Configuration Guide*.



# ASEA points reference

This section describes how to configure points for an ASEA controller using Quick Builder.

In addition to the information contained in this reference, and for help to build points, see the section titled "Building and configuring points" in the *Quick Builder User's Guide*.

## **Related topics**


"Defining an ASEA address for a point parameter" on page 20

# Defining an ASEA address for a point parameter

For **PV Source Address**, **Source Address**, and **Destination Address** the format for an ASEA controller address is:

*ControllerName Address*

Part	Description
<i>ControllerName</i>	The name of the ASEA controller.
<i>Address</i>	The address within the controller where the value is stored.

If you would like help when defining an address, click  next to **Address** to display Address Builder.

## Address syntax

The format for the address is:

*Address DataType [DataFormat|BitNumber]*

Part	Description
<i>Address</i>	The record number to read from the controller. Record numbers range from <i>1</i> to <i>32767</i> .
<i>DataType</i>	The data type of the parameter being addressed. See the topic "ASEA Data types and formats" for more information.
<i>DataFormat</i>	The data format of the parameter being addressed. See the topic "ASEA Data types and formats" for more information.
<i>BitNumber</i>	The bit number being addressed, applicable only to DISTs, DOSTs, AISTs, and AOSTs data types. The bit range is <i>1</i> to <i>12</i> .

## Example

Record 6 of the DAT file as a 32-bit unscaled value.

6 DAT R32

Bit 5 of record 12 of the DISTs file.

12 DISTs 5

Bit 30 of record 20 of the DAT file.

20 DAT BIT 30

## ASEA data types and formats

The data types and formats are shown in the following table.

Data Type	Data Format	Record Value Accessed
AISTs		Bits 1 to 12
AIVAL	R32	32 bits, real, unscaled
AOSTs		Bits 1 to 12
AOVAL	R32	32 bits, real, unscaled

Data Type	Data Format	Record Value Accessed
DAT	R32	32 bits, real, unscaled
	C16	16 bits, integer, unscaled
	U16B	Unsigned 16 bits, integer, scaled
	S16B	Signed 16 bits, integer, scaled
	U4095	12 bits, scaled
	Bit $n$ ( $n= 1$ to 32)	0 or 1
DISTS		Bits 1 to 12
DIVAL		0 or 1
DOSTS		Bits 1 to 12
DOVAL		0 or 1



# Troubleshooting ASEA issues

This section describes troubleshooting tasks for ASEA that you can perform either on the server or from any Station.

## **Related topics**

“Testing ASEA communications with the server” on page 24

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## Testing ASEA communications with the server

You use the ASEA test utility, **astst**, to test communications between the server and the ASEA controller after you have downloaded channel and controller definitions to the server database.

**CAUTION**

Do not use the utility while the server is running because it will interfere with the operation of the server.

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**Prerequisites**

- Set up the controller.
- Connect all cables.
- Define the controller and channel in Quick Builder.
- Download the Quick Builder definitions to the server, without errors.
- Ensure the channel is out of service.

**To run the astst utility**

- 1 Open a Command Prompt window.
- 2 Type **astst** and then press Enter.
- 3 Follow the directions as prompted.

**Tip**

To display help for astst, type **h** and then press Enter.

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**Related topics**

“Communication settings for ASEA” on page 10

“Planning considerations for installing and configuring ASEA controllers” on page 5

“ASEA channel and controller reference” on page 11



# Notices

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<http://www.honeywellprocess.com/support>

If you have comments about Honeywell Process Solutions documentation, send your feedback to:

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Use this email address to provide feedback, or to report errors and omissions in the documentation. For immediate help with a technical problem, contact your local Honeywell Process Solutions Customer Contact Center (CCC) or Honeywell Technical Assistance Center (TAC) listed in the “Support and other contacts” section of this document.

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## How to report a security vulnerability

For the purpose of submission, a security vulnerability is defined as a software defect or weakness that can be exploited to reduce the operational or security capabilities of the software.

Honeywell investigates all reports of security vulnerabilities affecting Honeywell products and services.

To report a potential security vulnerability against any Honeywell product, please follow the instructions at:

<https://honeywell.com/pages/vulnerabilityreporting.aspx>

Submit the requested information to Honeywell using one of the following methods:

- Send an email to [security@honeywell.com](mailto:security@honeywell.com).
- or
- Contact your local Honeywell Process Solutions Customer Contact Center (CCC) or Honeywell Technical Assistance Center (TAC) listed in the “Support and other contacts” section of this document.

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## Support

For support, contact your local Honeywell Process Solutions Customer Contact Center (CCC). To find your local CCC visit the website, <https://www.honeywellprocess.com/en-US/contact-us/customer-support-contacts/Pages/default.aspx>.

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## Training classes

Honeywell holds technical training classes on Experion PKS. These classes are taught by experts in the field of process control systems. For more information about these classes, contact your Honeywell representative, or see <http://www.automationcollege.com>.



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