

Anybus® X-gateway

Ethernet to J1939

Installation Guide

AB7665

Part no. SP0863

Rev. 1.01

HMS Industrial Networks AB

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Important Information

- Power, input and output (I/O) wiring must be in accordance with Class 1, Division 2 wiring methods - article 501-4 (b) of the National Electric code, NFPA 70 and in accordance with local codes.
- Terminal tightening torque must be between 5 - 7 lbs-in (0,5-0,8 Nm).
- For use in Class 2 circuits only.
- Suitable for Surrounding temperature of 65 C max.
- Use 60/75 C copper wire only.

<p>ATTENTION</p> 	<p style="text-align: center;">FAIL-SAFE OR CRITICAL OPERATIONS</p> <p>This product is not designed, intended, authorized, or warranted to be suitable for use or resale as control equipment in, or for other applications related to, hazardous or potentially-hazardous environments or applications requiring high-availability or fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communications systems, air traffic control, life support, public works, weapons systems, or any other application in which the failure of a product could lead to property damage, death, personal injury, or environmental damage.</p>
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<p>WARNING</p> 	<p style="text-align: center;">EXPLOSION HAZARD</p> <p>Substitution of components may impair suitability for class 1, Division 2.</p>
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<p>WARNING</p> 	<p style="text-align: center;">EXPLOSION HAZARD</p> <p>When in hazardous locations turn off power before replacing or wiring modules</p>
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<p>WARNING</p> 	<p style="text-align: center;">EXPLOSION HAZARD</p> <p>Do not disconnect equipment unless power has been switched off or the area is known to be nonhazardous.</p>
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Installation Items Checklist

- Anybus X-gateway Ethernet to J1939 (part number AB7665)
- *Anybus-X Configuration Tool* (BWConfig) downloadable from the HMS Industrial Networks website, www.anybus.com.
- *Anybus X-gateway Ethernet to J1939 User Manual* downloadable from the HMS Industrial Networks website, www.anybus.com.
- J1939 and power cables for connection to supplied Phoenix connectors and Ethernet cable for connection to the RJ-45 connector.
- Null-modem RS-232 cable for connecting PC to 9-pin D-sub connector for configuration.

Power and Network Connections

The power and network connections to the Anybus X-gateway are made on the end of the module. Figure 1. indicates the location of each connector.

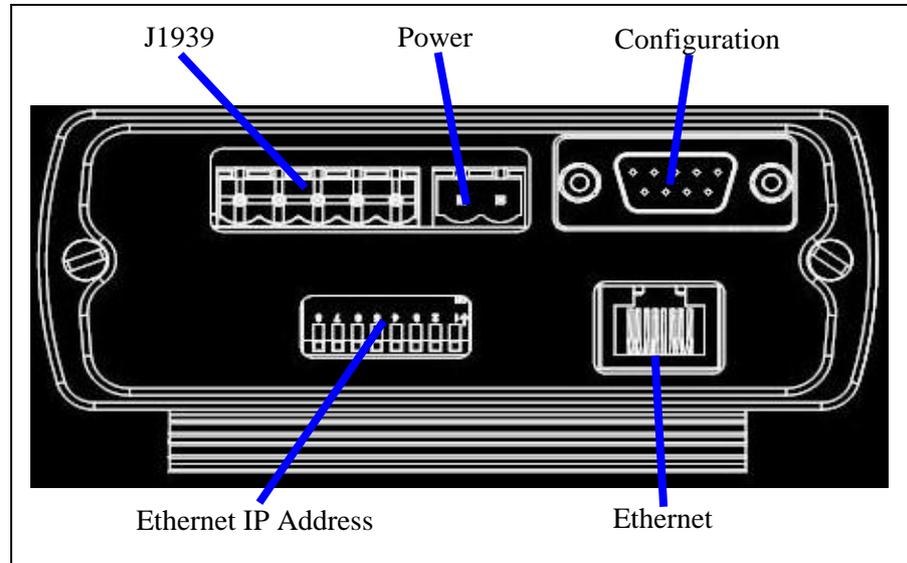


Figure 1. X-gateway Power and Network Connections

Connecting Power

The X-gateway requires 24 volts DC power on the 2 position terminal block connector.

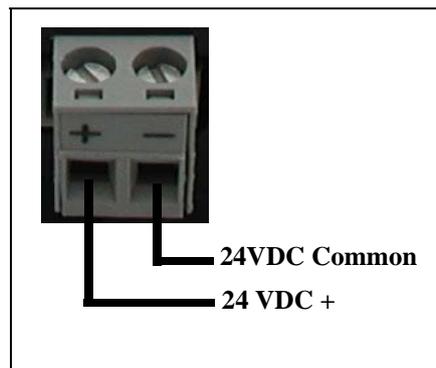


Figure 2. Power Connection

The module will start immediately when power is applied (There is no On/Off switch on the module).

Connecting J1939

The J1939 network connection is a 5-pin terminal block located next to the power connection on the end of the module. The female terminal block connector is provided with the X-gateway. Connections to be made are illustrated in Figure 3..

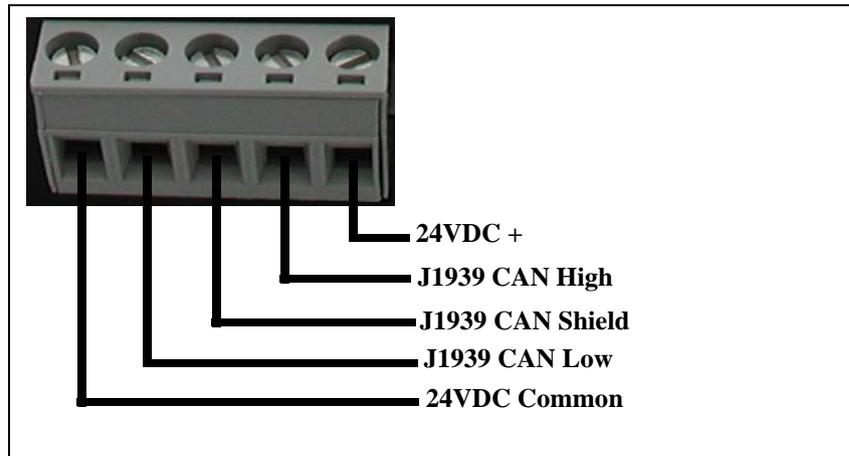


Figure 3. J1939 Connection

The CAN High and Low signal lines should be connected to the CAN High and Low connections respectively on all devices on the network. The signal lines should not be swapped on any device connections.

The X-gateway module does not provide CAN network termination internally. Any termination required by the network must be made during installation.

Note: The 24VDC terminals on pins 1 and 5 are physically connected to the power on the 2-pin power connector. The module may be powered from either (or both) sets of pins.

Connecting to Ethernet

Network Connection

The Ethernet connection uses a standard RJ45 connector. This is plugged into the socket on the end of the module.

Setting the IP Address

Setting the IP Address Using DHCP/BOOTP

When DHCP/BOOTP is enabled, the IP address settings will be configured by the DHCP or BOOTP server on the network.

This is the default setting of the X-gateway when it is shipped. The DHCP option is enabled or disabled using the X-gateway's Settings web page.

Setting the IP Address with the Configuration Switch

The IP configuration switch is an 8 position DIP switch located on the end of the module. If any of the 8 switches are in the ON position, the IP address will be set as follows:

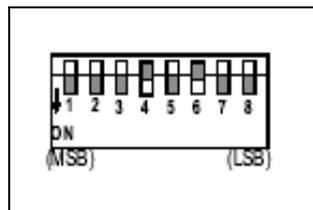
IP Address:	192.168.1. <i>n</i>
Subnet Mask:	255.255.255.0
Gateway Address:	0.0.0.0

Where *n* is the value represented in binary by the DIP switch.

This address is a private address and can only be used on a local intranet.

Switches 8-1 correspond to bits 0-7 of the address. (They are numbered backwards.)

Example:

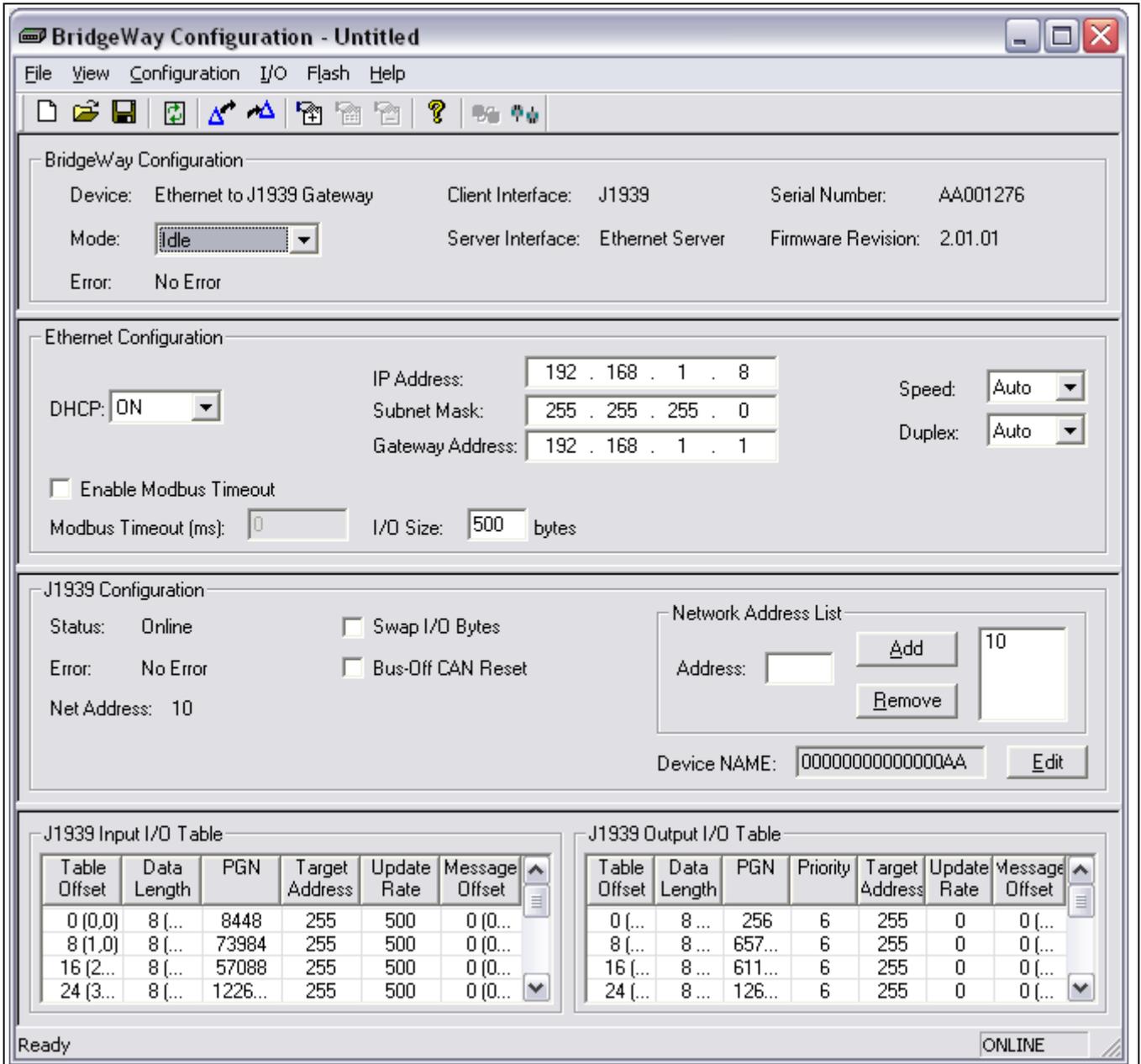


The switch represents the binary value 00010100, or 20 decimal. (The switch position is shown in White in the diagram.)

The resulting IP address will be 192.168.1.20.

Setting the IP Address Using the Anybus-X Configuration Tool

The Ethernet configuration can be set using the BWConfig tool. When launched, the tool (shown below) will allow the Ethernet configuration to be edited and downloaded to the module. Once the configuration has been downloaded, the X-gateway will be reset automatically by the tool. See the Configuration section of the user manual for complete details on using BWConfig.



Setting the IP Address Using the Web Page

The IP address can also be configured using the Status and Settings web page. The web pages are accessed by typing the current IP address of the X-gateway into a web browser URL. The Status and Settings web page appears as shown below.

The screenshot shows a web browser window with the address bar containing `http://65.106.34.249/web/BW_Settings.htm`. The page title is "BridgeWay Status & Settings". A navigation bar includes "Home" and "Status & Settings". The main content area is titled "Status & Settings" and displays the following information:

Product Name	Ethernet to J1939 Gateway
Vendor ID	170
Product Type	12
Product Code	5
Product Revision	1.01.01
Anybus Revision	1.19
Serial Number	0xA0001234
J1939 Address	5
J1939 Network Status	ONLINE
J1939 Network Fault	No Fault
Run/Idle Mode	IDLE
IP Address	<input type="text" value="65.106.34.249"/>
Subnet Mask	<input type="text" value="255.255.255.192"/>
Gateway IP Address	<input type="text" value="65.106.34.193"/>
DHCP enabled	<input type="checkbox"/>

At the bottom of the form is a "Submit Values" button. The browser status bar at the bottom shows "Applet AnyBus started" and "Internet".

The IP address, subnet mask, and default gateway address are displayed in the edit boxes on the web page. Changing any values and clicking the Submit Values button will set the addresses in the X-gateway. Note that a power cycle or module reset is required for the changes to take effect.

Note: If your web browser is configured to cache web pages, it may appear that the X-gateway has not changed address after you power cycle the module. Make sure that the browsers settings are configured to always reload pages. On Internet Explorer this is done in the Temporary Internet Files Settings dialog by selecting the “Every Visit” option for when the browser should check for page changes.

Configuration Port Connector

The configuration port is the 9-pin D-Subminiature male connector on the end of the X-gateway. The connector has a standard RS-232 DTE pin configuration. The connections to be made as shown below.

Pin	Connection
2	Receive Data
3	Transmit Data
5	Signal Ground

The X-gateway is connected to a PC for configuration using a null-modem cable. A null-modem cable has pins 2 and 3 swapped so that the PC's Transmit line is connected to the X-gateway's Receive line, and the PC's Receive line is connected to the X-gateway's Transmit line.

Note: The X-gateway does not make use of the modem control signals specified for a DTE connector. Connecting the module through devices, such as isolation modules, which assume control of these lines may cause the BWConfig communications to be unreliable.

Configuration Software Installation

The Anybus-X Configuration Tool is required to configure the X-gateway. The BWConfig installation is downloadable from the Pyramid Solutions website.

Unzip the installation files, then run the *setup.exe* program. Follow the instructions on the screen during the installation process.

Further Technical Information

Complete technical information on installing and configuring the X-gateway can be found in the *Anybus X-gateway Ethernet to J1939 User Manual*. The User

Manual can be downloaded from the HMS Industrial Networks website or requested directly at the contact information supplied below.

Technical Specifications

Environmental Specifications

Operating Temperature: 0 to 70 degrees Celsius

Non-Operating Temperature: -25 to 85 degrees Celsius

EMC Directive Compliance

This product is tested to meet the Council Directive 89/336/EC Electromagnetic Compatibility (EMC) by applying the following standards, in whole or in part, documented in a technical construction file:

- EN50081-2-EMC Generic Emission Standard, Part 2 - Industrial Environment
- EN50082-2-EMC Generic Immunity Standard, Part 2 - Industrial Environment

This product is intended for use in an industrial environment.

Electrical Specifications

Power Supply: 12-30 VDC.

Current Requirements: 93-95 mA at 24 VDC.

Warranty

HMS Industrial Networks AB warrants all new products to be free of defects in material and workmanship when applied in the manner for which they were intended and according to HMS Industrial Networks AB' published information on proper installation. The Warranty period is one year from the date of shipment.

HMS Industrial Networks AB will repair or replace, at its option, all products returned to it freight prepaid, which prove upon examination to be within the Warranty definitions and time period.

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