

Wiring & Installation Instructions

W5-JEM1

EtherNet/IP to RS-232/485 Serial Device Gateway

*Cost-optimized, multi-protocol, ASCII gateway
perfect for RS-232/485 Serial Device Integration*

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Rev 1.00

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Western Reserve Controls, Inc.

1 General Specifications

1.1 Table of Specifications

EtherNet/IP Device Profile:	Generic Device Type 0x2B (2B hex)
EtherNet/IP: Conformance:	Conforms to the ODVA EtherNet/IP Specification Version 1.23
Ethernet Link Speed:	10/100 Mbits
IP Address selection:	Static IP configured via web browser (Factory Default: 192.168.1.10)
Power Supply:	5.0 – 28.0 Vdc 1A user replaceable fuse (spare fuse included)
Maximum Power:	2.4W, 100mA @ 24Vdc supply, 480mA @ 5Vdc supply
Minimum RPI:	4ms*
Serial Port Isolation	1000V DC Isolation
Size:	W5-JEM1-DH2: 2.000"x2.575"x 4.950" without connectors attached
Operating Temp:	-40 to +70 C
Humidity:	0-95% RH, non-condensing
RoHS:	Yes (RoHS 2)
CE Mark:	No

* Faster RPI values may be supported by certain PLC controllers.

Hardware Installation and Set-Up

1.2 Installation

Follow the steps below:

1. In most cases it is recommended to set the device's IP address prior to installation. See W5-JEM1 User Manual for complete instructions.
 - a. Note: factory default IP address is 192.168.1.10 for all units
2. Mount unit onto DIN rail
3. Wire up power (24VDC typical), common, and chassis ground to the power connector. See "Connector Pinouts" for a diagram.
 - a. If there is no chassis ground connection, or the power supply is connected to chassis ground, jumper the chassis ground connection to the common connection
4. Connect the device to the controlling PLC with an Ethernet cable
 - a. The device may be connected directly or through an ethernet switch
5. Connect the W5-JEM1 to the serial device using a compatible serial cable
 - a. This device requires serial cables with a special pinout. See section 1.8 "Serial Wiring Diagrams" and section 1.7 "Connector Pinouts" for further information.
6. Apply power, device is ready for use with PLC.
7. Also see W5-JEM1 User Manual for an explanation of how to use the W5-JEM1 with a PLC

1.3 Power Supply

The device is intended to be used with standard 24V DC industrial power supplies. However, any voltage between 5V and 28V may be supplied to the device assuming sufficient current is provided.

1.4 Network Connection

The device must be connected to the controlling PLC either directly with a cable or through your local network Ethernet switch.

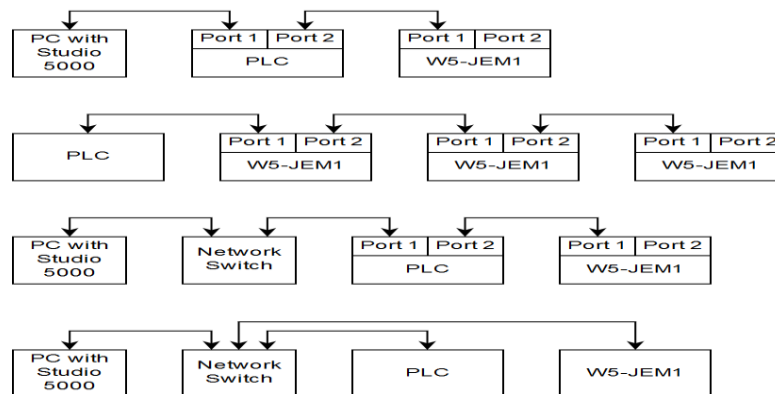


Figure 1. Several possible ethernet network configurations

1.5 LED Indicators

Table 1. Overview of LED Indicators

LED Name	Description
RX	Indicates when data is being received on the serial line
TX	Indicates when data us being transmitted by the W5-JEM1 onto the serial line
MS	Indicates if the module is okay or if there is an error. See Table 2 below.
NS	Indicates the network status. See Table 3 below.

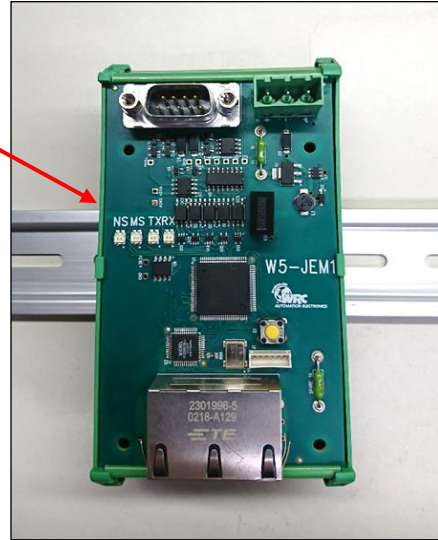


Table 2. Module Status LED (labeled MS)

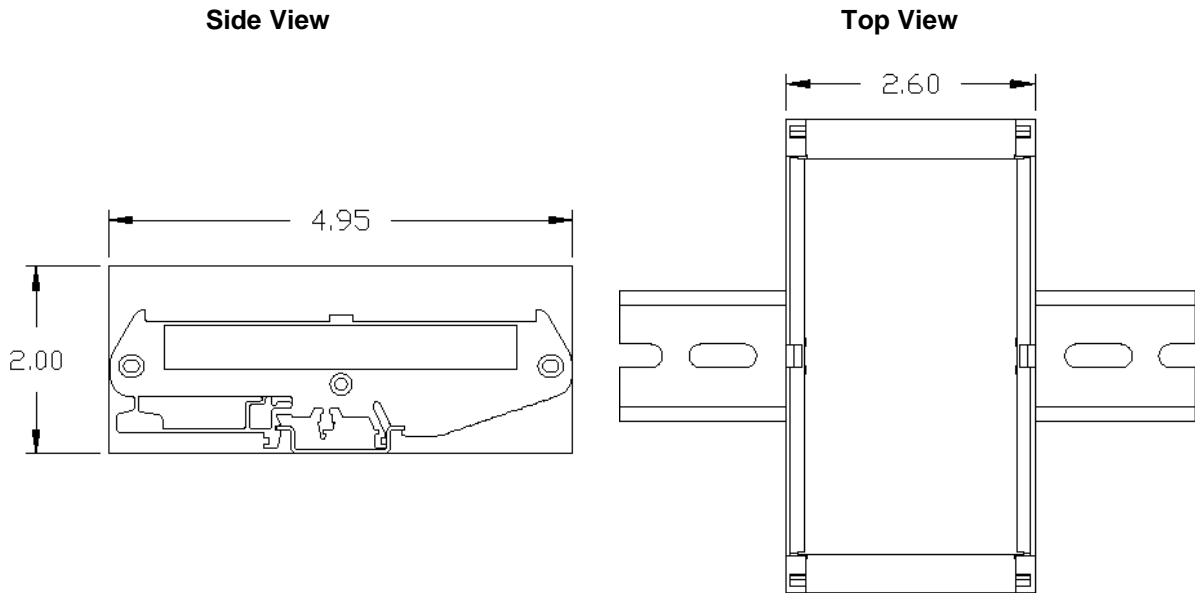
LED State	Module Status	Meaning
Off	No Power	Device is not powered.
Green	Device Operational	W5-JEM1 is operating normally.
Flashing Red	Minor Fault	Recoverable fault.
Solid Red	Critical Fault	Device will automatically reboot to clear a critical fault after 30 seconds.

Table 3. EtherNet/IP Network Status LED (labeled NS)

LED State	Network Status	Meaning
OFF	No Power	W5-JEM1 has no power
Flashing Green	Online, not connected	W5-JEM1 is online but is not connected to a PLC.
Green	Online, connected	W5-JEM1 is operating normally and is connected to a PLC
Flashing Red	Connection time-out	One or more connections are timed out.

1.6 Product Drawing and Dimensions

Shown below are the overall dimensions of the product when installed on a piece of standard DIN rail. This drawing does not include the overall height or length added by the Power, Serial, or Ethernet cables or their respective connectors.



1.7 Connector Pinouts

Figure 2. Power Connector Pinout

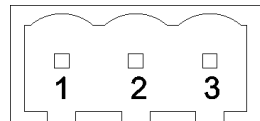
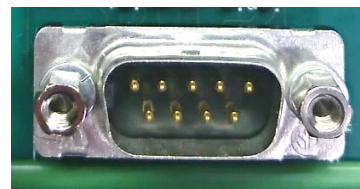
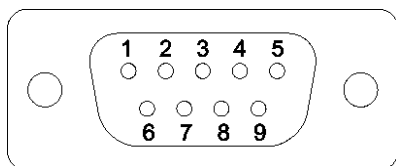


Table 4. Power Connector Pinout

Pin	Name	Description
1	GND	Chassis Ground
2	V- (COM)	Power Common
3	V+	Power In, 5V-28V

Figure 3. Male DE-9 Serial Connector Pinout



1.8 Serial Wiring Diagrams

The serial port can be operated as RS-232, RS-422, or RS-485 connection. Selection between RS-232, 422 or 485 is made by using the correct cable for the desired RS specification.

ATTENTION: You must use a cable that matches the specifications shown in the table below.

Table 5. D-sub Connector Pins

DE-9 Pin #	RS-232	RS-422	RS-485
1	Do Not Connect	Transmit Data –	Transmit/Receive Data –
2	Receive Data	Do Not Connect	Do Not Connect
3	Transmit Data	Do Not Connect	Do Not Connect
4	Do Not Connect	Receive Data –	Do Not Connect
5	Common	Common	Common
6	Do Not Connect	Receive Data +	Do Not Connect
7	Request To Send	Request to Send*	Request to Send*
8	Clear To Send	Clear to Send*	Clear to Send*
9	Do Not Connect	Transmit Data +	Transmit/Receive Data +

*RTS and CTS are not supported in RS-422 and RS-485. These connections must be connected together at the JEM1 Device

Note: Pay attention to distance limitations based upon RS standards and baud rate.

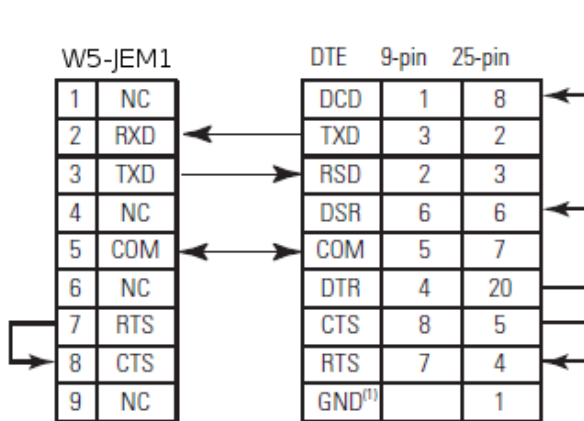


Figure 4. RS-232 Wiring Diagram – Module to DTE Device (Hardware Handshaking Disabled).

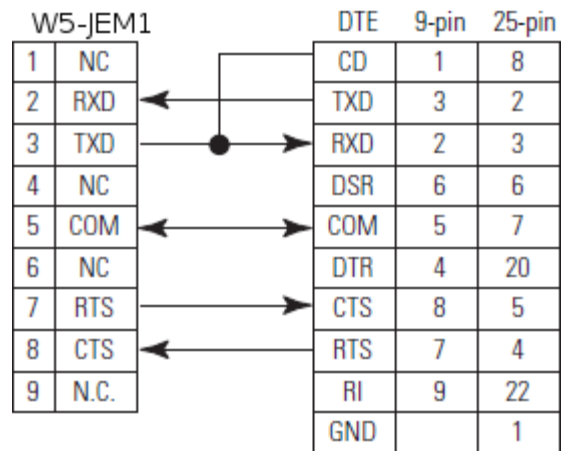


Figure 5. RS-232 Wiring Diagram – Module to Printer (Hardware Handshaking Enabled, Standard Printer Adapter Cable.).

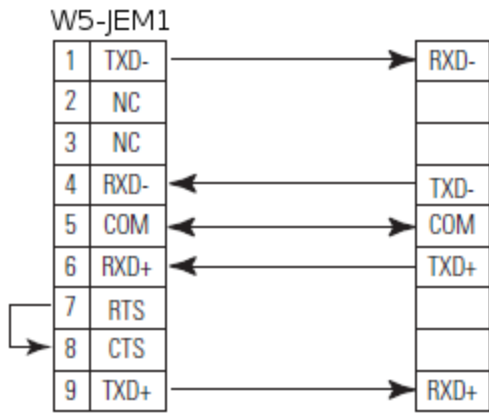


Figure 6. RS-422 Wiring Diagram

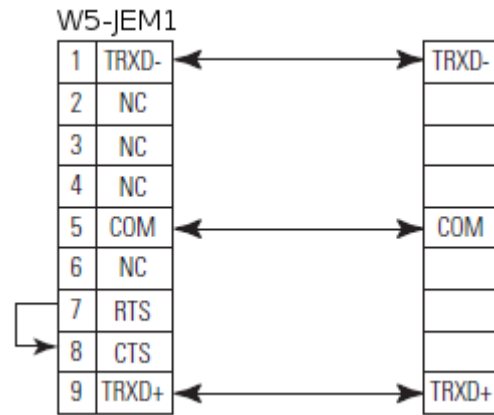


Figure 7. RS-485 Wiring Diagram

1.9 Models and Part Numbers

WRC Order Number

W5-JEM1-DH2

Description

DIN Mount Serial to EtherNet/IP Gateway

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