

Wireless connectivity between different data buses - Ethernet, Modbus, DF1

Interface between wireless I/O and DCS/PLC/HMI

Wireless isolation firewall for data bus extension

The 905U-G Wireless gateway products provide a wireless interface between various data buses used in process and automation applications. The 905U-G includes an integral 900MHz license-free radio transceiver, and transfers transducer and control signals (I/O) using the highly secure and highly reliable WIB-smart radio protocol.

The WIB-smart radio protocol is designed for very efficient radio usage, with configurable communications based on event reporting (I/O change), update times and/or poll response. Other features are:

- High security data encryption
- Automatic acknowledgment and error-correction, peer to peer addressing
- Multiple path routing

Applications include:

- The 905U-G interfaces between 905U wireless I/O and various data buses. Connect wireless I/O to PLC's, DCS, SCADA or Internet.
- Wireless extension of factory automation buses such as Profibus and Ethernet, providing a high security firewall.
- Wireless interconnectivity between different data buses - Ethernet to Profibus to Modbus to DF1.

- Combined networks of the above, form a WIB ("Wireless Information Backbone").

The 905U-G modules also have eight on-board discrete I/O, individually configurable as input or output.

Network configuration is performed with easy-to-use free software. I/O links are configured between different modules in the network.

Ordering information:

- | | |
|------------|--|
| 905U-G-MD1 | Modbus Master, Modbus Slave, DF1 interface |
| 905U-G-ET1 | Ethernet IP / Modbus TCP / HTTP-FTP-Email |

Power Supply

9 – 30VDC / 12 – 24VAC

Battery charging circuit included for 12V back-up battery, max charge current regulated to 0.7A (>12V supply)

Normal current drain

- | | |
|------------------------|----------------------|
| MD1 version | 12V 150mA; 24V 90mA |
| Other version | 12V 270mA; 24V 170mA |
| Add 5mA per active I/O | |

Current drain during radio transmission - add to above
12V 350mA; 24V 200mA

General

Modbus/DF1 version

-40 to 140 °F (-40 to 60 °C), 0 - 99 %RH

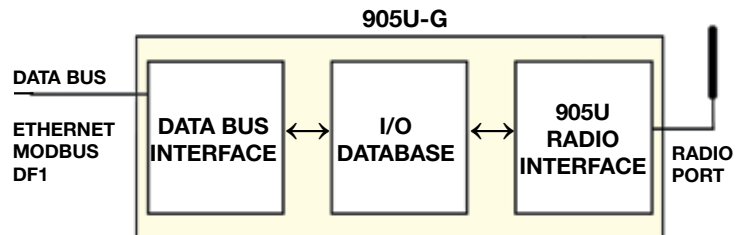
Ethernet

30 to 140 °F (0 to 60 °C), 0 - 95 %RH

EMC Compliant EN55022, EN50082-1, FCC Part 15

Housing - extruded aluminum case 5.1 x 7.3 x 2.4 inches (130 x 185 x 60 mm), DIN rail mounting, removable terminal blocks for ease of module replacement, terminals suitable for 12 gauge (2.5sqmm) wire

LED indication for processor OK, radio TX and RX, serial TX and RX, active status.



I/O Capacity

Modbus / DF1 4300 I/O points (analog plus discrete)
 Ethernet
 2048 bytes input and 2048 bytes output
 up to 4300 discrete I/O points, or
 up to 1024 analog in / 1024 analog out
 Register size 16 bit
 Number of remote 905U addresses 500

Radio Transceiver

License-free frequency-hopping spread spectrum, 902-928MHz
 Transmit power 1W
 Approved to FCC Part 15.247, RS210
 Line-of-sight range, subject to local conditions
 USA/Canada, 4W ERP, 20+ miles
 Obstructed range through buildings and congested plant or factory, typically 0.5 – 1.5 mile (1 – 2 km)
 Range may be extended by up to four intermediate repeaters
 Data rate 19.2 Kbaud with FEC (raw rate 115.2 Kbaud)

Radio Transmission

Radio communications can be configured for combination of event reporting (change-of-value), update time, read/write blocks and poll response.
 Radio message includes system addressing, unit addressing, error-checking and configurable security encryption.
 Communication control includes message acknowledgments and up to four re-transmissions.
 Peer to peer addressing. Messages may be routed thru four intermediate repeater addresses.
 Fail-to-transmit and fail-to-receive alarms configurable

Modbus Specification

Modbus RTU (binary), master / slave configurable.
 RS232 or RS485, 300 - 19200 bits/sec.

DF1 Specification

Allen-Bradley DF1 full-duplex.
 RS232 only, 300 - 19200 bits/sec.

Ethernet

10/100 Mbit/s, RJ45 connector, Transformer isolated interface
 Modbus/TCP class 0, class 1 and partially class 2 slave
 EtherNet/IP level 2 I/O Server
 Embedded Web system (Dynamic HTTP), on-board file system (1.4MB flash disc), user downloadable web pages through FTP server, Email functionality (SMTP)

On-board I/O

Eight discrete I/O, individually configurable as input or output. Inputs suitable for voltage free contacts.
 Outputs are FET, 30VDC 500mA.

Configuration & Diagnostics

Configuration via free Windows software
 Diagnostics include on-line read/write of I/O registers, radio signal strength values from remote units, and off-line testing of data bus protocol.

Area Classification

Class 1 Div 2 (USA, Canada)

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