# 105U-G Wireless Gateway

Wireless connectivity between different data buses -
Profibus, Ethernet, Modbus, DF1, DeviceNet, Modbus Plus

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

The 105U-G Wireless gateway products provide a wireless interface between various data buses used in process and automation applications. The 105U-G includes an integral radio transceiver, and transfers transducer and control signals (I/O) using a highly secure and highly reliable radio protocol.
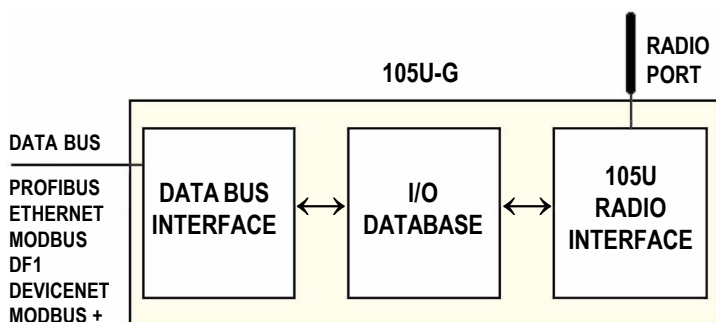
The 105U radio protocol is designed for very efficient radio usage, with configurable communications based on event reporting (I/O change), update times and/or poll response. Other features are:
    high security data encryption
    automatic acknowledgment and error-correction,
    peer to peer addressing, and
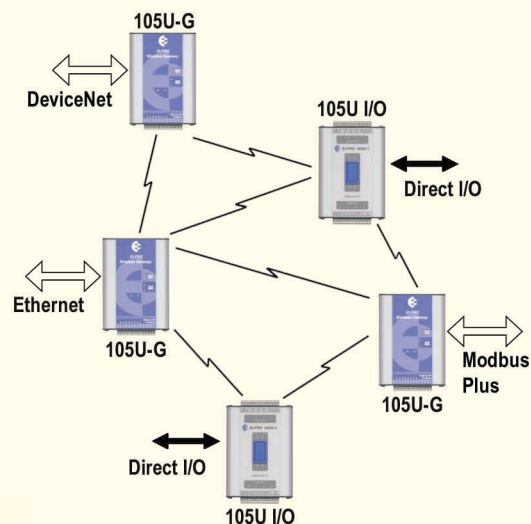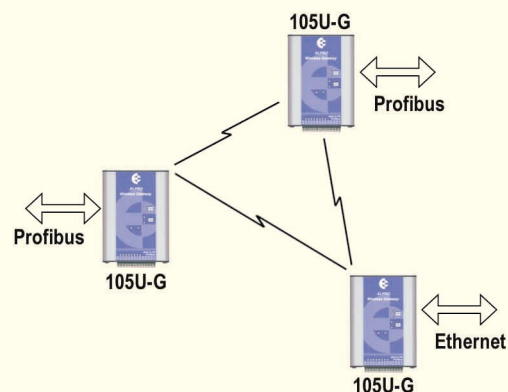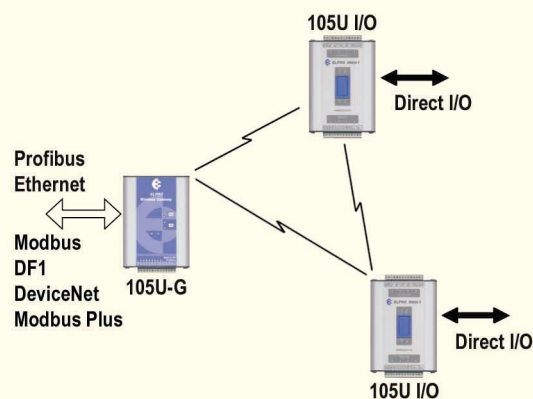   mulitple path routing

Applications include:

♦   The 105U-G interfaces between 105U 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.

♦   Wireless interconnectivity between different data buses - Ethernet to Profibus to Modbus to DF1.

♦   Combined networks of the above, forming an Elpro WIB ("Wireless Instrumentation Backbone")

The 105U-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:

105U-G-MD1	Modbus Master, Modbus Slave, DF1 interface
105U-G-PR1	Profibus DP Slave interface
105U-G-ET1	Ethernet IP / Modbus TCP / HTTP-FTP-Email
105U-G-DE1	DeviceNet Slave interface
105U-G-M+1	Modbus Plus Slave interface

ELPRO Technologies
www.elprotech.com

Wireless Solutions for Process Applications

✓ WIB ready

Specifications ISO 9001 Certified

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
    Modbus / DF1 version   12V 150mA; 24V 90mA
    Profibus / Ethernet   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
    -20 to 60 degC, 0 - 99 %RH
Profibus / Ethernet / DeviceNet / Modbus Plus
    0 to 60 degC, 0 - 95 %RH
EMC Compliant EN55022, EN50082-1, FCC Part 15
Housing - extruded aluminium case 130 x 185 x 60 mm, DIN rail mounting, removable terminal blocks for ease of module replacement, terminals suitable for 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)
Profibus 416 I/O bytes
        up to 1952 discrete inputs / 1952 discrete outputs
        or up to 122 analog in / 122 analog out
Ethernet 2048 bytes input and 2048 bytes output
        up to 4300 discrete I/O points
        or up to 1024 analog in / 1024 analog out
DeviceNet 512 bytes input and 512 bytes output
        up to 4300 discrete I/O or
        up to 256 analog in / 256 analog out
Modbus Plus 2048 bytes input and 2048 bytes output
        up to 4300 discrete I/O or
        up to 1024 analog in / 1024 analog out
Register size 16 bit
Number of remote 105U addresses 500

Radio Transceiver

Single channel, synthesised, direct frequency modulation.
Frequency   405-490 MHz, 12.5KHz channels, 10-500mW, 5W
        220-230 MHz, 25KHz channels, 5W
        869.525 MHz, 250KHz channel, 500mW
Approved to EN 300 220, AS4268.2, RFS29
Expected line-of-sight range, with unity gain antennas
    10mW - 2km; 500mW - 5km(869Mz) / 10km (400MHz);
    5W - 40km (220MHz) / 30km (400MHz)
Range may be extended by up to four intermediate
    repeaters.

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.

Profibus

Profibus-DP Slave functionality according to EN 50170.
RS-485 optically isolated with on-board DC/DC converter, automatic baudrate detection (9600 bit/s - 12 Mbit/s)

Ethernet

10/100 Mbit/s, RJ45 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)

DeviceNet

DeviceNet 2.0 Slave, optically isolated RS422 with selectable baudrate 125, 250 and 500 Kbit/sec.

Modbus Plus

Modbus Plus Slave, optically isolated RS485 with standard baudrate of 1 Mbit/sec, global data base transactions with routing for up to six networks.

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.

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Specifications subject to change without notice

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