905U-G WIRELESS GATEWAY
Databus interface and conversion

ELPRO wireless gateways provide the interface and/or communication between similar/dissimilar industrial databus devices (eg Modbus to Profibus to EtherNet/IP, PLC’s to SCADA/DCS etc). Connected via RS232/RS485/RJ-45, register databus values are transmitted/received by radio to and from field and control room devices.

ELPRO’s 905U-G series multi-hop repeat five times, support a variety of industrial protocols and can be combined with ELPRO’s 905U-I/O and 115S products to create simple to complex I/O and databus networks.

ELPRO TECHNOLOGIES
Industrial Wireless Technology

Product Features
- 865-867/902-928MHz, 1W, FHSS, 19.2kbps radio communications to 20mi/33km with multi-hop repeating.
- Able to connect similar/dissimilar industrial protocols and vendor devices (incorporating: Master/Slave, Slave/Slave, Master/Master networks).
- Simple to complex, point to multi-point communications with forward-error correction (FEC), data integrity check (CRC) and data encryption.
- Eight configurable digital I/O with I/O expansion via ELPRO 115S range.
- AC/DC/battery power options with UPS battery charger.
- Module diagnostics including read/write of register I/O, reporting of signal strength indication (RSSI), communications logging and internal measurement of low/normal and battery supply voltages.
- Class I Div 2 hazardous area approval (USA/Canada), 902-928MHz only.

*Module/topology/country regulation dependent.

Application Examples
- Similar/dissimilar databus SCADA/DCS to PLC-PLC communications.
- Moving machinery PLC-PLC/HMI connection/operation.
- Databus cable replacement.
- Smart instrument interface and connection (eg gas analyzer).
- Multi I/O data agglomerate/repeater for large networks.
### 905U-G Wireless Gateway

#### Databus Interface and Conversion

<table>
<thead>
<tr>
<th>Model</th>
<th>Industrial Protocol Supported/ I/O Capacity/baud rate</th>
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<tbody>
<tr>
<td>905U-G-MD1</td>
<td>Modbus RTU (Master &amp; Slave); DF1</td>
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<tr>
<td></td>
<td>Up to 4300 I/O points: analog and/or discrete</td>
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<tr>
<td></td>
<td>Modbus - RS232/485: 300-38400 bps</td>
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<td></td>
<td>DF1 (full duplex) - RS232: 300-38400 bps</td>
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<tr>
<td>905U-G-ET1</td>
<td>EtherNet/IP (Level 2 I/O Server)</td>
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<td></td>
<td>Modbus TCP (Class 0, 1; partially class 2 Slave)</td>
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<tr>
<td></td>
<td>TCP/IP functions: embedded web system (dynamic HTTP); on-board file system for downloadable web pages via FTP server; email (SMTP)</td>
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<td>2048 bytes input/2048 bytes output: up to 4300 D I/O or 1024 AO</td>
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<tr>
<td></td>
<td>10/100 Mbps, RJ45 connector</td>
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<tr>
<td>905U-G-PR1</td>
<td>Profinet DP Slave to EN 50170 standard</td>
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<tr>
<td></td>
<td>416 I/O bytes (up to 1952 Dl/1952 Do or 122 Ail/122 Ao)</td>
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<tr>
<td></td>
<td>RS-485 optically isolated with onboard DC/DC converter</td>
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<td></td>
<td>Automatic baud rate detection: 9600 bps - 12 Mbps</td>
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<tr>
<td>905U-G-PR2</td>
<td>Profinet DP Master to EN 50170 standard</td>
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<tr>
<td></td>
<td>2048 bytes input/2048 bytes output: up to 4300 D I/O or 1024 AO</td>
</tr>
<tr>
<td></td>
<td>RS-485 optically isolated with onboard DC/DC converter</td>
</tr>
<tr>
<td></td>
<td>Automatic baud rate detection: 9600 bps - 12 Mbps</td>
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<tr>
<td>905U-G-DE1</td>
<td>DeviceNet Slave</td>
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<td></td>
<td>512 bytes input/512 bytes output (up to 4300 Dl/256 Do or 256 Al/256 Ao)</td>
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<td>Register size 16 bit - number of remote 905U addresses 500</td>
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<tr>
<td></td>
<td>RS422 optically isolated (selectable baud rate between 125, 250, 500 kbps)</td>
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<tr>
<td>905U-G-M+1</td>
<td>Modbus+Slave</td>
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<tr>
<td></td>
<td>2048 bytes input/2048 bytes output: up to 4300 D I/O or 1024 AO</td>
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<tr>
<td></td>
<td>RS485 optically isolated: standard baud rate 1 Mbps</td>
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</tbody>
</table>

#### I/O Specifications

- **Onboard D I/O**: Eight non-voltage/ FET I/O: 30VDC 500mA (configurable as inputs/outputs).

#### Ethernet Port (model/protocol dependent)

- RJ45 connector: 10/100 Mbps transformer isolated interface

#### Serial Port

- RS232/RS485: 9600 baud, 8 bits, no parity, 1 stop bit (9)
- RS232: 9pin DB9 female connector (programming only)
- RS485: Terminal connector (serial expansion module option: cable up to 2000m)

#### Power Supply

- **Mains supply**: 12-24VAC/9-30VDC: over-voltage/ reverse power protected
- **Battery supply**: 11.5-15.0 VDC (battery supply volts internal I/O value)
- **Loop supply**: Internal DC/DC converter: 24VDC 150mA (905U-1, 2, 3 only)
- **Battery charger circuit**: 1.2-12 Ahr battery: max charge current 0.7A at >12V

#### Quiescent/transmission current draw

- **MD1**
  - Quiescent = +12V, 150mA; 24V, 90mA; add 5mA per I/O point (9)
  - Transmit = +12V, 350mA; 24V, 200mA (1)
- **ET1/PR1&2/DE1/M+1**
  - Quiescent = +12V, 270mA; 24V, 170mA; add 5mA per I/O point (9)
  - Transmit = +12V, 470mA; 24V, 280mA (1)

#### General

- **Temperature/Humidity**: 866 & 900 MHz
- **RH Non-condensing**
- **Profibus DP Master to EN 50170 standard**
- **905U-G-MD1**
  - -40 to +60°C (-40 to 140°F)
  - 0-99%
- **905U-G-ET1/PR1/PR2/DE1/M+1**
  - -30 to +60°C (-22 to 140°F)
  - 0-95%
- **Housing**: Extruded aluminum: 5.1”x7.3”x2.4” (130x185x60mm)
- **Mounting**: DIN rail mounting
- **Terminal strip**: Removable: up to 2.5mm² (12 gauge AWG wires)

#### LED Indication:

- **ACTIVE (ACT)**: Microprocessor/Module operational
- **OK**: Mains/ battery power supply available
- **SERIAL TX & RX**: Serial port transmitting; Serial port receiving
- **RADIO TX & RX**: Radio transmitting; Radio receiving
- **I/O LED markers**: I/O inputs and/or outputs status

#### Approvals

- **EMC**:
  - FCC Part 15, AS3548, EN301 489
- **RoHS Compliant**
- **DeviceNet Slave**
- **Terminal strip**
- **Radio Transceiver**

- **Modulation/band(s)**: FHSS (1)
  - 902-928MHz; 865-867MHz - sub-bands configurable
- **Transmit power**: 1W: approved to FCC Part 15.247, RSS210
- **Conforms to**:
  - EN 300 113, EN 300 220
- **Receiver sensitivity**: -108 dBm
- **Data rate**: 19.2 kbps with forward-error correction
- **Line of sight range**: USA/Canada: 4W EIRP, 20+ miles. Other: 1W EIRP, 15+ km (12)
- **Antenna connector**: SMA female
- **Surge diverter**: CSD-SMA-2500.

**Note:**
- (1) Transmission current - I/O draw dependent on number of transmission per hour.
- (2) FHSS - Frequency Hopping Spread Spectrum.
- (3) RS232/485 ports used for protocol communication on MD1.
- (4) As with all radio distances quoted, these are dependent on terrain and obstacles.

#### Ordering Information

Please specify frequency, RF power and channel spacing when ordering or contact your local ELPRO distributor for further information on ordering this product.

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### THINK WIRELESS... THINK ELPRO

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