

105U-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 105U-G series multi-hop repeat five times, support a variety of industrial protocols and can be combined with ELPRO's 105/505U-I/O and 115S products to create simple to complex I/O and databus networks.



ELPRO TECHNOLOGIES

Industrial Wireless Technology

Product Features

- 150/220/360-512/868-869MHz, 5mW-5W, DFSK, 3.6kbps (150-512MHz) - 19.2kbps (868/9MHZ) radio communications to 35mi/56km 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.

*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 agglomerater/repeater for large networks.



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ELPRO Technologies is an ISO 9001:2008
Quality Assured Company.

Model	Industrial Protocol Supported/ I/O Capacity/baud rate			
105U-G-MD1	Modbus RTU (Master/Slave), DF1 Up to 4300 I/O points: analog and/or discrete Modbus - RS232/ 485: 300-38400 bps DF1 (full duplex) - RS232: 300-38400 bps			
105U-G-ET1	EtherNet/IP (Level 2 I/O Server) Modbus/TCP (Class 0, 1: partially class 2 Slave) TCP/IP functions; embedded web system (dynamic HTTP); on-board file system for downloadable web pages via FTP server; email (SMTP) 2048 bytes input/2048 bytes output: up to 4300 D I/O or 1024 AI/1024 AO 10/100 Mbps, RJ45 connector			
105U-G-PR1	Profibus DP Slave to EN 50170 standard 416 I/O bytes (up to 1952 DI/ 1952 DO or up to 122 AI/ 122 AO) RS-485 optically isolated with onboard DC/ DC converter Automatic baud rate detection: 9600 bps - 12 Mbps			
105U-G-PR2	Profibus DP Master to EN 50170 standard 2048 bytes input/2048 bytes output: up to 4300 D I/O or 1024 AI/ 1024 AO RS-485 optically isolated with onboard DC/DC converter Automatic baud rate detection: 9600 bps - 12 Mbps			
105U-G-DE1	DeviceNet Slave 512 bytes input/512 bytes output (up to 4300 DI I/O or 256 AI/ 256 AO) Register size 16 bit - number of remote 905U addresses 500 RS422 optically isolated (selectable baud rate between 125, 250, 500 kbps)			
105U-G-M+1	Modbus+Slave 2048 bytes input/2048 bytes output (up to 4300 D I/O or 1024 AI/1024 AO) RS485 optically isolated: standard baud rate 1 Mbps			
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 ⁽³⁾			
• 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)			
Battery charge circuit	1.2-12 Ahr battery: max charge current 0.7A at >12V			
Quiescent/ transmission current draw				
Radio TX current	Current	0.5W (150-512MHz) ⁽⁴⁾	5W (150-512MHz) ⁽⁴⁾	800MHz (800-869MHz)
• MD1	12V	350mA	1.5A	330mA
• MD1	24V	200mA	N/A	180mA
• Other	12V	470mA	1.7A	450mA
• Other	24V	280mA	N/A	260mA

Please Note: Technical specifications are subject to change without notice and are correct at time of publishing. Contact your local representative for enquiries.

General					
Temperature/Humidity	150	220	400	868-869 MHz	RH Non-condensing
• 105U-G-MD1	-30 to +60°C (-22 to 140°F)	-40 to +60°C (-40 to 140°F)			0-99%
• 105 U-G-ET1/ PR1/ PR2/ DE1/ M+1	-30 to +60°C (-22 to 140°F)	-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 2.5mm ² (12 gauge AWG wires)				
LED Indication:	Micro processor/ Module operational				
• ACTIVE (ACT)	Mains/ battery power supply available				
• OK	Serial port transmitting; Serial port receiving				
• SERIAL TX & RX	Radio transmitting; Radio receiving				
• RADIO TX & RX	I/O inputs and/or outputs status				
• I/O LED markers					
Approvals	EMC FCC Part 15, AS3548, EN 301 489				
Safety	EN60950 RoHS Compliant				
Radio Transceiver					
	105U-G 150/220/400 MHz		105U-G 868-869 MHz		
• Modulation/band(s)	DFS ⁽²⁾ : 360 - 512 MHz, 12.5/20/25kHz channel.		DFS ⁽²⁾ : 868.525 MHz	DFS ⁽²⁾ : 869.875 MHz	
• User-configurable range	20MHz				
• Transmit power	10 - 500mW, 0.5 - 5W		868.525 MHz (500mW)	869.875 MHz (5mW)	
• Conforms to	EN 300 113, EN 300 220, FCC Part 90, Part 15, RSS-119, AS4295, AS4768.1, RFS29.		EN 300 220	EN 300 220	
• Receiver sensitivity	-112dBm		-108dBm	-108dBm	
• Data rate	3.6 kbps		19.2kbps	19.2kbps	
• Line of sight range (max ⁽⁵⁾)	10mW EIRP to 2 km 500mW EIRP to 5 km 5W EIRP to 50km		5km (500mW)	1km (5mW)	
• Antenna connector	BNC female coaxial (with gas discharge arrestor).		SMA female	SMA female	
• Surge diverter	CSD-N-6000 use with CCTAIL-BNC-M.		CSD-SMA-2500 use with CCTAIL-SMA-M.		
Note:	<ul style="list-style-type: none"> (1) Transmission current - I/O draw dependent on number of transmission per hour. (2) DFSK - Digital Frequency Shift Key. (3) RS232/485 ports used for protocol communication on MD1. (4) 0.5,1,2,5W radio requires 12V, 2A supply (5) As with all radio distances quoted, these are dependant 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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