



# 245U-E-G1 wireless Ethernet modem

## 802.11 wireless Ethernet for reliable long-distance connectivity



**Description** 

The ELPRO 245U-E-G1 wireless Ethernet modem is a robust, inexpensive, license-free wireless 802.11 standards-compliant transceiver capable of high-bandwidth communications. Operating at 2.4 GHz and up to 630 mW, the ELPRO 245U-E-G1 is optimized for data rates of up to 108 Mbps, providing robust long-distance and secure two-way wireless communications in challenging environments typical of industrial monitoring and control applications.

Capable of operating in access point/client configuration, functioning as a network bridge/router, or serving as a serial server (RS-232/RS-485), the ELPRO 245U-E-G1 offers node-to-node deterministic mesh network repeatability for greater range and multiple channel spacing options to increase network scalability. Integrated Modbus® server capability allows seamless

 $\mbox{I/O}$  expansion through the use of ELPRO 115S expansion modules or third-party modbus devices.

The ELPRO 245U-E-G1 is a cost-effective and robust solution to enable your devices for the Internet of Things (IoT) and Industrie 4.0. With an easy to access 802.11 wireless network, the 245U-E-G1 allows your devices to communicate through the industry-standard 2.4 GHz frequency band used by most devices. The 245U-E is a cost-effective and robust Ethernet modem, with industry-leading transmit power and industrial ratings.

#### **Applications**

- · Factory automation and safety interlocks
- · Networking wind turbines and solar collectors
- · Video surveillance
- Automated vehicle control
- · Tank farm monitoring

#### **Features**

- · 802.11b/g standard-compliant options
- 2.412–2.472 GHz frequency (802.11b/g) and 15–630 mW RF power
- Up to 108 Mbps data rate support
- 13-channel (802.11b/g) support
- Single antenna connection for easy installation
- Access point/client and bridge/router configuration
- Serial client/server/multicast Modbus TCP to RTU gateway
- 10/100Base-T IEEE® 802.3 Ethernet
- · Spanning tree (self-healing) support
- Deterministic AP-to-AP mesh network repeatability
- Fast roaming for AP-to-AP handover
- IEEE 802.11i secure 128-bit AES encryption (WPA2)
- · MAC and IP address filtering
- · Digital I/O channel transfer
- Configurable settings for high-noise environments
- Over-the-air network diagnostics and configuration
- VLAN tagging support for bridging and routing modes

## **Specifications**

Specifications subject to change.

Table 1. 245U-E-G1 specifications

Transmitter and receiver  Frequency  Transmit power  Transmission  modulation  Direct sequence spread spectrum (DSSS) ⊕  Orthogonal frequency data modulation (OFDM) ⊕  Receiver sensitivity  —100 dBm at 250 kbps;—74 dBm at 108 Mbps (8% FER) ⊕  Channel spacing  Data rate  250 kbps—108 Mbps ⊕  "Auto Mode" selects fastest rate possible relative to RSSI  Range (LoS)  9 miles (15 km) ⊕ ⊕  Antenna connector  1 x female SMA, standard polarity  Imput and output  Discrete I/O  Input voltage-free contact ⊕  Output FET 30 Vdc 500 mA ⊕  Ethernet port	Specification	Description		
Transmit power  15–630 mW (country-specific)  Transmission modulation  Direct sequence spread spectrum (DSSS) ⊙ Orthogonal frequency data modulation (OFDM) ⊙ Receiver sensitivity  -100 dBm at 250 kbps; -74 dBm at 108 Mbps (8% FER) ⊙ Channel spacing  5 MHz spacing (13 channels, 2.412–2.472 GHz) ⊙ Data rate  250 kbps-108 Mbps ⊙ "Auto Mode" selects fastest rate possible relative to RSSI Range (LoS)  9 miles (15 km) ⊙ ⊚ Antenna connector  1 x female SMA, standard polarity  Input and output  Discrete I/O  Input voltage-free contact ⊚ Output FET 30 Vdc 500 mA ⊚  Ethernet port  Ethernet port  Ethernet port  Ethernet port  Ethernet port  By Female DCE, RTS/CTS/DTR/DCD  RS-232  DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485  2-pin terminal block, non-isolated ⊚ Data rate (bps)  1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings  7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address  ESSID; 1–31 character text string  Protocols supported  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TEINET, Modobus and Modous-TCP  User configuration  User configuration  User configurable parameters via HTTPS embedded Web server  Configurable Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP-AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11x with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  Reported diagnostics  RSSI measurements, connectivity information/statistics, log file				
Transmit power  Transmission modulation  Direct sequence spread spectrum (DSSS) ⊕ Orthogonal frequency data modulation (OFDM) ⊕ Receiver sensitivity  -100 dBm at 250 kbps; -74 dBm at 108 Mbps (8% FER) ⊕ Channel spacing  5 MHz spacing (13 channels, 2.412-2.472 GHz) ⊕ Data rate  250 kbps-108 Mbps ⊕ "Auto Mode" selects fastest rate possible relative to RSSI Range (LoS)  9 miles (15 km) ⊕ @ Antenna connector  1 x female SMA, standard polarity  Input and output  Discrete I/O  Input voltage-free contact ⊕ Output FET 30 Vdc 500 mA ⊕  Ethernet port  Ethernet port  Uink, 100Base-T, RJ-45 connector-IEEE 802.3  Link activity  Link, 100Base-T via LED  Serial port  RS-232  DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485  2-pin terminal block, non-isolated ⊕  Data rate (bps)  1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings  Protocols and configuration  System address  ESSID; 1-31 character text string  Protocols supported  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, CMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP  User configuration  User configuration User configurative and sistribution system (AP-AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.1x Radius server Secure HTTP protocol  Bandwidth protection  RMC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  RSSI measurements, connectivity information/statistics, log file				
Transmission modulation  Direct sequence spread spectrum (DSSS) ⊕ Orthogonal frequency data modulation (OFDM) ⊕  Receiver sensitivity -100 dBm at 250 kbps; -74 dBm at 108 Mbps (8% FER) ⊕  Channel spacing 5 MHz spacing (13 channels, 2.412–2.472 GHz) ⊕  Data rate 250 kbps; -08 Mbps ⊕ "Auto Mode" selects fastest rate possible relative to RSSI  Range (LoS) 9 miles (15 km) ⊕ ⊕  Antenna connector 1 x female SMA, standard polarity  Input and output  Discrete I/O Input voltage-free contact ⊕ Output FET 30 Vdc 500 mA ⊕  Ethernet port 100Base-T, RJ-45 connector-IEEE 802.3  Link activity Link, 100Base-T via LED  Serial port  RS-232 DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485 2-pin terminal block, non-isolated ⊕  Data rate (bps) 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings 7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address ESSID; 1-31 character text string  Protocols supported TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, CMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP  User configurable parameters via HTTPS embedded Web server  Configurable Access point/client/bridge/router/VLAN Point to multipoint Wireless distribution system (AP-AP repeater) Modbus TCP/RTU gateway, Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security Data encryption, 802.11 with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection MAC address; whitelist/blacklist IP filtering; whitelist/blacklist IP filtering; whitelist/blacklist RRP/GARP filtering; whitelist/blacklist RRP/GARP filtering; whitelist/blacklist Refer to product manual for further information  Reported diagnostics RSSI measurements, connectivity information/statistics, log file				
Drthogonal frequency data modulation (OFDM)	·			
Receiver sensitivity -100 dBm at 250 kbps; -74 dBm at 108 Mbps (8% FER) ① Channel spacing Data rate 250 kbps; -108 Mbps ① "Auto Mode" selects fastest rate possible relative to RSSI Range (LoS) 9 miles (15 km) ① ② Antenna connector 1 x female SMA, standard polarity Input and output Discrete I/O Input voltage-free contact ③ Output FET 30 Vdc 500 mA ③  Ethernet port Ethernet port Ethernet port Uink, 100Base-T, RJ-45 connector—IEEE 802.3 Link activity Link, 100Base-T via LED  Serial port RS-232 DB-9 female DCE, RTS/CTS/DTR/DCD RS-485 2-pin terminal block, non-isolated ④ Data rate (bps) 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings 7/8 data bits, stop/start/parity (configurable) Protocols and configuration System address ESSID; 1-31 character text string Protocols supported TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP User configuration User configurable parameters via HTTPS embedded Web server Configurable Parameters Point to point, point to multipoint Wireless distribution system (AP-AP repeater) Modbus TCP/RU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer Security Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection MAC address; whitelist/blacklist IP filtering; whitelist/blacklist IP filtering; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist Protection and diagnostics  LED indication and diagnostics LED indication files Resource assurements, connectivity information/statistics, log file				
Channel spacing 5 MHz spacing (13 channels, 2.412–2.472 GHz) ⊕  Data rate 250 kbps–108 Mbps ⊕     "Auto Mode" selects fastest rate possible relative to RSSI  Range (LoS) 9 miles (15 km) ⊕ ⊕  Antenna connector 1 x female SMA, standard polarity  Input and output  Discrete I/O Input voltage-free contact ⊕     Output FET 30 Vdc 500 mA ⊕  Ethernet port 100Base-T, RJ-45 connector–IEEE 802.3  Link activity Link, 100Base-T via LED  Serial port  RS-232 DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485 2-pin terminal block, non-isolated ⊕  Data rate (bps) 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings 7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address ESSID; 1–31 character text string  Protocols supported TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP  User configuration User configurable parameters via HTTPS embedded Web server  Configurable Parameters Via HTTPS embedded Vireless distribution system (AP–AP repeater)  Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security Data encryption, 802.11x with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection Power/OK, RX, TX/link, RS-232, LAN, RS-485, digita				
Data rate  250 kbps—108 Mbps ① "Auto Mode" selects fastest rate possible relative to RSSI  Range (LoS)  9 miles (15 km) ② ②  Antenna connector  1 x female SMA, standard polarity  Input and output  Discrete I/O  Input voltage-free contact ③ Output FET 30 Vdc 500 mA ③  Ethernet port  Ethernet port  Ethernet port  Link activity  Link, 100Base-T, RJ-45 connector—IEEE 802.3  Link activity  Serial port  RS-232  DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485  2-pin terminal block, non-isolated ④  Data rate (bps)  1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings  7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address  ESSID; 1–31 character text string  Protocols supported  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTF, TELNET, Modbus and Modbus-TCP  User configuration  User configurable parameters via HTTPS embedded Web server  Configurable Parameters  Access point/client/bridge/router/VLAN  Point to point, point to multipoint  Wireless distribution system (AP—AP repeater)  Modbus TCP/RTU gateway  Serial client/server/multicast  Simultaneous RS-232/RS-485 connection  Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11x in with CCMP 128-bit AES  Support for 802.1x Radius server  Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist  IP filtering; whitelist/blacklist  IP filtering; whitelist/blacklist  IP filtering; whitelist/blacklist  RRP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  RSSI measurements, connectivity information/statistics, log file	Receiver sensitivity			
#Auto Mode" selects fastest rate possible relative to RSSI  Range (LoS) 9 miles (15 km) ⊕ ②  Antenna connector 1 x female SMA, standard polarity  Input and output  Discrete I/O Input voltage-free contact ③ Output FET 30 Vdc 500 mA ③  Ethernet port  Ethernet port 100Base-T, RJ-45 connector-IEEE 802.3  Link activity Link, 100Base-T via LED  Serial port  RS-232 DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485 2-pin terminal block, non-isolated ④  Data rate (bps) 1200, 2400, 4800, 9500, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings 7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address ESSID; 1-31 character text string  Protocols supported TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP  User configuration User configurable parameters via HTTPS embedded Web server  Configurable Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP-AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security Data encryption, 802.11 with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist LED indication and diagnostics  ED indication Power/OK, RX, TX/Inik, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics RSSI measurements, connectivity information/statistics, log file	Channel spacing	5 MHz spacing (13 channels, 2.412–2.472 GHz) ①		
Antenna connector  Input and output  Discrete I/O  Input voltage-free contact ③ Output FET 30 Vdc 500 mA ④  Ethernet port  Ethernet port  Ink, 100Base-T, RJ-45 connector-IEEE 802.3  Link activity  Link, 100Base-T via LED  Serial port  RS-232  DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485  2-pin terminal block, non-isolated ④  Data rate (bps)  1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings  7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address  ESSID; 1-31 character text string  Protocols supported  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, TFTP, TETP, TETNET, Modbus and Modbus-TCP  User configuration  User configurable parameters via HTTPS embedded Web server  Configurable Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP-AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist Pfiltering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  RSSI measurements, connectivity information/statistics, log file	Data rate	250 kbps–108 Mbps ① "Auto Mode" selects fastest rate possible relative to RSSI		
Input and output  Discrete I/O	Range (LoS)	9 miles (15 km) ① ②		
Discrete I/O	Antenna connector	1 x female SMA, standard polarity		
Ethernet port  Ethernet port  Ethernet port  Ionum 100Base-T, RJ-45 connector—IEEE 802.3  Link activity  Link, 100Base-T via LED  Serial port  RS-232  DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485  2-pin terminal block, non-isolated ⊕  Data rate (bps)  1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings  7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address  ESSID; 1–31 character text string  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TEI.NET, Modbus and Modbus-TCP  User configuration  User configurable parameters via HTTPS embedded Web server  Configurable Parameters  Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP—AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-495 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist Refer to product manual for further information  Reported diagnostics  RSSI measurements, connectivity information/statistics, log file	Input and output			
Ethernet port 100Base-T, RJ-45 connector—IEEE 802.3  Link activity Link, 100Base-T via LED  Serial port  RS-232 DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485 2-pin terminal block, non-isolated ④  Data rate (bps) 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings 7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address ESSID; 1−31 character text string  Protocols supported TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TEINET, Modbus and Modbus-TCP  User configuration User configurable parameters via HTTPS embedded Web server  Configurable Parameters Point to point, point to multipoint Wireless distribution system (AP−AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection MAC address; whitelist/blacklist IP filtering; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  Reported diagnostics RSSI measurements, connectivity information/statistics, log file	Discrete I/O			
Link activity  Link, 100Base-T via LED  Serial port  RS-232  DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485  2-pin terminal block, non-isolated ⊕  Data rate (bps)  1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings  7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address  ESSID; 1−31 character text string  Protocols supported  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TETP, TELNET, Modbus and Modbus-TCP  User configuration  User configurable parameters via HTTPS embedded Web server  Configurable Point to point, point to multipoint  Wireless distribution system (AP−AP repeater)  Modbus TCP/RTU gateway  Serial client/server/multicast  Simultaneous RS-232/RS-485 connection  Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11i with CCMP 128-bit AES  Support for 802.1x Radius server  Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist  IP filtering; whitelist/blacklist  IP filtering; whitelist/blacklist  ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  RSSI measurements, connectivity information/statistics, log file	Ethernet port			
Serial port         RS-232       DB-9 female DCE, RTS/CTS/DTR/DCD         RS-485       2-pin terminal block, non-isolated ⊕         Data rate (bps)       1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps         Serial settings       7/8 data bits, stop/start/parity (configurable)         Protocols and configuration         System address       ESSID; 1–31 character text string         Protocols supported       TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP         User configuration       User configurable parameters via HTTPS embedded Web server         Configurable parameters       Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP–AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer         Security       Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol         Bandwidth protection       MAC address; whitelist/blacklist IP filtering; whitelist/blacklist         LED indication and diagnostics       Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information         Reported diagnostics       RSSI measurements, connectivity information/statistics, log file	Ethernet port	100Base-T, RJ-45 connector-IEEE 802.3		
RS-232 DB-9 female DCE, RTS/CTS/DTR/DCD  RS-485 2-pin terminal block, non-isolated ②  Data rate (bps) 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings 7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address ESSID; 1–31 character text string  Protocols supported TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP  User configuration User configurable parameters via HTTPS embedded Web server  Configurable Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP–AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  LED indication Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics RSSI measurements, connectivity information/statistics, log file	Link activity	Link, 100Base-T via LED		
RS-485  2-pin terminal block, non-isolated ①  Data rate (bps)  1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings  7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address  ESSID; 1—31 character text string  Protocols supported  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP  User configuration  User configurable parameters via HTTPS embedded Web server  Configurable parameters  Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP—AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist Refer to product manual for further information  Reported diagnostics  RSSI measurements, connectivity information/statistics, log file	Serial port			
Data rate (bps)  1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings  7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address  ESSID; 1–31 character text string  Protocols supported  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP  User configuration  User configurable parameters via HTTPS embedded Web server  Configurable Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP—AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  LED indication  Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics  RSSI measurements, connectivity information/statistics, log file	RS-232	DB-9 female DCE, RTS/CTS/DTR/DCD		
Data rate (bps)  1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps  Serial settings  7/8 data bits, stop/start/parity (configurable)  Protocols and configuration  System address  ESSID; 1–31 character text string  Protocols supported  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP  User configuration  User configurable parameters via HTTPS embedded Web server  Configurable Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP—AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  LED indication  Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics  RSSI measurements, connectivity information/statistics, log file	RS-485	2-pin terminal block, non-isolated ④		
Protocols and configuration  System address	Data rate (bps)	1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600,		
Protocols and configuration  System address	Serial settings	7/8 data bits, stop/start/parity (configurable)		
Protocols supported  TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TFLNET, Modbus and Modbus-TCP  User configuration  User configurable parameters via HTTPS embedded Web server  Configurable Point to point, point to multipoint Wireless distribution system (AP—AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics  RSSI measurements, connectivity information/statistics, log file				
User configuration  User configurable parameters via HTTPS embedded Web server  Configurable Point to point, point to multipoint Wireless distribution system (AP—AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  LED indication  Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics  RSSI measurements, connectivity information/statistics, log file	System address	ESSID; 1–31 character text string		
Web server  Configurable parameters  Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP—AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist LED indication and diagnostics  LED indication  Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  RSSI measurements, connectivity information/statistics, log file	Protocols supported	TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP,		
parameters  Point to point, point to multipoint Wireless distribution system (AP—AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer  Security  Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist LED indication and diagnostics  LED indication  Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics  RSSI measurements, connectivity information/statistics, log file	User configuration			
Support for 802.1x Radius server Secure HTTP protocol  Bandwidth protection  MAC address; whitelist/blacklist IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  LED indication  Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics  RSSI measurements, connectivity information/statistics, log file		Point to point, point to multipoint Wireless distribution system (AP—AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection		
IP filtering; whitelist/blacklist ARP/GARP filtering; whitelist/blacklist  LED indication and diagnostics  LED indication Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics RSSI measurements, connectivity information/statistics, log file	Security	Support for 802.1x Radius server		
LED indication Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status Refer to product manual for further information  Reported diagnostics RSSI measurements, connectivity information/statistics, log file	Bandwidth protection	IP filtering: whitelist/blacklist		
digital I/O status Refer to product manual for further information  Reported diagnostics RSSI measurements, connectivity information/statistics, log file	LED indication and			
Reported diagnostics RSSI measurements, connectivity information/statistics, log file	LED indication	digital I/O status		
	Reported diagnostics	RSSI measurements, connectivity information/statistics,		
	Network management			

- $\ensuremath{\bigcirc}$  Frequency range dependent on country of model.
- ② Typical maximum line of sight range, RF Power dependent.
- $\ensuremath{\mathfrak{G}}$  Can be used to transfer I/O status or communications failure output.
- ① ④ Maximum distance: 3937 ft (1200 m).

Table 1. 245U-E-G1 specifications, continued

Specification	Description	
Compliance		
EMC	FCC Part 15; EN 301 489-17; AS/NZS CISPR22	
RF (radio)	EN 300 328 ①; FCC Part 15; RSS 210	
Hazardous area	CSA Class I, Division 2; ATEX; IECEx nA IIC	
Safety	IEC 60950 (RoHS compliant)	
UL®	UL Listed	
General		
Size	4.5 in x 5.5 in x 1.2 in (114 mm x 140 mm x 30 mm)	
Housing	Powder-coated aluminum	
Mounting	DIN rail	
Terminal blocks	Removable, max. conductor 14 AWG 0.1 in <sup>2</sup> (2.5 mm <sup>2</sup> )	
Temperature rating	-40 to +140 °F (-40 to +60 °C)	
Humidity rating	0-99% RH noncondensing	
Weight	1.0 lb (0.45 kg)	
Power supply		
Nominal supply	9 to 30 Vdc, under/overvoltage protection	
Average current draw	270 mA at 12 V (idle); 140 mA at 24 V (idle)	
Transmit current draw	470 mA at 12 V (400 mW), 250 mA at 24 V (600 mW)	

#### **Product selection**

Table 2. 245U-E-G1 accessories

Antennas 2.4 GHz  Dipole antenna, 15 ft (4.6 m) cellfoil/ SMA, 0-dBi gain, mounting bracket  Collinear antenna, N-type, 5-dBi gain, mounting bracket  Collinear antenna, N-type, 10-dBi gain, mounting bracket  Yagi antenna, N-type, 18-dBi gain Y2400-18EL  Whip antenna: SMA male, 2-dBi gain, 2.1 in (54 mm)  Cables  Coaxial cable kit, 9.8 ft (3 m)/ 32.8 ft (10 m)/65.6 ft (20 m), N-type to SMA  Coaxial cable tail, 1.97 ft (600 mm), SMA to N-type female/male  Ethernet cable, 6 ft (1.8 m), crossover, RJ-45 to RJ-45  Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/ CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female  Power supply surge diverter, 110 Vac/15 A  DIN rail power supply, 100-250 Vac, 24 Vdc/2.5 A  Mounting brackets  Mounting bracket kit for collinear antenna  BR-COL-KIT	Description	Product code	
Dipole antenna, 15 ft (4.6 m) cellfoil/SMA, 0-dBi gain, mounting bracket  Collinear antenna, N-type, 5-dBi gain, mounting bracket  Collinear antenna, N-type, 10-dBi gain, mounting bracket  Yagi antenna, N-type, 18-dBi gain, which is a second of the property of the prope		Froduct code	
mounting bracket  Collinear antenna, N-type, 10-dBi gain, mounting bracket  Yagi antenna, N-type, 18-dBi gain Whip antenna: SMA male, 2-dBi gain, 2.1 in (54 mm)  Cables  Coaxial cable kit, 9.8 ft (3 m)/ 32.8 ft (10 m)/65.6 ft (20 m), N-type to SMA  Coaxial cable tail, 1.97 ft (600 mm), SMA to N-type female/male  Ethernet cable, 6 ft (1.8 m), crossover, RJ-45 to RJ-45  Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/ CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  Mounting brackets  Z2400-EL  WH2400  CC3/10/20-SMA  CC3/10/20-SMA  CCTAIL-SMA-F/M  SCTAIL-SMA-F/M  CCTAIL-SMA-F/M  CCTAIL-SMA-F/M  STH-C5X  ETH-C5X  ETH-C5A  BTH-C5A  BTH-C5A  Surge diverters  SMA surge diverter, bulkhead N-female to N-female Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  Mounting brackets	Dipole antenna, 15 ft (4.6 m) cellfoil/	MD2400-EL	
mounting bracket  Yagi antenna, N-type, 18-dBi gain  Whip antenna: SMA male, 2-dBi gain, 2.1 in (54 mm)  Cables  Coaxial cable kit, 9.8 ft (3 m)/ 32.8 ft (10 m)/65.6 ft (20 m), N-type to SMA  Coaxial cable tail, 1.97 ft (600 mm), SMA to N-type female/male  Ethernet cable, 6 ft (1.8 m), crossover, RJ-45 to RJ-45  Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/ CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female  Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  Mounting brackets  WH2400  CC3/10/20-SMA  CC3/10/20-SMA  CC3/10/20-SMA  CCTAIL-SMA-F/M  ETH-C5X  ETH-C5X  STH-C5A  WH2400  CC3/10/20-SMA  CCANA-F/M  MH25/DX  MA15/DX  PS-DINAC-12DC-OK  PS-G60E		SG2400-EL	
Whip antenna: SMA male, 2-dBi gain, 2.1 in (54 mm)  Cables  Coaxial cable kit, 9.8 ft (3 m)/ 32.8 ft (10 m)/65.6 ft (20 m), N-type to SMA  Coaxial cable tail, 1.97 ft (600 mm), SMA to N-type female/male  Ethernet cable, 6 ft (1.8 m), crossover, RJ-45 to RJ-45  Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/ CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female VN-female  Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  Mounting brackets		Z2400-EL	
2.1 in (54 mm)  Cables  Coaxial cable kit, 9.8 ft (3 m)/ 32.8 ft (10 m)/65.6 ft (20 m), N-type to SMA  Coaxial cable tail, 1.97 ft (600 mm), SMA to N-type female/male  Ethernet cable, 6 ft (1.8 m), crossover, RJ-45 to RJ-45  Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/ CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female To N-female  Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  Mounting brackets  CC3/10/20-SMA  CC3/10/20-SMA  CC3/10/20-SMA  CC3/10/20-SMA  CC3/10/20-SMA  CC3/10/20-SMA  CC3/10/20-SMA  CC3/10/20-SMA  ETH-C5X  ETH-C5X  ETH-C5A  SUB-C5A  ETH-C5A  BTH-C5A  BTH-C5A  BTH-C5A  SUB-C5A  WA15/D/1/S1  Power supply surge diverter, 110 Vac/15 A  PS-DINAC-12DC-0K	Yagi antenna, N-type, 18-dBi gain	Y2400-18EL	
Coaxial cable kit, 9.8 ft (3 m)/ 32.8 ft (10 m)/65.6 ft (20 m), N-type to SMA  Coaxial cable tail, 1.97 ft (600 mm), SMA to N-type female/male  Ethernet cable, 6 ft (1.8 m), crossover, RJ-45 to RJ-45  Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/ CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female Volver supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  Mounting brackets  CC3/10/20-SMA  CC3/10/20-SMA  CCTAIL-SMA-F/M  ETH-C5X  ETH-C5A  SUB-CSD-SMA-2500  CSD-SMA-2500  CSD-SMA-2500  CSD-N-6000  CSD-N-6000  PS-DINAC-12DC-0K		WH2400	
32.8 ft (10 m)/65.6 ft (20 m), N-type to SMA  Coaxial cable tail, 1.97 ft (600 mm), SMA to N-type female/male  Ethernet cable, 6 ft (1.8 m), crossover, RJ-45 to RJ-45  Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/ CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female  Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  Mounting brackets  CCTAIL-SMA-F/M  ETH-C5X  ETH-C5A  ETH-C5A  SUB-N-C5A  ETH-C5A  MA15/D/1/S1  PS-SMA-2500  CSD-N-6000  CSD-N-6000  PS-DINAC-12DC-0K	Cables		
SMA to N-type female/male  Ethernet cable, 6 ft (1.8 m), crossover, RJ-45 to RJ-45  Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/ CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female  Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  Mounting brackets  ETH-C5X  ETH-C5A  CSD-SMA-2500  CSD-SMA-2500  CSD-N-6000  PSD-N-6000  PSD-N-	32.8 ft (10 m)/65.6 ft (20 m),	CC3/10/20-SMA	
Ethernet cable, 6 ft (1.8 m), direct, RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A  Mounting brackets		CCTAIL-SMA-F/M	
RJ-45 to RJ-45  Surge diverters  SMA surge diverter for use with CC10/CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A  Mounting brackets  CSD-N-6000  CSD-N-6000  CSD-N-6000  PSD-N-6000  PSD-N-6		ETH-C5X	
SMA surge diverter for use with CC10/CC20-SMA  Coaxial surge diverter, bulkhead N-female to N-female Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A  Mounting brackets  CSD-N-6000  MA15/D/1/S1  PS-DINAC-12DC-0K		ETH-C5A	
CC20-SMĂA  Coaxial surge diverter, bulkhead N-female to N-female Power supply surge diverter, 110 Vac/15 A  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A  Mounting brackets  CSD-N-6000  MA15/D/1/S1  PS-DINAC-12DC-OK	Surge diverters		
to N-female  Power supply surge diverter, 110 Vac/15 A MA15/D/1/S1  Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A  Mounting brackets		CSD-SMA-2500	
Power supplies  DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A  Mounting brackets  PS-DINAC-12DC-OK  PSG60E		CSD-N-6000	
DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A  DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A  Mounting brackets  PS-DINAC-12DC-0K  PSG60E	Power supply surge diverter, 110 Vac/15 A	MA15/D/1/S1	
12 Vdc/2.5 A  DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A  Mounting brackets  PSG60E	Power supplies		
24 Vdc/2.5 A  Mounting brackets	DIN rail power supply, 100–250 Vac, 12 Vdc/2.5 A	PS-DINAC-12DC-OK	
	DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A	PSG60E	
Mounting bracket kit for collinear antenna BR-COL-KIT	Mounting brackets		
	Mounting bracket kit for collinear antenna	BR-COL-KIT	

#### Table 3. 245U-E-G1 ordering

Description	Frequency	RF power	Product code
Ethernet 802.11b/g	2.4 GHz DSSS	630 mW	EL-245U-E-G1-AU
Ethernet 802.11b/g	2.4 GHz DSSS	630 mW	EL-245U-E-G1-US
Ethernet 802.11b/g	2.4 GHz DSSS	100 mW	EL-245U-E-G1-EU

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