

INDUSTRIAL WIRELESS ELPRO 455U

HIGH PERFORMANCE MODEM

Performance, integrity, security
Powerful, flexible, easy to use



Licensed and license-free radio channels,
380 – 512 MHz, 10mW – 5W, 12.5/20/25 KHz

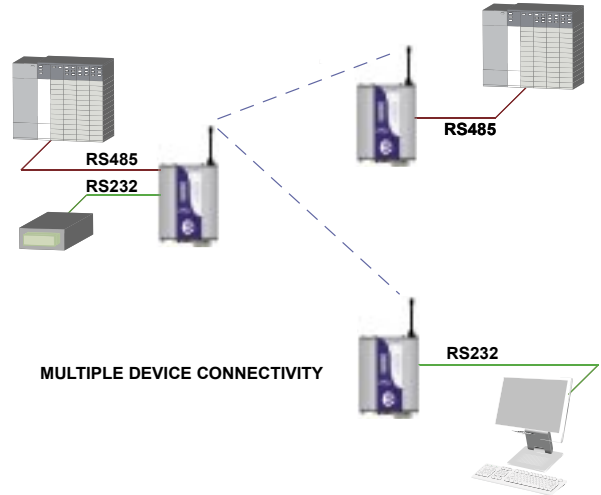
Three serial ports - two RS232 and one RS485,
two data ports and one configuration port
available with audio 600 ohm input for external modems

Connect to two serial devices using MDC technology...
Multiple Device Connectivity - two independent
configurable serial ports

Wireless data rate up to 19.2 Kb/s

Diagnostics and Configuration via dedicated RS232 port
Remote configuration and diagnostics to all units via the
wireless channel

Military-grade security encryption - 128 bit AES



Mesh Repeater networking – each unit can act as a
repeater and connect to serial devices

Multiple operating modes

OPR Functionality ... Protocol sensitive mode
with Optimum Path Routing for Modbus, DF1 and
DNP3 networks - maximum network communications
efficiency

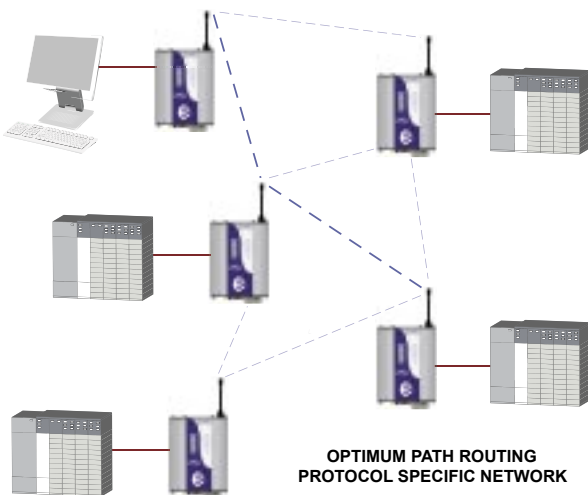
Broadcast “multidrop” mode

Addressed “dial-up” or fixed connection mode

On-line and remote modem control via AT
commands

Hot-redundant standby functionality

Backup battery charging functionality with smart
power monitoring and low power sleep mode



SPECIFICATIONS

Different Models

- 455U-D High performance data modem
- 455U-A Data radio, audio input
- 455U-B Modem with Bell 202 or V23 (limited functionality)
- 455U-C Compatible with ELPRO 405U modem (limited functionality)

Standards Compliance

EN 300 113, EN 300 220, EN 300 086, EN 301 489-5
FCC Part 90, Part 15, RSS-119, AS4295, AS4768.1

General Specifications

Size: 140mm x 114mm x 30mm / 5.5in x 4.5in x 1.2in
Weight: 0.4 kg / 1 lb
DIN rail mounting, Painted aluminum housing
Temperature Range: -30°C to +60°C / -22 to +140°F
Humidity: 0 to 99% non-condensing
Supply Voltage: 11 to 30VDC
Battery Charger: Float charge voltage 13.8VDC with current limit set to 1.6A (minimum supply voltage 15V)
Low power sleep mode configurable using DTR control
Current @ 13.5VDC: quiescent 110mA; transmit 450mA (<0.5W), 800mA (1W), 1.25A (2W), 2A (5W)
Hazardous rating: Class 1 Div 2 (USA/Canada) pending

Serial Port (455U-D,B,C)

Data: 1 x RS232 (1.2 to 115.2 Kb/s) and 1 x RS485 (1.2 to 187.5 Kb/s)
Configuration: second RS232 port for configuration/diagnostics
7/8 data bits, 1/2 stop bits, odd/even/no parity

External Modem Option (455U-A only)

600 ohm audio input with level adjustment, PTT control, signal indication or audio mute output, received signal strength output as a voltage, enable/disable received audio muting with mute activation point adjustment
Configurable CTCSS sub-audible tone encoding

Radio Specifications

380 – 512 MHz radio transceiver, half-duplex or simplex operation
455U-D up to 9.6/19.2 Kb/s wireless data (12.5/25 KHz channels)
Data modulation DFSK, GMSK, 4-level FSK
455U-B V23, Bell202 up to 1200 b/s with configurable CTCSS sub-audible tone encoding
Frequency configurable within 20 MHz band in 5/6.25 KHz steps
Configurable transmitter power 10 to 500mW, 0.5 to 5W
Frequency tolerance: +/-1.5ppm over temperature range
Duty cycle: 50%, 30 second maximum transmission time, also limited by configurable timeout and internal thermal shutdown protection
Data modulation DFSK, GMSK, 4-level FSK
Receiver sensitivity: -112dBm @ 10E-3 BER
-120dBm @ 12dB SINAD
Lightening protection: Internal gas discharge arrester

Digital Input/Output

One I/O channel
Input voltage-free contact / Output FET 30VDC 500mA
DI can be transmitted to remote DO
Also used for alarm output, or powering up local devices, or hot-redundant standby control.

Operating Functions for 455U-D

Configuration/Diagnostics

Configuration via AT commands or dedicated Windows Configuration package
Configuration and diagnostics access to remote units via wireless channel, both on-line and off-line
Diagnostic information can be accessed by dedicated Windows package or on-line by a host serial device
RSSI and noise signal measurement in dBm
Supply voltage, battery voltage, internal temperature, antenna fault status

Multiple Device Connectivity (MDC)

Two independent wireless links managed simultaneously - two serial devices can be connected to each unit (RS232 & RS485).

Security

128-bit AES encryption of wireless data can be enabled
Uses a 16-byte encryption key combined with a random 16-byte initialization vector unique to each message
Remote configuration/diagnostics password protected.

Operating Modes

Broadcast mode - wireless "multi-drop"
Addressed mode - acknowledged or un-acknowledged
Optimum Path Routing (OPR) mode - protocol specific modes for Modbus, DF1, DNP3 and Profibus - ensures optimum wireless message routing for fastest system response in busy networks

Store & forward Repeater

Each unit can act as a repeater and modem
Multiple repeater functionality can be configured in each operating mode using routing tables

Hot-redundant Standby

Two units connected together in a hot-redundant standby configuration
Changeover triggered by radio or serial communication delay timeout, CPU watchdog, low supply voltage, antenna fault

Model Details

455U - Type - Power - Band - Channel

Type	D	Data modem, full functionality	
	B	Data modem, Bell 202 or V23 messaging	
	A	External modem, 600 ohm audio input	
	C	Data modem compatible with ELPRO 405U	
Power	L	10 – 500mW	H 0.5 - 5W
Band	390	380 – 400 MHz	410 400 – 420 MHz
	430	420 – 440 MHz	440 430 – 450 MHz
	460	450 – 470 MHz	480 470 – 490 MHz
	500	490 – 512 MHz	
Channel	N	12.5 KHz	W 25KHz



Australia Ph: +61 7 3352 4533
USA/Canada Ph: (619) 741 3574
Europe Ph: +44 1295 72 4270
Brazil Ph: +55 31 3849 3100



industrial communication

überreicht durch:

Steiner Inducom
Hofstetten 32
CH - 8354 Hofstetten

T +41 52 3643957 F +41 52 3643958
steiner@inducom.ch www.inducom.ch