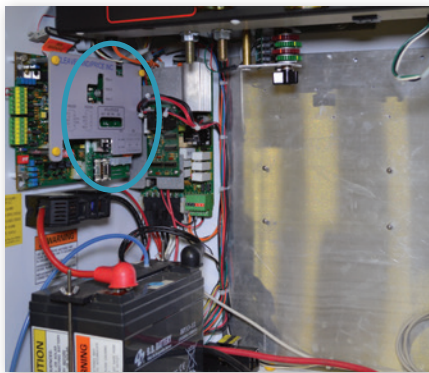


# Reliatronics RTU3212

## Product Data Sheet



An RTU3212 mounted to the control board of a Cleaveland/Price BT-T motor operator.

The RTU3212 is a compact, power-efficient Remote Terminal Unit (RTU) designed for use with the Cleaveland/Price LineScope® power monitoring system. In addition to functioning as a processor of data provided by LineScope® probes, the RTU3212 serves as a plug-in RTU for Cleaveland/Price switch controllers, capable of executing open and close commands and reporting switch position and battery condition.

The RTU can be installed in a customer's enclosure or conveniently installed in a Cleaveland/Price switch controller or a LineScope® CommBridge assembly. When installed in the Cleaveland/Price CommBridge, the RTU3212 plugs directly into the control board to pick up battery condition statuses. When installed in a Cleaveland/Price switch controller, switch open position, switch closed position, remote ready, No-Go, and battery condition statuses, as well as open/close commands, are communicated without the need for any additional wiring.

As the LineScope® data processor, the RTU3212 communicates with LineScope® line sensors via a spread spectrum radio and calculates RMS voltage, RMS current, watts, VARs, phase angle, THD, and power factor. The RTU3212 will create and transfer COMTRADE files given user-defined parameters.

The RTU3212 employs a configurable fault detection algorithm that, with

LineScope® input, is able to detect over-currents, as well as instantaneous changes in current magnitude and direction, and breaker open and lockout conditions. These events can be reported on an unsolicited basis, or built into a 'sequence of events' readable by the DNP host system. Through its COMTRADE waveform capture feature, the RTU3212 provides a complete picture of any fault condition it witnesses.

DNP 3.0 protocol is enabled on the RTU3212 at all times. Modbus or PG&E protocol may be selected as an alternate protocol. The alternate protocol is enabled concurrently with DNP, allowing the RTU to respond to incoming messages in either DNP or the alternate protocol.

As with all Reliatronics RTUs, the device features a System-on-Chip integrated circuit that decreases board complexity and reduces the number of exposed interconnections. The PC board of the RTU3212 is conformal-coated to protect RTU components from harsh environments.

### RTU3212 I/O Configuration

- 4 relay outputs
- 15 status inputs
- LineScope® inputs
- Analog inputs for AC charging voltage and RTU incoming DC voltage



**RTU3212 Technical Data**

Physical	
Dimensions	
RTU assembly	6" x 4.2" x 0.92"
Mounting centers	5.6" x 3.8"
Operating temp range	-40°C to 85°C
Operating humidity	100%

Processor	
Input voltage	9-30VDC
Power requirement	< 1W
Communication ports	1 x RS-232—Male DCE 1 x RS-232—Female DTE 1 x RS-485 connection 1 x RJ-45 Ethernet 10/100 Base-T
Communication protocols	DNP 3.0, Modbus, PG&E
Serial port BAUD rate	Configurable, 300-115,200 bps
Ethernet protocol support	TCP/IP, UDP
Visual indicators	RX/TX and Ethernet active LEDs

Digital Outputs	
Number of digital outputs	4
Relay type	SPST Form C (configurable as N.O. or N.C.)
Visual indicators	Flashing LED for all relay statuses
Contact ratings	2A continuous up to 250VAC/220VDC
Operation type	Pulse on, latch on, latch off

Digital Inputs	
Number of status inputs	15
Status input voltage	10-30VDC
Power requirement	6mW max.
Isolation	Optical isolation with surge protection
Visual indicators	One flashing LED/8 status points
Configurable parameters	
Debounce time	(0-255 millisecond)
Chatter filter	(default—10 state changes in 6 sec.)

LineScope® Inputs	
Inputs	A/B/C voltage A/B/C current A/B/C line temperature

Physical Analog Inputs	
Measurement of RTU voltage input in 10-30VDC range	
Measurement of AC charging voltage input to 160VAC	

**RTU3212 Power Quality Calculations with LineScope® Input**

- A/B/C RMS Voltage
- A/B/C RMS Current
- Neutral RMS Current
- Watts
- VARs
- Power angle
- THD to the 11th harmonic
- Power factor
- Current flow direction
- Fault detection

