



# LAUREATE™ Remote Displays

## 6-Digit Readouts with Control Capability

### Features

#### Mechanical

- 6 digits, -999,999 to 999,999
- Red or green LED display
- NEMA-4X front panel
- 1/8 DIN case
- Screw terminal connectors

#### Choice of serial interfaces

- Ethernet
- Ethernet-to-RS485 converter
- USB 2.0
- USB-to-RS485 converter
- RS485 with dual RJ11
- RS485 with dual RJ45
- RS232

#### Input power

- 85-264 Vac or 90-300 Vdc
- 12-34 Vac or 10-48 Vdc

#### Relay outputs (isolated)

- Dual or quad relays
- 8A, 250 Vac contact relays
- AC/DC solid state relays
- Relay actuation based on displayed value or control characters.

#### Analog outputs (isolated)

- Single 4-20 mA, 0-20 mA, 0-10V or -10 to +10V analog output
- Dual 4-20 mA, 0-20 mA or 0-10V analog outputs

#### Isolation

- All inputs and outputs are mutually isolated to 250 Vrms working, 2.3 kV per 1 min test.



Laureate™ six-digit remote displays accept serial data from a computer, PLC or other instrument to display a numeric reading from -999,999 to +999,999. The units match the appearance of Laureate digital panel meters and counters. The display consists of six 14.2 mm (.56") high LED digits, available in red or green. The 1/8 DIN front panel is environmentally sealed to NEMA-4X when panel mounted.

Multiple remote displays can be digitally addressed on the same communications line and can extract numeric readings from long data strings.

#### Communication Options

A serial interface board is required. Choices are RS232, RS485, USB, USB-to-RS485 converter, Ethernet, and Ethernet-to-RS485 converter. All interfaces support the Modbus protocol (RTU or ASCII) and the simpler Laureate ASCII protocol.

**The Ethernet interface** provides an industry-standard RJ45 Ethernet connector. It allows the remote display to be connected to a local area network (LAN) or to the Internet via a router, or directly to a host computer.

**The Ethernet-to-RS485 converter** provides RJ45 connector to the Ethernet plus an RJ11 jack for interface to an RS485 bus which can support up to 31 Laureate meters equipped with and RS485 interface board.

**The USB 2.0 interface** allows the remote display to be connected to a PC USB port using a standard A-to-B USB cable.

**The USB-to-RS485 converter** provides a USB port for connection to a PC plus plus an RJ11 jack for interface to an RS485 bus which can support up to 31

Laureate meters equipped with and RS485 interface board.

**An RS485 interface** allows up to 31 Laureate devices to be connected to the same RS485 line in parallel. Use of dual connectors allows multiple devices to be daisy changed without use of a hub.

A first RS485 interface (ordering option 2) uses dual RJ11 jacks for use with 6-wire data cables. A second RS485 interface (ordering option 4) uses RJ45 jacks, as required by the Modbus standard. It allows multiple Modbus devices by different manufacturers to share the same data line.

Digital addressing, available with RS485, allows multiple remote displays on the same data line to only show values transmitted for its unique address.

**The RS232 interface** is suited for point-to-point communications via a single RS232 line; however, two 6-digit Laureate remote displays can be connected to a single RS232 line in multidrop fashion and be digitally addressed.

#### Relay Output Options

The remote display can be equipped with a choice of four relay output boards: two or four 8A contact relays, and two or four AC/DC 130 mA solid state relays. The relays can respond to data values or to control characters in the serial data.

#### Analog Output Options

The remote display can be equipped with a choice of two isolated 16-bit analog output boards: a single 0-20 mA, 4-20 mA, 0-10V, or ±10V analog output, or dual 0-20 mA, 4-20 mA or 0-10V analog outputs. Each output can be scaled to data values in the serial data.



## SPECIFICATIONS

### Display

Type ..... Six 7-segment, 14.2 mm (.56") high  
LED digits plus 4 LED indicators

Display color ..... Red or green  
Display range ..... -999999 to 999999

### Serial Interface (isolated)

Formats.. Ethernet, USB, RS485, Modbus RS485,  
Ethernet-to-RS485, USB-to-RS485 converter  
Protocols...Modbus (RTU or ASCII), Laurel ASCII  
Baud rate .....300 to 19200 baud  
Digital addr. .... 31 (Laurel ASCII), 247 (Modbus)  
Meter setup ..... Via front panel or computer

### Operating Power (isolated)

Voltage (std)..... 85-264 Vac or 90-300 Vdc  
Voltage (opt) ..... 12-34 Vac or 10-48 Vdc  
Power frequency..... DC and 47-440 Hz

### Contact Relay Options (isolated)

Relay type..... 2 or 4 mechanical or solid state  
Rating, mechanical .....8A at 250 Vac or 24 Vdc  
Rating, solid state ..120 mA at 140 Vac or 180 Vdc

### Analog Output Options (isolated)

Number of outputs ..... 1 or 2  
Output levels ..... 4-20 mA, 0-20 mA, 0-10V  
Compliance..... 12V at 20 mA, 2 mA at 10V  
Output scaling ..... Via front panel or computer  
Scaling resolution ..... 16 bits

### Meter Isolation (DC to 60 Hz)

Safety rated to 250 Vac, 4.2 kVp per high voltage test

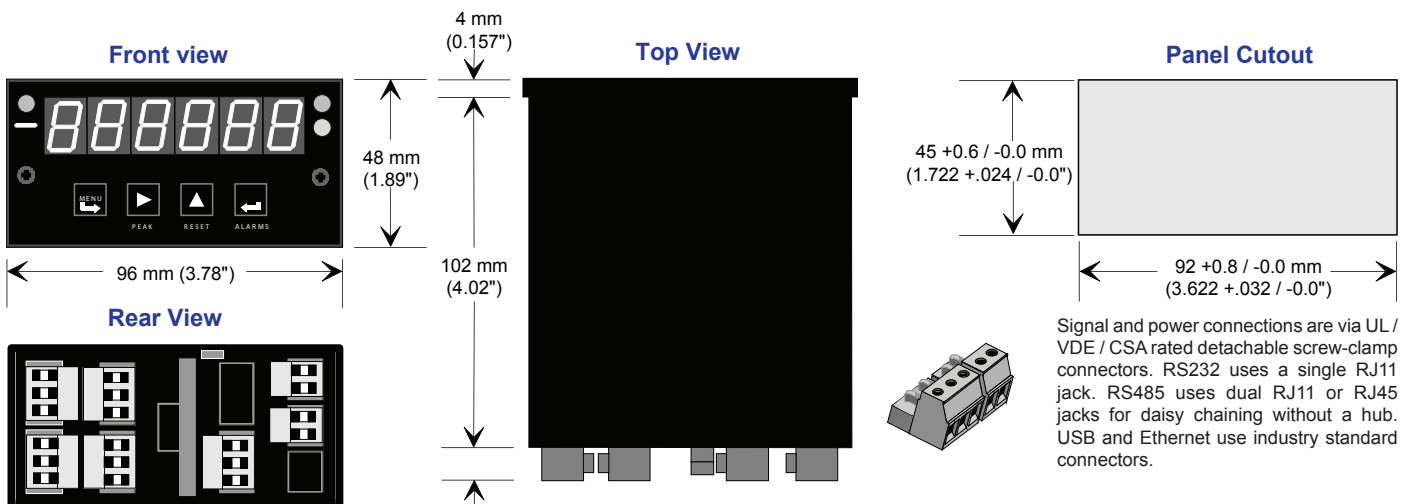
### Environmental

Operating temperature.....0°C to 60°C  
Storage temperature.....-40°C to 85°C  
Relative humidity ...95% at 40°C, non-condensing  
Protection.....NEMA-4X when mounted in panel

### Certifications

ETL certifications .....UL Standard 61010-1  
CAN/CSA Std. C22.2 No. 61010-1  
EMI and safety ..... CE Mark  
Hazardous materials .....RoHS compliant

## MECHANICAL



## ORDERING GUIDE

One entry required per box. Configure a model number in this format: **L50011**

## YOUR LOCAL DISTRIBUTOR

<input type="checkbox"/> <b>L</b> .....Laureate™ with plug-in screw terminal connectors	<input type="checkbox"/> <b>Digital Interface (1 required)</b>
<input type="checkbox"/> <b>Display Color</b>	1 ..... RS232
5 ..... Green LED display	2 ..... RS485
6 ..... Red LED display	4 ..... Modbus RS-485
<input type="checkbox"/> <b>Power</b>	5 ..... USB
0 ..... 85-264 Vac, 90- 300 Vdc NC	6 ..... USB-to-RS485 converter
1 ..... 12-34 Vac, 10-48 Vdc	7 ..... Ethernet
<input type="checkbox"/> <b>Relay Output</b>	8 ..... Ethernet-to-RS485
0 ..... None	
1 ..... Two 8A contact relays	
2 ..... Two solid state relays	
3 ..... Four 8A contact relays	
4 ..... Four solid state relays	
<input type="checkbox"/> <b>Analog Output</b>	
0 ..... None	
1 ..... 4-20 mA, 0-10V, ±10V	
2 ..... Dual 4-20 mA, 0-10V	



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