



Standard Features

- ± 0.2 , ± 2 , ± 20 , ± 200 , $\pm 300V$ and $\pm 600V$ voltage input ranges
- ± 2 , ± 20 , ± 200 mA and $\pm 5A$ current input ranges
- All input ranges user selectable and factory calibrated
- 4-20 mA or 0-10V transmitter output, jumper selectable, isolated
- Analog output resolution 0.0015% of span (16 bits), accuracy $\pm 0.02\%$ of span
- RS232 or RS485 serial data output, half or full duplex, isolated
- Modbus RTU, Modbus ASCII or Laurel ASCII protocol
- 5V, 10V or 24V dc transducer excitation output, isolated
- Dual solid state relays for alarm or control, isolated
- Universal AC power, 85-264 Vac, or low voltage power, 10-48 Vdc or 12-32 Vac
- Power over Ethernet (PoE) jumper selectable with 10-48 Vdc supply
- Custom curve linearization and rate from successive readings (optional)

Description

Laureate DC input transmitters provides six voltage input ranges and four current input ranges, all factory calibrated and jumper selectable. The 200.00 mV and 2.0000 V ranges provide a high input impedance of 1 G Ω to minimize the load on the voltage signal. A 5.000A range measures the IR drop across a built-in 10 m Ω current shunt. The transmitters can also easily be scaled in software for use with external shunts.

Fast read rate at up to 50 or 60 conversions per second while integrating the signal over a full power line cycle is provided by Concurrent Slope (Pat 5,262,780) analog-to-digital conversion. High read rate is ideal for peak or valley capture and for real-time computer interface and control.

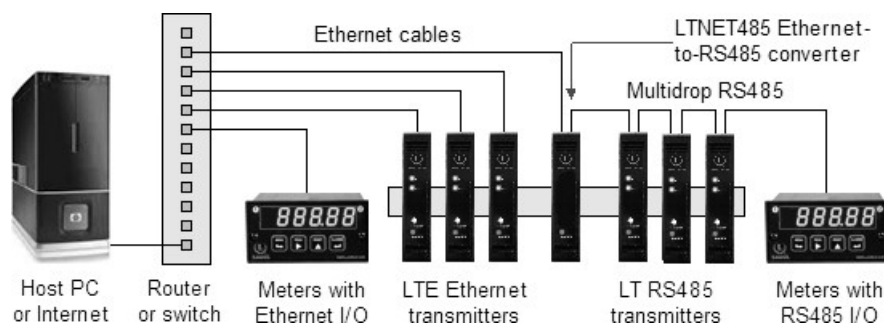
Digital signal filtering modes are selectable for stable readings in electrically noisy environments.

- **An unfiltered** selection provides true peak and valley readings and aids in control applications.
- **A batch average filter** selection averages each 16 conversions for an update every 1/4 sec.
- **An adaptive moving average filter** selection provides a choice of 8 time constants from 80 ms to 9.6 s. When a significant change in signal level occurs, the filter adapts by briefly switching to the shortest time to follow the change, then reverts back to its selected time constant. An Auto setting selects the time constant selection based on signal noise.

Standard features of Laureate LTE transmitters include:

- **Ethernet I/O, isolated.** Supported protocols are Modbus RTU and ASCII (tunneled via Modbus TCP) and Laurel ASCII. The latter is simpler than the Modbus protocol and is recommended when all devices are Laureates. Note that RS232 or RS485 data I/O in lieu of Ethernet is provided by LT Series transmitters.
- **4-20 mA, 0-20 mA or 0-10V analog transmitter output,** isolated, jumper-selectable and user scalable. All selections provide 16-bit (0.0015%) resolution of output span and 0.02% output accuracy of a reading from -99,999 to +99,999 counts that is also transmitted digitally. Output isolation from signal and power grounds eliminates potential ground loop problems. The supply can drive 20 mA into a 500 ohm (or lower) load for 10V compliance, or 10V into a 5K ohm (or higher) load for 2 mA compliance.
- **Dual solid state relays, isolated.** Available for local alarm or control. Rated 120 mA at 130 Vac or 180 Vdc.
- **Universal 85-264 Vac power.** Low-voltage 10-48 Vdc or 12-32 Vac power is optional.

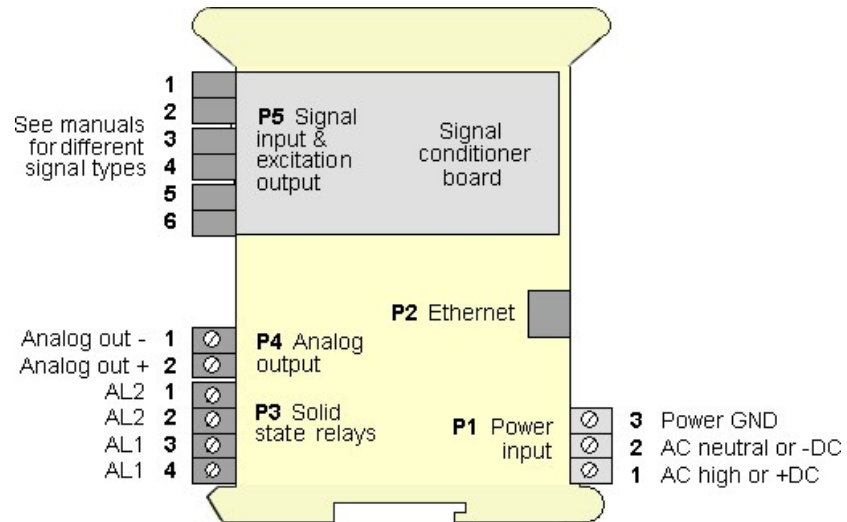
Discovery and configuration of Laureate Ethernet Nodes is easily achieved with Laurel's Node Manager Software, and the discovered transmitters can then be programmed using Laurel's Instrument Setup Software. Both softwares run on a PC under MS Windows and can be downloaded at no charge.



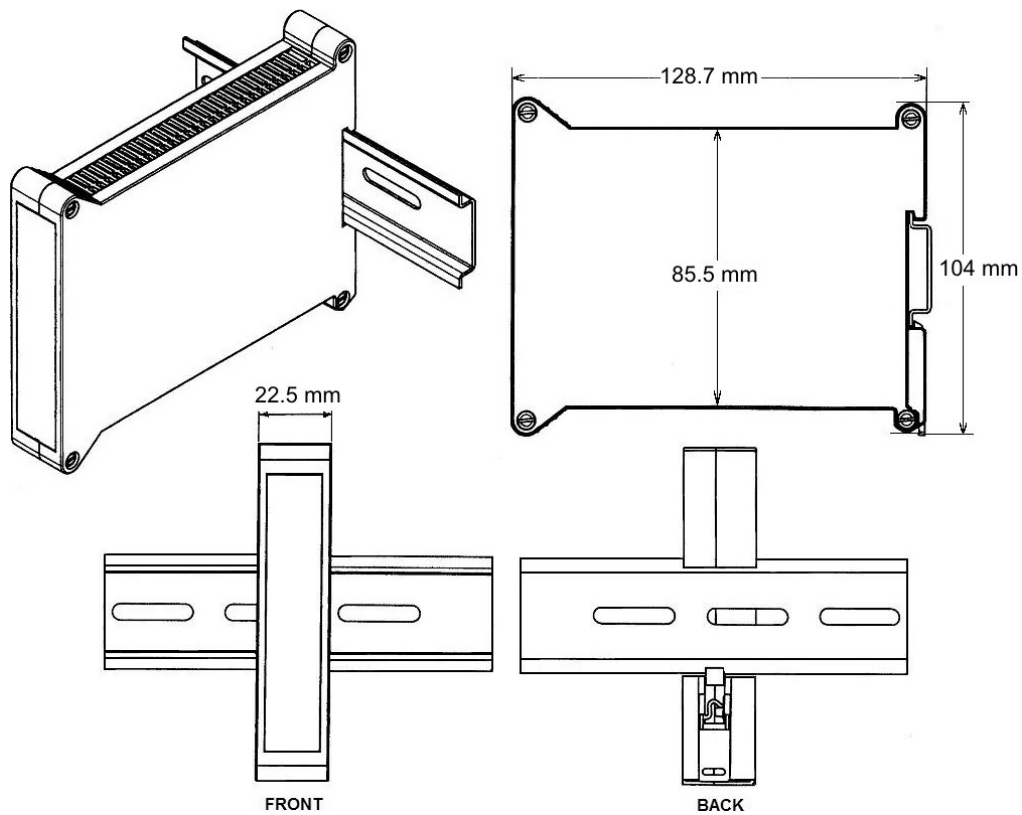
Specifications

Analog Input	Range	Resolution	Accuracy	Input Ohms
DC Voltage	±200.00 mV	10 µV	±0.01% FS ± 2 counts	1 GΩ
	±2.0000 V	100 µV		1 GΩ
	±20.000 V	1 mV		10 MΩ
	±200.00 V	10 mV		10 MΩ
	±600.0 V*	100 mV		10 MΩ
DC Current	±2.0000 mA	0.1 µA	±0.01% FS ± 2 counts	100 Ω
	±20.000 mA	1 µA		10 Ω
	±200.00 mA	10 µA		1 Ω
	±5.000 A	1 mA	±0.1% FS ± 2 counts	0.01 Ω
* Range ETL certified to ±300.0 V				
Input Resolution	16 bits (65,536 steps)			
Update Rate, Max	50/sec at 50 Hz, 60/sec at 60 Hz			
Max applied voltage	600 Vac for 20, 200 & 600 V ranges, 125 Vac other ranges			
Over-current protection	25x for 2 mA, 8x for 20 mA, 2.5x for 200 mA, 1x for 5 A			
Analog Output (standard)				
Output Levels	0-20 mA or 0-10 Vdc (selectable)			
Compliance, 4-20 mA	10V (0-500Ω load)			
Compliance, 0-10V	2 mA (5 kΩ load)			
Output Resolution	16 bits (65,536 steps)			
Output Accuracy	0.02% of output span plus conversion accuracy			
Output Isolation	250V rms working, 2.3 kV rms per 1 minute test			
Serial Data Output (standard)				
Type	10/100Base-T Ethernet per IEEE 802.3			
Data Rates	300, 600, 1200, 2400, 4800, 9600, 19200 baud			
Output Isolation	250V rms working, 2.3 kV rms per 1 min test			
Serial Protocols	Modbus TCP, Modbus RTU, Modbus ASCII, Laurel ASCII			
Modbus Compliance	Modbus over Serial Line Specification V1.0 (2002)			
Digital Addresses	247 for Modbus, 31 for Laurel ASCII			
Dual Relay Output (standard)				
Relay Type	Two solid state relays, SPST, normally open, Form A			
Load Rating	120 mA at 140 Vac or 180 Vdc			
Transducer Excitation Output (standard)				
Output Levels	5V@100 mA, 10V@120 mA, 24V@50 mA (jumper selectable)			
Output Isolation	50V from signal ground			
Power Input				
Standard Power	85-264 Vac or 90-300 Vdc			
Low Power Option	10-48 Vdc or 12-32 Vac			
Power Frequency	DC or 47-63 Hz			
Power Isolation	250V rms working, 2.3 kV rms per 1 min test			
Power Consumption	2W typical, 3W with max excitation output			
Mechanical				
Dimensions	129 x 104 x 22.5 mm case			
Mounting	35 mm rail per DIN EN 50022			
Connectors	Detachable screw-clamp connectors for signal and power RJ45 jack for Ethernet			
Environmental				
Operating Temperature	0°C to 55°C			
Storage Temperature	-40°C to 85°C			
Relative Humidity	95% at 40°C, non-condensing			
Cooling Required	Mount transmitters with ventilation holes at top and bottom. Leave 6 mm (1/4") between transmitters, or force air with a fan.			

Pinout



Mechanical



Ordering Guide

Create a model a model number in this format: **LTE20DCV1**

Transmitter Type	LTE Laureate Ethernet and 4-20 mA Transmitter
Main Board	2 Standard Main Board 4 Extended Main Board
	Note: Extended allows custom curve linearization and rate from successive readings.
Power	0 Isolated 85-264 Vac or 90-300 Vdc 1 Isolated 12-32 Vac or 10-48 Vdc
Signal Input	DC Volts DCV1 ± 200.00 mV DCV2 ± 2.0000 DCV3 ± 20.000 V DCV4 ± 200.00 V DCV5 ± 600.0 V
	DC Amps DCA1 ± 2.0000 mA DCA2 ± 20.000 mA DCA3 ± 200.00 mA DCA4 ± 5.000 A
	Note: The same DC signal conditioner can be user configured for DC Volts or DC Amps, and for process, strain or potentiometer follower signals. It is precalibrated in EEPROM for all DC Volt and DC Amp ranges listed.