

## Laurel DIN Rail Transmitters

- Analog or Pulse Input, Analog Output
- RS232/485 or Ethernet Interface
- Modbus & ASCII Protocols
- Dual Relay Outputs
- Input/Digital/Analog/Relay Isolation
- Free Setup Software



LT

Laureate LT Series transmitters provide serial data conversion and analog retransmit for all popular industrial signals. These modules use the proven circuitry of Laurel panel meters and counters for exceptional accuracy at high update rates.

### SPECIFICATIONS

Analog Output:	4-20mA, 0-20mA, 0-10V, ±10V
Compliance (mA):	10V (0-500Ω load)
Compliance (V):	2mA (>5kΩ load)
Accuracy:	±0.02% of span (analog inputs) ±0.01% of span (pulse inputs)
Resolution:	16 bits (65536 steps)
Digital Output:	RS-232/485 (2- or 4-wire) or Ethernet
Protocols:	LT models: Modbus RTU, Modbus ASCII, Laurel ASCII LTE models: Modbus (TCP, RTU or ASCII) & Laurel ASCII
Baud Rate:	300-19200
Analog Input Accuracy:	DCV, mA: ±0.01% of FS ±2 counts ACV, mA: ±0.15% of FS ±2 counts (10Hz-10kHz) Strain gage, load cell: ±0.01% of FS ±2 counts Resistance: ±0.01% of range ±2 counts RTD: ±0.04°C conformity error typ. (3 & 4 wire) Thermocouple: ±0.2°C conformity error typ.
Update Rate:	50 or 60/sec for analog inputs
Thermocouple Input:	FS range is maximum for each sensor type
Frequency/Pulse Input:	AC, magnetic pickups, pulses from NPN or PNP sensors, contact closures, digital logic
Channel A Frequency:	0.005Hz to 1MHz
Channel B Frequency:	0.005Hz to 250kHz
Time Base Accuracy:	±2ppm
Signal Level:	12mV min, 250VAC max
Update Rate:	Gate time + 30ms + 1 period (20/sec at 60Hz)
Gate Time:	0.01 to 199.99 sec (selectable)
Curve Fitting:	Square root extraction standard, Custom curve fitting with extended input board
Quadrature Input:	Differential or single ended
Transitions Monitored:	x1, x2 or x4
Transitions/sec:	250k max.
Error Correction:	Zero index (Z-channel)
Relay Outputs:	Two SPST-NO (Form A) solid-state relays 120mA@140VAC/180VDC
Excitation Output:	5V@100mA, 10V@120mA, 24V@50mA (jumper select)
Isolation:	50V from signal ground
Power:	DC or 47-63 Hz
Isolation:	250Vrms power/analog/relay
Temperature:	0-55°C operating; <95% RH 0-40°C, non-condensing
Size:	129 x 104 x 22.5 mm
Mounting:	35mm DIN rail
Connections:	Detachable screw terminal plugs, RJ45 for Ethernet

### ACCESSORIES

CBL04	RS-232 cable to PC serial port or USB adapter
CBL02	USB to RS-232 cable adapter
LTNET485	Ethernet to RS485 Server. Connects up to 31 Laureate LT transmitters, meters and counters with RS485 interfaces to one Ethernet port.

Laureate transmitters are easily configured from a PC using the graphical Laurel Instrument Setup Software. The isolated analog output can be digitally scaled to any portion of the full range. Dual relay outputs add alarm and control capability. Programmable modes include operation above or below setpoint, latching or non-latching, hysteresis and band deviation.

Each DC transmitter is precalibrated for all DCV & DCA ranges. The user can change the range without recalibration. On temperature transmitters, the thermocouple or RTD type is field selectable. Measurement ranges can be as wide as the entire span of the sensor type or as narrow as 15°. Cold junction compensation and open sensor detection are included.

Standard functions on pulse input models are frequency, period, rate, A to B interval, up/down total to 999999. Extended models provide additional user-configurable functions.

### ORDERING INFORMATION

To Order—Insert Number Code for Each Letter to Select Catalog Number  
Order Example: LT20DCV1

A	B	C	D
<b>A Transmitter Output</b>			
LT	4-20mA, RS232/RS485, 2 solid state relays		
LTE	4-20mA, Ethernet, 2 solid state relays		
<b>B Main Board Type</b>			
2	Extended analog input <sup>1</sup>		
6	Standard pulse input (frequency, rate, totalizing, timing)		
8	Extended pulse input <sup>§</sup>		
<b>C Power</b>			
0	85-264VAC, 95-300VDC		
1	12-34VAC, 10-48VDC		
<b>D Input Type (analog main board)</b>			
DCV1	±200.00mV DC	RMV1	200mV AC Trms
DCV2	±2.0000V DC	RMV2	2.0000V AC Trms
DCV3	±20.000V DC	RMV3	20.000V AC Trms
DCV4	±200.00V DC	RMV4	200.00V AC Trms
DCV5	±600.0V DC (not ETL)	RMV5	600.0V AC Trms (not ETL)
DCV6	±300.0V DC	RMV6	300.0V AC Trms
DCA1	±2.0000mA DC	RMA1	2.0000mA AC Trms
DCA2	±20.000mA DC	RMA2	20.000mA AC Trms
DCA3	±200.00mA DC	RMA3	200.00mA AC Trms
DCA4	±5.000A DC	RMA4	5.000A AC Trms
R0	0-2.0000Ω (fixed)	R4	0-20.000kΩ
R1	0-20.000Ω	R5	0-200.00kΩ
R2	0-200.00Ω	R6	0-2.000MΩ (fixed)
R3	0-2.000kΩ		
P	Process 4-20mA in/out	C427	Cu10 RTD *
P1	Process Custom mA scaling	J	Type J TC *
SG	Strain Gage 200mV	K	Type K TC *
SG1	Strain Gage Custom scaling	R	Type R TC *
WM1	6-wire Load Cell Custom scale	S	Type S TC *
P385	100Ω Pt RTD α=385 *	T	Type T TC *
P392	100Ω Pt RTD α=392 *	E	Type E TC *
N672	Ni120 RTD *	N	Type N TC *
<b>Input Type (pulse main board)</b>			
FR	Dual channel frequency/pulse		
VF1	4-20mA (process totalizing, square root extraction)		
VF2	0-1mA (process totalizing, square root extraction)		
VF3	0-10V (process totalizing, square root extraction)		
QD	Quadrature**		

<sup>1</sup> Includes custom curve linearization & rate from successive readings.  
<sup>§</sup> Adds phase angle, duty cycle, up/down counting, rate & total simultaneously, custom linearization, arithmetic functions (A+B, A-B, AxB, A/B, A/B-1), power factor, batch control.  
\* Specify °C or °F. TC or RTD type is jumper selectable.  
\*\* Scalable for encoder position. Extended board adds scalable rate.

SIGNAL  
CONDITIONERS