

## 3X0 SERIES

Converts Flow Signal To a Linear 4 to 20 mA Analog or a Protocol Signal



3x0 programmable transmitters are capable of converting the frequency signal from any compatible flow sensors to a preferred output type (analog, scaled pulse, protocol). In addition to standard square wave signals, it can also accept a sine wave, making it a versatile transmitter for numerous applications. The 310 and 320 offer analog and scaled pulse output, respectively, while the 340 models offer communication protocols (N2, BACnet/Modbus, or LonWorks), with energy (BTU) measurement (appropriate software & programming cables are required for installation; see Ordering Information).

### SPECIFICATIONS

310-00

Power Requirements	Loop input voltage 9 to 35 Vdc
Input Frequency	0.4 Hz to 10 kHz
Load Resistance	Max 750 Ω @ 24 Vdc
Operating Temp Range	-29 to 70 °C (-20 to 158 °F)
Storage Temp Range	-40 to 85 °C (-40 to 185 °F)
Accuracy	±0.04% of reading over entire span
Linearity	0.1% of full scale

#### WARRANTY

Limited Warranty	1 year
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## Compact

Saves space in crowded enclosures

## Communicating

Communication protocols available on the 340 models

## Programmable

Programmable (units of measure, calibration, etc.) using computer with Windows®-based operating system...save installation time in the field by pre-programming the device

## Input options

Accepts sine wave input from a variety of other sources for application flexibility

### APPLICATIONS

- Converting sine/square wave signals to 4 to 20 mA
- Connecting flow sensors to BAS panels
- Increasing wire run length limit for flow sensors

320-00

Power Requirements	12 to 24 Vac 85 mA max.; 12 to 35Vdc, 30 mA max.; reverse and over voltage protected to 40 Vdc
Input Frequency	0.4 to 10 kHz
Transient Suppression	Complies with IEC-801-4 electrical burst, fast transient specification
Pulse Output	Isolated solid state switch in any standard or custom flow total units; adjustable 50 ms to 1.0 sec pulse output width in 50 ms increments
Maximum Sinking Current	100 mA @ 35 Vdc
Operating Temp Range	-29 to 70 °C (-20 to 158 °F)
Storage Temperature Range	-40 to 85 °C (-40 to 185 °F)

#### WARRANTY

Limited Warranty	1 year
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340-00

Power Requirements	12 to 24 Vdc or 12 to 24 Vac, 70 mA max.
Flow Sensor Input	Excitation voltage 3-wire sensors: 9.1 Vdc 500Ω source impedance
Frequency	4 to 10000 Hz
Temp Sensor Input	10k Dale Thermistor (requires two, sold separately)
Operating Temp Range	-29 to 70 °C (-20 to 158 °F)
Storage Temp Range	-40 to 85 °C (-40 to 185 °F)

#### UNITS OF MEASURE

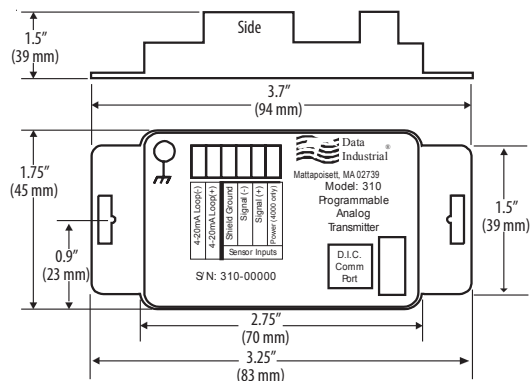
Flow Rate	gpm, gph, l/sec, l/min, l/hr, ft <sup>3</sup> /sec, ft <sup>3</sup> /min, ft <sup>3</sup> /hr, m <sup>3</sup> /sec, m <sup>3</sup> /min, m <sup>3</sup> /hr
Total Flow	gallons, liters, cubic feet, cubic meters
Energy Rate	kBTU/min, kBTU/hr, kW, MW, hp, tons
Total Energy	BTU, kBTU, MBTU, kWh, MWh, kJ, MJ

#### WARRANTY

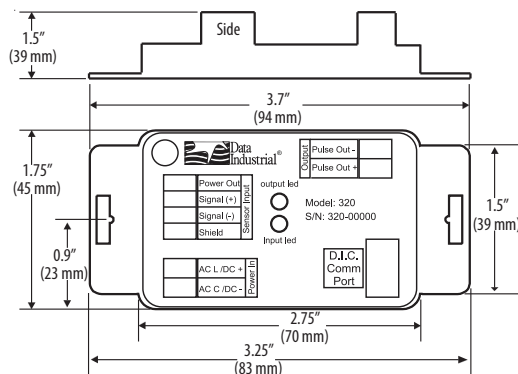
Limited Warranty	1 year
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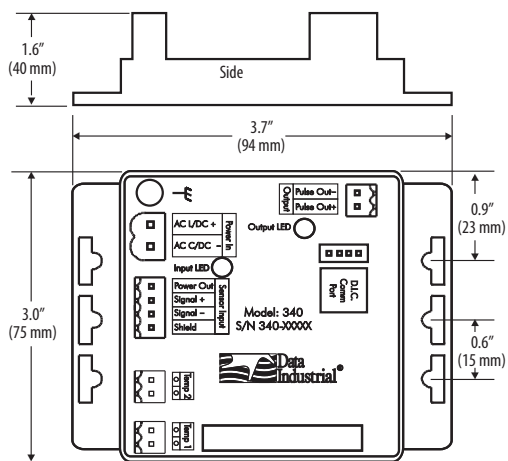
**310-00**  
Dimensional Drawing



**320-00**  
Dimensional Drawing



**340-00**  
Dimensional Drawing



**ORDERING INFORMATION**

MODEL	MANUF. PART #	DESCRIPTION
U001-0013	310-00*	Flow Transmitter, Analog, Programmable, 4 to 20 mA Output
U001-0027	340LW-00*	Flow Transmitter, BTU, Analog, Programmable, LonWorks Output
U001-0029	340N2-00**	Flow Transmitter, BTU, Analog, Programmable, N2 Output
U001-0035	310-04*	Flow Transmitter, Analog, 4 to 20 mA, DIN Mounting
U001-0038	340N2-02**	Flow Transmitter, BTU, Analog, Programmable, N2 Output, Metal Enclosure
U001-0042	310-01*	Flow Transmitter, Analog, 4 to 20 mA, NEMA 4X Enclosure
U001-0136	340BN/MB-00***	Flow Transmitter, BTU, BN-MB, No Enclosure
U001-0137	340BN/MB-02***	Flow Transmitter, BTU, BN-MB, Metal Enclosure
U001-0138	340BN/MB-03***	Flow Transmitter, BTU, BN-MB, Plastic Enclosure
U001-0139	340BN/MB-04***	Flow Transmitter, BTU, BN-MB, with DIN Clips
U001-0060	320-00*	Flow Transmitter, Programmable, Scaled Pulse Output
U001-0109	340-00***	Flow Transmitter, Programmable, Frequency Output
U001-0020	A301-20	Programming Cable with CD for Analog/Modbus/BACnet/LonWorks Outputs, Serial PC Connector
U001-0075	A302-20	Programming Cable with CD for N2 Output, Serial PC Connector
U001-0149	40134-0002	Programming Cable with CD for Analog/Modbus/BACnet/LonWorks Outputs, USB PC Connector

\* Software and programming cable are required for analog, Modbus, LonWorks, BACnet transmitter and meter products.

\*\* Software and programming cable required for N2 products.

\*\*\* 340 Series also requires two 10k Dale thermistors for energy (BTU) measurement.

Other models available:

<p>Model</p> <p>310 = Analog 320 = Pulse 340 = BTU 340N2 = BTU; N2 protocol 340BN/MB = BTU; BACnet &amp; Modbus protocol 340LW = BTU; LonWorks</p>	<p>Options</p> <p>00 = Transmitter only 01 = NEMA 4 enclosure (310, 320 only) 02 = Metal weathertight enclosure 03 = Plastic weathertight enclosure 04 = DIN rail mounting clips</p>
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Example:

340 02

