

## 900 SERIES Universal Process Controller

- Manual and Serial Batch, Dose, and PID Controls
- Totalizer and Rate Meter
- Digital and Analog Input/Output
- Analog Input/Output Range Scaling
- Local and Remote Operation and Reporting
- Onboard Data Logging
- LWAN Communication

The 900 Series is a line of innovative, technically superior, high quality, reliable microcomputer-based process monitors and controllers. They have been designed to provide precision liquid and gas flow measurement, value monitoring, data communication, and process control for a variety of commercial, industrial, and general instrumentation applications.

### MULTIPLE COMMUNICATION OPTIONS

Batches are controlled manually from the front panel keypad, serially through the RS-232C port, or remotely through the telecommunication interface. The batch quantity is permanently saved in non-volatile memory when programmed from the keypad, and a complete set of serial commands and responses for all control functions. A communication capability is incorporated allowing alarms to be sent to a pager.

Information is accessed through the menu-driven integrated keypad and LCD, the RS-232C serial port, or remotely using the internal or external telecommunication interface.

The telecommunication option enables programming and operation for monitors distributed in a wide area network distant from a network control center. The report feature sends monitored information to a remote host computer, based on alarms, service time or clock-calendar schedules.

### FULL FEATURED

Multicolored front panel LED's indicate quantity totalizer state, flow rate, control progress, report state, and telecommunication status. There is on-board audio annunciation for alarms and keypad key activation.



Outputs may be either relay or process analog voltage or current. A relay output is available with contacts suitable for security system applications. Medical-style input and output connector plugs and shielded cables are used to enhance operating reliability and eliminate ambient noise from affecting measurements.

### BESSEL MEASUREMENT FILTERING

Input signals are accepted from a variety of digital transducers and analog process signal sources — digital pulse/frequency or process analog voltage or current. A programmable smoothing filter compensates for erratic process input rates encountered with metering pump applications. A balanced differential method is provided for magnetic sensor inputs to reject ambient noise for extended cable distances.

### MULTIPLE ALARM SOURCES

Set-points may be programmed to trigger local LED's and audio annunciation, produce signal outputs, and invoke local and remote alarm signaling. Programmable set-points include quantity, high/low and average flow rates, time in service, and clock-calendar time.

The reporting and alarm features provide a front end for operations management information gathering, remote billing systems, automated customer service dispatch systems, and equipment maintenance notification systems.

### LOW POWER OPERATION

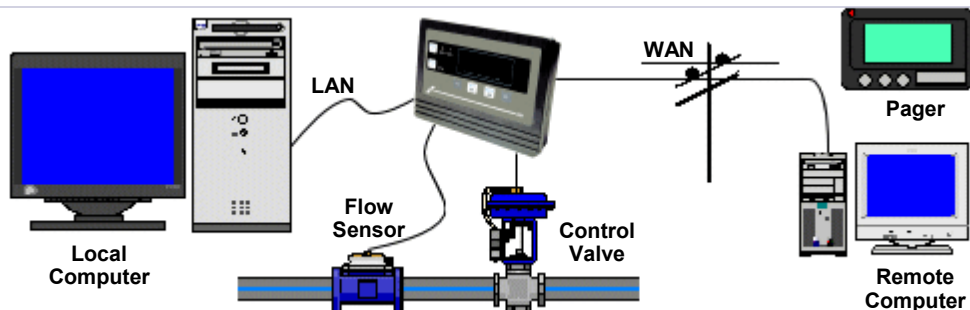
Non-volatile memory retains accumulated and programmed information without a backup battery, and a long life lithium battery supports the clock-calendar.

# 900 Series Technical Specifications

<b>Measured Values</b>			
<b>Process Input</b>	Volts, mA, Hz, Ohms	<b>Process Rate</b>	0.00±9,999,999.99 units/time
<b>Process Quantity</b>	0–99,999,999.99 units	<b>Process Offset</b>	0.00±9,999,999.99 units/time
<b>Service Time</b>	0–65,535 hrs	<b>Clock Date–Time</b>	day:month:year:hrs:min:sec
<b>Date–Time</b>	day:month:year:hrs:min:sec	<b>Next Report</b>	day:month:year:hrs:min:sec
<b>Program Values</b>			
<b>Control Functions</b>	PID, Batch, Dose, Manual, Monitor	<b>Control Amount</b>	0.00±9,999,999.99 units
<b>Port Select</b>	Input, Output, Off	<b>Process Input</b>	Volts, mA, Hz
<b>Rate Time Base</b>	sec/min/hrs/scalar	<b>Process Output</b>	Volts, mA, Relay
<b>Hi/Lo Rate Limits</b>	0.00±9,999,999.99 units/time	<b>Quantity 1,2 Limits</b>	0.00–99,999,999.99 units
<b>Time Limit</b>	0–65,535 hrs	<b>Rate Filter/PID Response</b>	Bessel 0 to –20 dbHz
<b>Measure Type</b>	Quantity and Scalar	<b>Measure Units</b>	3 chars, a-z, 0–9, A-Z, and other symbols
<b>Pulse Constant</b>	1–999,999 (pulse/qty ratio)	<b>Interpolate Input/Output</b>	Value Low/High=0–999,999.999 V/mA/Hz/ohm
<b>Rate Alarm Valid</b>	0–255 sec		Units Low/High=0.00±9,999,999.99 units/time
<b>Process Offset</b>	0.00±9,999,999.99 units/time		
<b>Comm Port Select</b>	Sio/Wan, Report/Alarm	<b>Network Address</b>	0–65,535
<b>Wan Numbers</b>	2 each 16 chars (0-9, *, #, A, B, C, D, T, P, ', ')	<b>Auto-Answer</b>	0–255 rings
<b>Date–Time</b>	day:month:year:hrs:min:sec	<b>Report Start</b>	day:month:year:hrs:min:sec
<b>Report Frequency</b>	0–999 sec/min/hrs/days/months		
<b>Configuration</b>			
<b>On/Off</b>	Logging, Secure keypad, Pager, Error control, Compression, Port program lock, Alarm latch		
<b>Calibration</b>	Analog input and output, Factory defaults		
<b>Controls and Indicators</b>			
<b>Keypad</b>	Six key soft-touch - CHAN (RST2), QTY, PROG (F2), VIEW (F1), ZERO/TARE (RST1), RATE		
<b>Display</b>	Liquid crystal nematic 2x16 alphanumeric dot matrix gray ±20° view		
<b>Audio</b>	Magnetic 2.0 KHz 85db @ 10 cm		
<b>Lamps</b>	LED Qty/Rate/Time tri-color		
<b>Input Port</b>			
<b>Interface</b>	3.5mm three conductor plug or screw terminal plug (option) sleeve=gnd ring=signal tip=excitation		
<b>Digital</b>	0–18.396 KHz accuracy ±0.01% ±0.5bit		
<b>Pulse</b>	0–24V range 2.4V threshold (typ) z-in 47K hall effect open collector TTL/CMOS dry contacts		
<b>Magnetic</b>	0.007vrms to 35Vp-p psuedo-sinuid, balanced differential z-in 10K (max) sleeve=shield ring=coil1 tip=coil2		
<b>Analog Voltage</b>	0–10.000V z-in 10.0K accuracy ±0.005% (typ) stability ±30ppm/°C		
	0–4.096V z-in 15 meg (typ) accuracy ±0.002% (typ) stability ±30ppm/°C		
<b>Analog Current</b>	0–20.000mA source z-in 88.7 ohm accuracy ±0.005% (typ) stability ±30ppm/°C		
<b>Excitation</b>	5.0V 50mA or external regulated supply voltage		
<b>Output Port</b>			
<b>Interface</b>	3.5mm three conductor plug or screw terminal plug (option)		
<b>Analog Voltage</b>	0–10.000V z-out 1.0 ohm accuracy ±0.005% (typ) stability ±10ppm/°C sleeve=neg ring=n/c tip=pos		
<b>Analog Current</b>	0–20.000mA source z-out > 2.0 meg ohms accuracy ±0.005% (typ) stability ±10ppm/°C sleeve=n/c ring=neg tip=pos		
<b>Relay</b>	1 Form A (B option) 28 VAC 1.0 A carry 0.5A switch 1KV iso sleeve=no/nc tip=com		
<b>WAN Port</b>	RJ-11 FCC Subpart "H" modem full duplex V.22bis		
<b>Local Serial Port</b>	3.5 mm audio stereo plug EIA/TIA 232D (RS-232C) full duplex 2400bps sleeve=gnd ring=txd tip=rxld		
<b>Value Memory</b>	Non-volatile error detect eeprom 100 year retention without power, capacity=64x8 (extrnl)/512x8 (intrnl), 1.0 ms/x 10 <sup>6</sup> write		
<b>Diagnostics</b>	Memory check sum, installation, local serial, WAN communication		
<b>Power Required</b>	2.1 mm center pos 10–16 VDC std (10–24V opt) US 110–130 VAC 50/60 Hz adapter with Europe 220VAC (option)		
<b>Consumption</b>	0.60 watts @ 12V (lamps on - no options)		
<b>Date-Time Clock</b>	Battery 1216 3.0V 35 mA/hr lithium 9 years		
<b>Environment</b>	Operate 0–55°C, 0–95% RH non-condense, ship-store –20° to +85°C, 30 min warm to rated accuracy		
<b>Enclosure</b>	NEMA 4X front panel/surface mount, ABS, dark gray, UL94V0 (option)		
<b>Size-Weight</b>	6.3x4.3x1.3 (160x110x33 mm), 10.5 oz (300 gm)		
<b>Publications</b>	Operator's Manual, Warranty Registration, Key Reference Card, Web available		
<b>Regulatory</b>	CE Class B, RoHS, REACH, FCC 15 Class B, FCC Part 68		

Specifications are subject to change at any time without notice.

## Application Example



D10144—011817