

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.

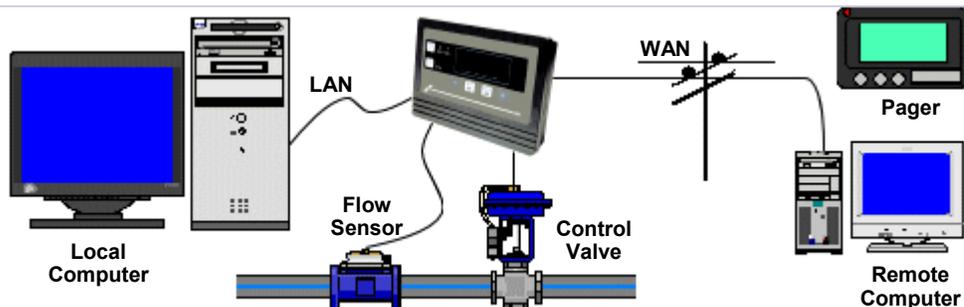
LOW POWER OPERATION

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

Measured Values			
Process Input	Volts, mA, Hz, Ohms	Process Rate	0.00±9,999,999.99 units/time
Process Quantity	0–99,999,999.99 units	Process Offset	0.00±9,999,999.99 units/time
Service Time	0–65,535 hrs	Clock Date–Time	day:month:year:hrs:min:sec
Date–Time	day:month:year:hrs:min:sec	Next Report	day:month:year:hrs:min:sec
Program Values			
Control Functions	PID, Batch, Dose, Manual, Monitor	Control Amount	0.00±9,999,999.99 units
Port Select	Input, Output, Off	Process Input	Volts, mA, Hz
Rate Time Base	sec/min/hrs/scalar	Process Output	Volts, mA, Relay
Hi/Lo Rate Limits	0.00±9,999,999.99 units/time	Quantity 1,2 Limits	0.00–99,999,999.99 units
Time Limit	0–65,535 hrs	Rate Filter/PID Response	Bessel 0 to –20 dbHz
Measure Type	Quantity and Scalar	Measure Units	3 chars, a-z, 0–9, A-Z, and other symbols
Pulse Constant	1–999,999 (pulse/qty ratio)	Interpolate Input/Output	Value Low/High=0–999,999.999 V/mA/Hz/ohm
Rate Alarm Valid	0–255 sec		Units Low/High=0.00±9,999,999.99 units/time
Process Offset	0.00±9,999,999.99 units/time		
Comm Port Select	Sio/Wan, Report/Alarm	Network Address	0–65,535
Wan Numbers	2 each 16 chars (0-9, *, #, A, B, C, D, T, P, ', ')	Auto-Answer	0–255 rings
Date–Time	day:month:year:hrs:min:sec	Report Start	day:month:year:hrs:min:sec
Report Frequency	0–999 sec/min/hrs/days/months		
Configuration			
On/Off	Logging, Secure keypad, Pager, Error control, Compression, Port program lock, Alarm latch		
Calibration	Analog input and output, Factory defaults		
Controls and Indicators			
Keypad	Six key soft-touch - CHAN (RST2), QTY, PROG (F2), VIEW (F1), ZERO/TARE (RST1), RATE		
Display	Liquid crystal nematic 2x16 alphanumeric dot matrix gray ±20° view		
Audio	Magnetic 2.0 KHz 85db @ 10 cm		
Lamps	LED Qty/Rate/Time tri-color		
Input Port			
Interface	3.5mm three conductor plug or screw terminal plug (option) sleeve=gnd ring=signal tip=excitation		
Digital	0–18.396 KHz accuracy ±0.01% ±0.5bit		
Pulse	0–24V range 2.4V threshold (typ) z-in 47K hall effect open collector TTL/CMOS dry contacts		
Magnetic	0.007vrms to 35Vp-p psuedo-sinuid, balanced differential z-in 10K (max) sleeve=shield ring=coil1 tip=coil2		
Analog Voltage	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		
Analog Current	0–20.000mA source z-in 88.7 ohm accuracy ±0.005% (typ) stability ±30ppm/°C		
Excitation	5.0V 50mA or external regulated supply voltage		
Output Port			
Interface	3.5mm three conductor plug or screw terminal plug (option)		
Analog Voltage	0–10.000V z-out 1.0 ohm accuracy ±0.005% (typ) stability ±10ppm/°C sleeve=neg ring=n/c tip=pos		
Analog Current	0–20.000mA source z-out > 2.0 meg ohms accuracy ±0.005% (typ) stability ±10ppm/°C sleeve=n/c ring=neg tip=pos		
Relay	1 Form A (B option) 28 VAC 1.0 A carry 0.5A switch 1KV iso sleeve=no/nc tip=com		
WAN Port	RJ-11 FCC Subpart "H" modem full duplex V.22bis		
Local Serial Port	3.5 mm audio stereo plug EIA/TIA 232D (RS-232C) full duplex 2400bps sleeve=gnd ring=txd tip=rxld		
Value Memory	Non-volatile error detect eeprom 100 year retention without power, capacity=64x8 (extrnl)/512x8 (intrnl), 1.0 ms/x 10 ⁶ write		
Diagnostics	Memory check sum, installation, local serial, WAN communication		
Power Required	2.1 mm center pos 10–16 VDC std (10–24V opt) US 110–130 VAC 50/60 Hz adapter with Europe 220VAC (option)		
Consumption	0.60 watts @ 12V (lamps on - no options)		
Date-Time Clock	Battery 1216 3.0V 35 mA/hr lithium 9 years		
Environment	Operate 0–55°C, 0–95% RH non-condense, ship-store –20° to +85°C, 30 min warm to rated accuracy		
Enclosure	NEMA 4X front panel/surface mount, ABS, dark gray, UL94V0 (option)		
Size-Weight	6.3x4.3x1.3 (160x110x33 mm), 10.5 oz (300 gm)		
Publications	Operator's Manual, Warranty Registration, Key Reference Card, Web available		
Regulatory	FCC Part 15 Class A, Part 68 5TUUSA-23969-DT-E, UL/CSA/VDE power adapter, CE mark available		

Application Example



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