Model N920
Universal Embedded Process Controller

- **Manual and Serial Batch, Dose, Alarm Control**
- **Dual Totalizer and Rate Meter**
- **Digital Sensor Input and Relay Output**
- **Multiple Alarm Sources**
- **Real-Time Clock/Calendar**
- **Local and Remote Operation and Reporting**
- **LWAN Communication**

MEASURE AND CONTROL
The Model N920 provides service for sensor or process level signals from a variety of digital transducers. Input signals are processed with double word bit precision to service rate-total measurements. Signal are accepted from standard driven, open collector or switches, with adaptive differential support for variable reluctance magnetic sensors to provide high ambient noise rejection even over extended cable distances.

A relay output port provides service for batch and dose control, or local alarm support. It is compatible for interfacing with security systems. Signal interfaces use instrument grade shielded cables that eliminate ambient noise from affecting measurements.

BATCH AND DOSE CONTROL
Quantity delivery controls are selected manually from the front panel keypad, serially through the RS232C port, or remotely through a WAN interface. The required quantity is saved in non-volatile memory when programmed from the keypad. Control functions are supported by a complete set of serial control commands and progress responses.

MONITORING
Monitored and programmed information is menu accessed using the integrated keypad and liquid crystal display, or RS232 port, or remotely using an internal or external WAN interface. Communicator function's enable programmed information to be quickly copied from one unit into another, with a reverse clone feature that recalls measured and programmed values for review using a second unit.

COMMUNICATION
The WAN option enables programming and operating multiple N920 units distributed in wide area networks distant from a central information gathering and control site. The report feature automatically sends monitored information to remote computers based on alarm states, service time, or a clock-calendar schedule. Measurement reports and alarms provide the front end for operations management information gathering, remote billing systems, automated customer service dispatch systems, and equipment maintenance notification.
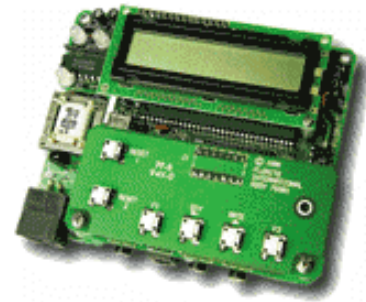
The N920 is an innovative, high quality, reliable micro-computer-based open architecture instrument - combining process monitoring and several forms of built-in control functions to form a full featured measuring system solution. The N920 is useful for a variety of commercial, industrial, and general instrumentation applications to control mass gas, fluids, pressure, temperature and other general processes variables.

RATE/VALUE FILTER
A digital programmable Butterworth low pass filter provides noise rejection and smoothing of erratic process input signals such as encountered in metering pump applications.

MULTIPLE ALARM SOURCES
Set points are programmable to provide local warning and alarm indications, produce signal outputs, and invoke remote alarm reporting. Set-points may be programmed for quantities, service time, and high and low process rate/values.

LOCAL INDICATORS
Multicolor front panel lamps indicate the state of alarms, batch and dose control progress and WAN connection status. Audio annunciation provides indication for alarms, key activation, and maintenance service events.
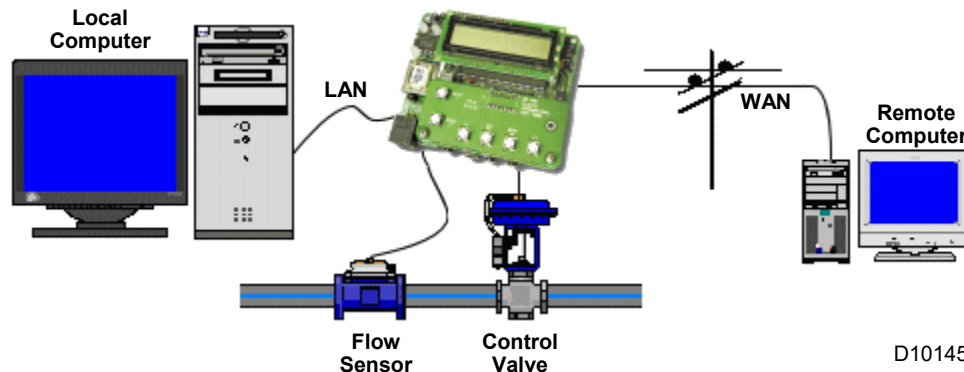
VALUE MEMORY
A non-volatile memory retains accumulated and programmed values without battery backup, with a long life lithium battery supporting the real-time clock-calendar.

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Model N920 Technical Specifications

Measured Values

Process Input	Any Wave Form	Process Rate	0.00±9,999,999.99 units/time
Process Quantity	0–99,999,999.99 units		
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	Monitor		
Port Select	Fixed	Process Input	Pulse, Hz
Rate Time Base	sec/min/hrs	Process Output	Pulse, 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		
Measure Type	Quantity and Rate	Measure Units	3 chars, a-z, 0–9, A-Z, and other symbols
Pulse Constant	1-999,999 (pulse/qty ratio)		
Communication 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	Secure keypad, Error control, Batch, Dose, Report, Decimal, Serial Error Control, Std/Max Protocol
Calibration	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 sleeve=gnd ring=signal tip=excitation
Digital Pulse	0-18.396 KHz accuracy ±0.01% ±0.5bit, 0–24V range 2.4V threshold (typ) z-in 47K hall effect open collector TTL/CMOS dry contacts
Excitation	5.0V 50mA or external regulated supply voltage

Output Port

Interface	3.5mm three conductor plug
Relay	1 Form A (B option) 28 VAC 1.0 A carry 0.5A switch 1KV iso sleeve=no/nc tip=com

Control Performance	Batch, Dose Deviation = +/-50 [Rate/36 + 2/Pulse Constant]/Quantity %
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=rxd
Value Memory	Non-volatile error detect eerom 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, 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	CE Class B, RoHS, REACH, FCC 15 Class B, FCC Part 68
Made In USA	Pub No. 75065, 5/04 Specifications are subject to change at any time without notice.

N920 Application Example

Local Computer · LAN · WAN · Remote Computer · Flow Sensor · Control Valve

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