

Model 990_x - MFC

Power Supply, Readout & Set Point Controller

System Basics

- Menu Driven Graphic Controls
- Mix Up To Four Independent Input-Output Channels
- Measurement Accuracy to 0.075%
- Instrument Keypad & LWAN Remote Operation
- Input Measurements - mA, Volts
- Output Controls - mA, Volts

Display & Indicators

- Large Graphic 8x40 High Contrast Backlit Display
- Process Measurement and Alarm Status
- Audio and Visual Alarm Indicators
- See 4 channels of SP and PV values on one screen

Process Control Capability

- Blend, Batch, and Dose control
- Reset-able Dual Totalizer per channel
- Valve Override (VOR) control

Information Reporting

- Optional Onboard Data Logging
- Optional Real-Time Clock-Calendar
- Programmable Report Selection with Auto-Routing
- Programmable Clock or Alarm Instigated Reports

Communications

- Built-in RS-232 Serial Communication Port
- Multiple Unit Networked Operation
- Serial Data Packet Error Controlled
- Multiple Network Access Addresses
- Remote Serial Computer Control

Alarm Services

- Dual Independent Input Quantity Alarms
- Operation and Maintenance Service Time
- Rate High, Low, Inclusive, Exclusive and Detection

Special Functions

- Preprogrammed list of units of measure
- User Programmable units of measure
- Selectable Quantity-Rate Time Base
- Universal Independent Input-Output Scaling

Diagnostic Tests

- Total Self Auto-Diagnostics on Every Power-Up

Mounting Accessories

- Panel Hardware
- Table Top Hardware
- Rack Hardware

Compliances

- UL, CE Class B, RoHS, REACH, FCC 15 Class B, FCC Part 68, UL61010-1, EN 13849-1 Safety and Performance Levels
- Machinery Directive, EN 61010-1 Low Voltage Directive



The Overview

The Florite Model 990X-MFC is an innovative, technically superior, high quality and reliable microcomputer-based Power Supply, Readout and Set Point controller suitable for any commercial or industrial MFC application.

The instrument's secure DA15 connectors allow for quick attachment to any Mass Flow Controller or Meter.

Installation and Operation

The instrument set-up and operation is performed via the keypad or using a standard RS-232 serial communication port provided with every 990X-MFC.

Optional Onboard Data Logging

The optional onboard data logger acquires date-time stamped measurement records based on the data logger's selectable rates of seconds, minutes, hours, days, weeks, or months. The data records may be exported directly into common spreadsheet or database programs such as Microsoft™ Excel™ and Access™ for data interpretation, trending, or long-term storage.

Communications

Every 990X-MFC unit comes with an RS-232 port, giving users serial communication capability. Remote readout, set point, control, and data acquisition information are all provided via its RS-232 serial communication port.

Information Reports and Alarms

Information reports are a configurable feature that utilizes the instrument's internal date-time clock. Independent channel alarms can be set for quantities, scalar values, process rates, process input measurements, and maintenance service time. Any of the independent alarms may be set to activate the audio-visual indicators and set to produce analog signals.

Operator Controls

The Model 990X-MFC features a large high-contrast backlit graphic display enabling a user to view up to four real-time Process Variables and the programmed Set Point for each connected device on one screen. Users can rapidly identify and make in-process adjustments in seconds. The easy-to-read display and audio indicators provide immediate status for rates and diagnostic operating status.

Diagnostics

Built-in diagnostic tests support easy installation and assist in ensuring a long, trouble-free operating life. Tests include overall system operating status, memory conditions, communication adapter status, display functionality, and keypad operation on every power-up.

Model 990X- MFC Technical Specifications

Control Functions	Monitor, Batch, Blend, Manual	Process Rate	0.00±9,999,999.99 unit/timebase
Measure Type	Rate-Total, Scalar	Totalize Range	0-99,999,999.99 units
Process Input	Current, Volt	Process Output	mA, Volt
Programmable Values			
Port Select	Off, Input, Output	Rate Time Base	scalar (none), sec, min, hrs, day
Rate Set-Point	0.00±9,999,999.99 units	Batch Set-Point	0.00±9,999,999.99 units
Blend Set-Point	0.00±9999999.999%	Pid Response	1.0-10 sec (+0 to -20dBHz)
Rate-Value Filter	1.0-20 sec 10%-90%	Output Interpolate	Lo-Hi Value=0-10.000/20.000 Lo-Hi units=0.00±9,999,999.99
Input Signal Interpolate	Lo-Hi Value=0-10.000/20.000 Lo-Hi units=0.00±9,999,999.99	Rate Hi-Lo Alarm	0.00±9,999,999.99 units
Pulse Signal Interpolate	0.00±9,999,999.999 pulse/qty ratio	Service Time Alarm	0-65,535 hrs
Quantity 1, 2 Alarm	0.00-99,999,999.99 units		
Programmable Measure Units	5 Chars, a-z, 0-9, A-Z, others		
Pre-programmed Measure Units	ml, mls, mln, l, ls, ln, cm ³ , cm ³ s, cm ³ n, m ³ , m ³ s, m ³ n, g, lb, kg, ft ³ , ft ³ s, scc, sl, bar, mbar, psi, kPa, Torr, atm, Volt, mA, oC, oK, oR, oF, g/cc, sg, %, lb/in ³ , lb/ft ³ , lb/gal, kg/m ³ , g/ml, Kg/l, g/l		
Global Functions			
LWAN Addresses	Dual 16 characters	Serial Port Functions	Sio-Wan-Lan, Report-Log-Alarms
Network Address	0-65,535	Report & Log Frequency	0-999 sec-min-hrs-days-months
Date-Time Clock	dd-mm-yy, hrs-min-sec		
Indicators			
Display	Graphic backlit LCD 8x40 180x65mm		
Keypad	8 metal dome tactile - [Select-Prog] [Back] [Home-Start] [Stop] [Up] [Down] [Left] [Right-Alt]		
Audio	2.0 KHz, 85 db @ 10 cm		
Input Interface			
Channel Isolation	>85 dbv nom		
Interface	DA15 plug signal and excitation		
Excitation	4.096V±0.1% reference or +5v at ~20mA max		
Analog Voltage	0-10.000V ±0.02% Zi~10K		
Analog Current	0-20.000 mA ±0.02% Zi=100Ω		
Analog Resistance	0-0.2MΩ ±0.02%		
Output Interface			
Interface	DA15 plug signal and excitation		
Analog Voltage	0-10.000V or 0-5.000V FS ±0.02% 22mA limit Zo~0.25Ω range limit <10%FS		
Analog Current	0-20.000mA FS±0.02% Zo~2M source range limit <10%FS		
Aux Signal	-4.0V to +8V @ +/- 4.0mA		
Power Control	±2.0 Amps max.		
Serial Ports			
Sio	EIA-TIA232D fdx D9S 9600bps 8N1		
Lan	EIA-TIA485 multidrop master-slave option <or> 10-100 Ethernet option		
Value Memory			
	Nvram 8Kx8 non-volatile parallel Eerom 512x8 non-volatile 100 yr retention, Eerom 256Kx8 non-volatile serial log option Static ram 1Kx8 parallel, Static ram 32x8 serial battery backed		
Power Required			
Volts-Power	-15 to +24 VDC 2.0w		
Jack Unipolar	2.1<or>2.5mm 2A<or>5A center pos UL/CSA		
Plug Bipolar	DE9P 5A rated UL/CSA		
Operating Environment			
Operation	32 to 104 °F (0-40°C), 0-95% non-condensing		
Ship-Storage	(-)40° to 185°F (+) 40 -85°C, 0-95% RH non-condensing		
Warm Up	3 sec typical to rated accuracy		
Self Diagnostics			
	Memory valid, installation, communication local-remote		
Enclosure			
Mounting	Plastic ABS FR1		
Panel Size	Frame, panel, table-top, rack mount Rectangular 7.67x4.28, R 0.125 4x (195x109, R 3.0 4x)		
Weight			
	595gm (with no options)		
Compliances			
	UL, CE Class B, RoHS, REACH, FCC 15 Class B, FCC Part 68, UL61010-1, EN 13849-1 Safety and Performance Levels Machinery Directive, EN 61010-1 Low Voltage Directive		

Specifications are subject to change at any time without notice.