Model 990X

MFC Controller

Power Supply, Readout & Set Point Controller

The 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 secure DA15 connector of the instrument allows quick attachment to any Mass Flow Controller or Meter.

Features

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

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 the RS-232 serial communication port.

Information Reprots and Alarm

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.

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Mounting Options

Our models at a glance

Wall Mount

Panel Mount

DIN Rail Mount

Table Top Mount

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Technical Specifications		
Control Functions	Monitor, Batch, Blend, Manual	
Process Rate	Monitor, Batch, Blend, Manual	
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%
	Rate-Value Filter	1.0-20 sec 10%-90%
	Pid Response	1.0-10 sec (+0 to -20dbHz)
	Input Signal Interpolate	Lo-Hi Value=0-10.000/20.000 Lo-Hi units=0.00±9,999,999.99
	Output Interpolate	Lo-Hi Value=0-10.000/20.000 Lo-Hi units=0.00±9,999,999.99
	Pulse Signal Interpolate	0.00±9,999,999.999 pulse/qty ratio
	Rate Hi-Lo Alarm	0.00±9,999,999.99 units
	Quantity 1, 2 Alarm	0.00–99,999,999.99 units
	Service Time Alarm	0–65,535 hrs
	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^3s, cm^3n, m^3, m^3s, m^3n, g, lb, kg, ft^3, ft^3s, 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
	Network Address	0–65,535
	Serial Port Functions	Sio-Wan-Lan, Report-Log-Alarms
	Date–Time Clock	dd-mm-yy, hrs-min-sec
	Report & Log Frequency	0–999 sec-min-hrs-days-months
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 Invironment	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 Diagnostiscs		Memory valid, installation, communication local-remote
Enclosure	Mounting	Frame, panel, table-top, rack mount
	Panel Size	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