

Model 991_R - MFC

Power Supply, Readout & Set Point Controller

System Basics

- Menu Driven Graphic Controls
- Single Channel Mass Flow Controller
- Measurement Accuracy to 0.075%
- Instrument Keypad & LWAN Remote Operation
- Input Measurements - mA, Volts
- Output Controls - mA, Volts

Display & Indicators

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

Process Control Capability

- Batch Quantity deliveries
- Set Point control
- Reset-able Dual Totalizer
- Valve Override (VOR) control

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

- Input Quantity Alarm
- 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 Input-Output Scaling

Diagnostic Tests

- Total Self Auto-Diagnostics on Every Power-Up

Mounting Accessories

- Panel Hardware
- Table Top Hardware
- Rack Hardware
- DIN Rail Hardware

Compliances

- 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

Functionally and operationally identical to the Model 990X-MFC, the Florite Model 991R-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 connector allows 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 991R-MFC.

Communications

Every 991R-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.

Operator Controls

The Model 991R-MFC features a large high-contrast backlit graphic display enabling a user to view the real-time Process Variable 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 991R- MFC Technical Specifications

Control Functions	Rate, Batch	Process Rate	0.00±999,999 unit/timebase
Measure Type	Rate-Total, Scalar	Totalize Range	0 to 999,999 units
Process Input	mA, Volt	Process Output	mA, Volt
Programmable Values			
Ranges	Off, 0-20mA, 4-20mA, 0-10V, 2-10V, 0-5V, 1-5V	Rate Time Base	scalar (none), sec, min, hrs, day
Rate Set-Point	0 to 999,999 units	Output Interpolate	Lo-Hi Value=0-10.000/20.000
Input Signal Interpolate	Lo-Hi Value=0-10.000/20.000 Lo-Hi units=0 to 999,999	Rate Hi-Lo Alarm	Lo-Hi units=0 to 999,999
Pulse Signal Interpolate	0.00 ± 999,999 pulse/qty ratio	Service Time Alarm	0.00±999,999 units
Quantity 1 Alarm	0.00-0 to 999,999 units		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 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
Network Address	0-65,535		
Indicators			
Display	Graphic backlit LCD		
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			
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		
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	1.0 Amp		
Serial Ports			
Sio	EIA-TIA232D fdx D9S 9600bps 8N1		
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			
	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.