Digital Control/Readout Electronics and Power Supply For Mass Flow Controllers

Flo-Box™ Model 951/954

Model 951

- **5 digit LED display**
- **Front-panel pushbutton set point, calibration and alarms**
- **Integral power supply (+/- 15 VDC)**
- **Compact size–1/8 DIN**
- **CE Approved**

Model 954

- **4 line, 20 character LCD display**
- **Valve Close, Valve Open (Purge) pushbutton override**
- **Front-panel menu adjustable:**
    - **Flow units**
    - **Set Point**
    - **Totalizer**
    - **Gas K-factors**
    - **Alarms**
    - **Master/Slave Ratio Control**
    - **Calibration**
- **Analog Outputs: 0 to 5, 0 to 10 VDC and 4 to 20 mA**
- **Digital Output: RS-232 and RS-485**
- **CE Approved**

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ISO REGISTERED 9001

Model 954 Digital Flo-Box™

Description

Sierra Instruments' Flo-Box™ Models 951 and 954 include a compact, single channel device for operation of one mass flow meter or controller and a deluxe, multi-channel device for operation of up to four devices. Designed specifically for use with the Sierra Model 830 flow meters and Model 840 flow controllers, both of these powerful digital systems supply power (+/- 15 Vdc), display the flow rate, and offer set point control for MFC's.

The Model 951 is an ultra-compact digital device that is designed to operate a single unit. In addition to power, readout and set point, it offers multiple alarm points and can be easily calibrated in the field to operate both new and existing devices. It is designed for easy panel mounting (1/8 DIN). An optional stand facilitates benchtop usage.
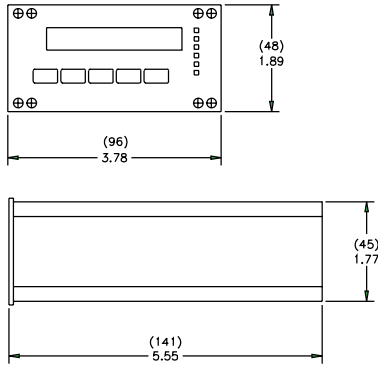
The Model 954 is a state-of-the-art digital system that can operate up to four units. In addition to power, readout and set point, it offers front-panel override for valve shut and purge functions for MFC's, user programmable K-factors for different gases, engineering units, alarms, independent totalizer for all four channels, master slave ratio control and multiple alrarms. It also offers both RS-232 and RS-485 communication via rear-mounted serial ports. The Model 954 is designed for easy panel mounting (1/2 rack) and includes a convenient stand for benchtop usage.
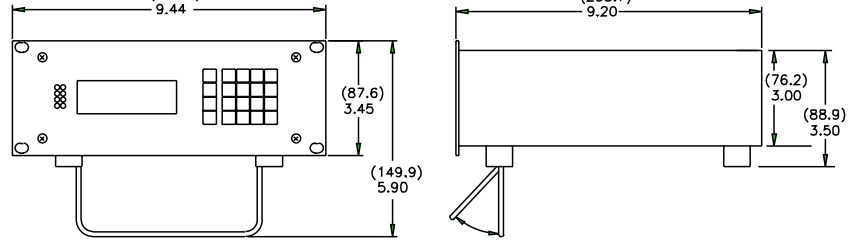
For information online...

www.sierrainstruments.com

Dimensional Specifications

Model 951 Dimensions

Model 954 Dimensions

All dimensions are inches. Millimeters are in parentheses.

Operating Specifications

Ambient Temperature
32° to 120°F (0° to 50°C)

Storage Temperature
-5° to 160°F (-20° to 70°C)

Relative Humidity
0 to 50% non-condensing

Power Requirements
Model 951 . . . . . . 100, 110 or 240 VAC (specify when ordering), 50/60 Hz
Model 954 . . . . . . 100, 110 or 240 (+/- 10%) VAC, switch selectable, 50/60 Hz

Power Output
Model 951 . . . . +/- 15 VDC, 250-500 mA
Model 954 . . . . +/- 15 VDC, 250-400 mA per channel

Signal Input
Model 951 . . . . 0-5 VDC only, >1 Megohm input impedance
Model 954 . . . . User selectable: 0 to 5 & 0 to 10 VDC, 4 to 20 mA
Input impedance: voltage >10 Megohm, current 120 ohms

Signal Output-Analog
Model 951 . . . . Set point 0-5 VDC only (10K ohm resistance), 2 alarms
Model 954 . . . . Set point and output user selectable: 0-5 & 0-10 VDC,
4 to 20 mA (250 ohm max load resistance)
2 alarms per channel

Serial Communications
Model 951 . . . . N/A standard, optional RS-232 (contact factory)
Model 954 . . . . RS-232, RS-485
Baud Rate . . . . 9600, 19200 (user selectable)

Programmable Functions
Model 951 . . . . Set point, Alarm #1 (high and low values), Alarm #2 (high and low values), Alarm hysteresis (deadband) for #1 and #2, Calibrate Full Scale, Calibrate Zero, decimal point location
Model 954 . . . . Four Independent Channels: Valve override: Run, Close, Purge Display Flow or Totalizer, Engineering Units, Gas name/symbol, A/D filter rate, Input Signal type, Alarm high and low values, Ratio Control, Calibrate Full Scale, Calibrate Zero, Gas Correction Factor

Display
Model 951 . . . . 0.4" red LED's, 5 digits, over-range display LED indicators for Calibration, Zero, Alarms
Model 954 . . . . Four Independent Channels, 4 X 20 LCD, backlit LED indicators for Valve Open (Purge), Valve Closed, Valve Run (set point) Set point adjust, Totalizer Active, Master, Slave, Flow Value, Engineering Units or 0 to 100%, Gas Identification

Ordering the Model 951/954

PARENT MODEL NUMBER
951 Digital Flo-Box™
954 Digital Flo-Box™

INPUT POWER
PJ 100 VAC, 50/60 Hz
PS 110 VAC, 50/60 Hz
PE 240 VAC, 50/60 Hz

INPUT/OUTPUT SIGNAL
V1 0 to 5 VDC (REQUIRED MODEL 951)
V3 0 to 10 VDC (NOT AVAILABLE MODEL 951)
V4 4 to 20 mA (NOT AVAILABLE MODEL 951)

ACCESSORY (OPTIONAL 951)
S Bench-Top Stand

GAS, FLOW RATE (USER ADJUSTABLE)
For factory calibration