

# MFM 393



## Features

- Ruggedised, State-of-the-art Micro-controller based system.
- Dual functionality Mass flow rate indication / 8digit flow totalizing.
- Field settable flow totalizing rate.
- Optional - Retransmission output corresponding to mass flow.
- Optional - Serial communication port with MODBUS protocol.
- User configurable ranges for all three mA inputs viz. Differential Pressure, Temperature, Pressure and Mass Flow rate range.

## Application

Model **MFM 393** is micro-controller based arithmetical computation unit generally used in mass flow applications. The unit accepts three 4-20mA inputs at a time. Computed output is equal to,

$$\sqrt{\frac{(\text{Input1}) \times (\text{Input2})}{(\text{Input3})}}$$

where,

Input 1 is Differential Pressure from D.P.Tx (Non Square Rooted)

Input 2 is Line pressure from Pressure Tx

Input 3 is Line Temperature from Temperature Tx

Facility to program Gain & Bias to each input and for Calculated Output.

**MFM 393** displays instantaneous Mass Flow rate on

4 digit LED Display. Flow Rate and Totaliser range can be configured as required even on site. Totaliser is a 8 digit LED Display. Totaliser can be reset manually from password protected PROG menu.

Power Supply for external transmitter (24VDC@100mA) is a standard feature. It eliminates need of separate power supply to power the transmitter.

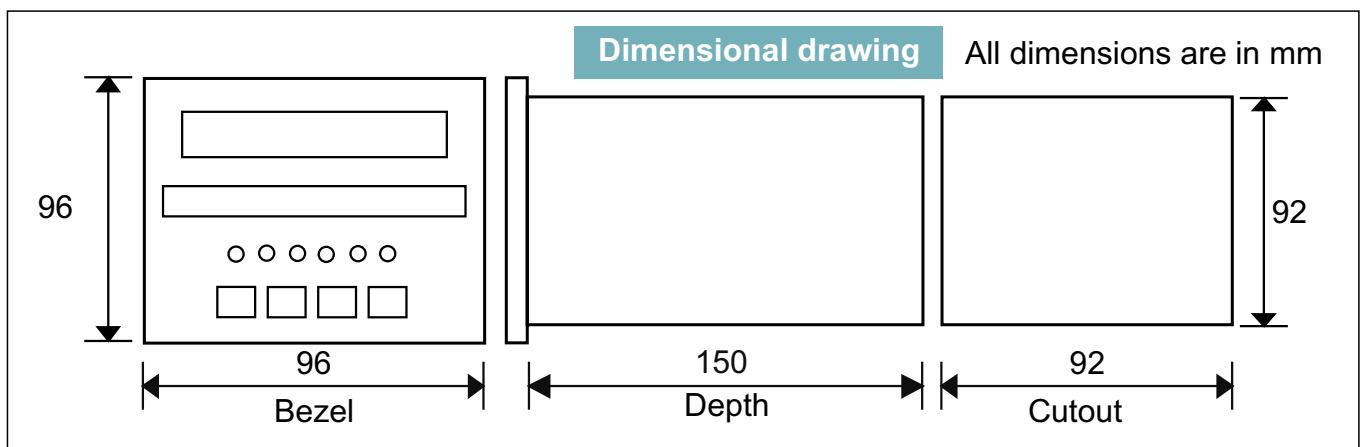
### Optional

➤ **MFM 393** provides linear 4-20mA retransmission signal corresponding to Calculated Mass Flow Rate for other panel mounted instruments like recorders, controllers etc.

➤ Serial connectivity on RS485 port with MODBUS RTU protocol

## Dimensional drawing

All dimensions are in mm



# MFM 393

## TECHNICAL SPECIFICATIONS

|                                   |  |
|-----------------------------------|--|
| <b>Input</b>                      | 4 - 20 mA DC Linear - 3 Nos  |
| <b>Display</b>                    | 7 Segment LED, 5 - Digit Process Value, 8 - Digit Totaliser  |
| <b>Keyboard</b>                   | 4 Key Tack-tile Keyboard   |
| <b>Resolution</b>                 | 4 and 1/2 digit for Flow rate  |
| <b>Accuracy</b>                   | ± 0.3% of FS, ± 1 LSD (Flow) and ± 2 Count (Totaliser )  |
| <b>Totaliser</b>                  | 8 Digit Totaliser for calculated Mass flow   |
| <b>Scaling</b>                    | Flow Rate and Totaliser, span scalable by front key pad.   |
| <b>Data Storage</b>               | Totaliser value and settings stored in Battery Backed RAM  |
| <b>LED Indications</b>            | LED indications for Serial Communication and Input Selection   |
| <b>Excitation</b>                 | 24 VDC, 100 mA excitation supply for external Flow Transmitter   |
| <b>Re-transmission (Optional)</b> | 4 - 20 mA re-transmission output corresponds to Mass Flow Rate for external indicators / recorders or PLC. Maximum load 500 Ohms |
| <b>Serial Port (Optional)</b>     | RS485 port with MODBUS RTU protocol for on-line communication.   |
| <b>Supply</b>                     | 230 VAC or 110 VAC, ±10 %, Single Phase, 50 Hz. Factory set  |
| <b>Connections</b>                | On Screw Type Connectors   |
| <b>Cabinet</b>                    | Panel mounting type. Bezel: 96 x 96mm (H x W)<br>Depth: 150mm<br>Cutout: 92 x 92 mm (H x W)                                      |

## ORDERING INFORMATION

### MFM 393- Sx- Cx- RTx

**S = Supply;** 0= 230VAC; 1= 110VAC  
**C = Communication;** 0= No; 1= Yes  
**RT = Retransmission;** 0= No; 1= Yes

Note: Due to continuous development specifications may change without prior notice

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