



DIN 70mm

## Features :

- 3Ø True RMS (Voltage, Current)
- 3Ø Power (Active, Reactive, Apparent)
- Import / Export Active, Reactive Energy, Apparent Energy
- Programmable CT / PT Primary / Secondary
- Modbus RTU Communication (RS485)
- Max / Min Demand Power

Certification : 

## Display Specifications

|                 |                                           |
|-----------------|-------------------------------------------|
| Display         | 3 rows, LCD with Backlight                |
| Digits          | 1 row of 4 digits<br>2 rows of 7 digits   |
| LED Indications | Integration of Energy (1000 Pulses / kWh) |

## Input Specifications

|                       |                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electrical Connection | 3Ø - 3 wire, 3Ø - 4 wire, 2Ø - 3 wire, 1Ø - 2 wire                                                                                                                                                                                                                                                                            |
| Input Voltage Range   | 11 to 300V AC (L - N)<br>19 to 519V AC (L - L)                                                                                                                                                                                                                                                                                |
| Input Current Range   | Nominal 5AAC (Min - 11mA, Max - 6A)                                                                                                                                                                                                                                                                                           |
| Frequency             | 45 to 65Hz                                                                                                                                                                                                                                                                                                                    |
| Display Scrolling     | Automatic / Manual / Default                                                                                                                                                                                                                                                                                                  |
| Power Consumption     | 8VA max                                                                                                                                                                                                                                                                                                                       |
| Display Reset         | Programmable (For energy)                                                                                                                                                                                                                                                                                                     |
| Resolution            | For energy : 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M<br>(depending upon CT ratio X PT ratio)<br>For Power, Voltage,<br>Current : Auto Resolution<br>For Power Factor : 0.01                                                                                                                                                          |
| Accuracy              | Voltage (L - N / L - L) : $\pm 0.5\%$ of F.S.<br>Current : $\pm 0.5\%$ of F.S.<br>Power Factor : $\pm 0.01$<br>Frequency : $\pm 0.1\%$ For L - N Voltage >20V<br>For L - L Voltage >35V                                                                                                                                       |
| Memory Retention      | Power (Active, Reactive, Apparent) : 1%<br>Energy (Active, Reactive, Apparent) : Class 1<br>10 years (For energy)                                                                                                                                                                                                             |
| Measuring Parameters  | Voltage (L - L / L - N) (Individual / Average),<br>Current (Individual / Average),<br>Frequency, Power Factor (Individual / Total) Active, Reactive & Apparent power (Individual / Total), Active, Reactive, Apparent Energy (Import / Export), Demand (Min / Max Active Power, Min / Max Reactive Power, Max Apparent Power) |

## Output Specifications

|                                      |                                                  |
|--------------------------------------|--------------------------------------------------|
| Communication Interface and Protocol | RS485 and MODBUS RTU                             |
| Communication Address                | 1 to 255                                         |
| Transmission Mode                    | Half duplex                                      |
| Transmission Distance                | 500 meter maximum                                |
| Transmission Speed                   | 300, 600, 1200, 2400, 4800, 9600, 19200 (in bps) |
| Parity                               | None, Odd, Even                                  |
| Stop Bits                            | 1 or 2                                           |
| Response Time                        | 100ms (max and independent of baud rate)         |

## Auxiliary Supply Specifications

|                |                            |
|----------------|----------------------------|
| Supply Voltage | 85 to 270V AC, (50 / 60Hz) |
|----------------|----------------------------|

## Settable Parameters

|              |                                             |
|--------------|---------------------------------------------|
| CT Primary   | 1 / 5A to 10kA (Programmable for any value) |
| CT Secondary | 1 / 5A (Programmable)                       |
| PT Primary   | 100V to 500kV (Programmable for any value)  |
| PT Secondary | 100V to 500V (Programmable for any value)   |

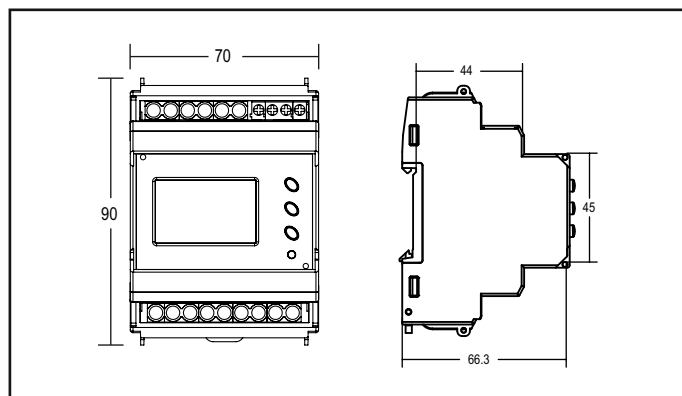
## Environmental Specifications

|                             |                                                                                                                             |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Temperature                 | Operating Temperature : $-5^{\circ}$ to $60^{\circ}\text{C}$<br>Storage Temperature : $-20^{\circ}$ to $75^{\circ}\text{C}$ |
| Humidity (non - condensing) | Upto 85% RH                                                                                                                 |

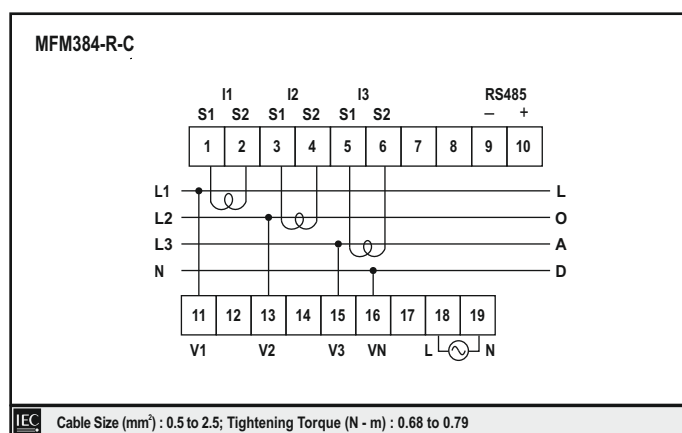
## Mechanical Specifications

|          |          |
|----------|----------|
| Mounting | Din Rail |
| Weight   | 208gms   |

## Dimensions (All dimensions are in mm)



## Terminal Connection



## Compliance

| Applicable EMI / EMC Standards   |                    |                                                                                                                                                                                                                                                                                                                    |
|----------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Standard : IEC 61326 - 1 |                    |                                                                                                                                                                                                                                                                                                                    |
| Category                         |                    | Standards Compliance                                                                                                                                                                                                                                                                                               |
| ESD Immunity                     | IEC 61000 - 4 - 2  | Level IV (Air Discharge : 15kV),<br>(Contact Discharge : -8kV)                                                                                                                                                                                                                                                     |
| Surge Immunity                   | IEC 61000 - 4 - 5  | + / - 2kV Common Mode, (Line to Ground)<br>+ / - 1kV Differential Mode, (Line to Line)                                                                                                                                                                                                                             |
| Radiated Susceptibility          | IEC 61000 - 4 - 3  | Level III, 80 to 1000MHz (10V / m)<br>Level II, 1.4GHz to 2GHz (3V / m)<br>Level I, 2GHz to 2.7GHz (1V / m)                                                                                                                                                                                                        |
| Conducted Susceptibility         | IEC 61000 - 4 - 6  | Level II (3V / m)                                                                                                                                                                                                                                                                                                  |
| Voltage Dips and Interruptions   | IEC 61000 - 4 - 11 | <b>Dips</b> : 0% residual voltage /<br>1 cycle (Criteria B), 40% residual voltage /<br>10 cycles 50Hz / 12 cycles 60Hz (Criteria C)<br>70% residual voltage / 25 cycles<br>50Hz / 30 cycles 60Hz (Criteria C)<br><b>Interruptions</b> : 0% residual voltage /<br>250 cycles 50Hz / 300 cycles 60Hz<br>(Criteria C) |
| Conducted Emission               | CISPR - 11         |                                                                                                                                                                                                                                                                                                                    |
| Radiated Emission                | CISPR - 11         |                                                                                                                                                                                                                                                                                                                    |
| Electrical Fast Transient        | IEC 61000 - 4 - 4  | Level III (2kV)                                                                                                                                                                                                                                                                                                    |

## Ordering Information

| Product Code  | Supply Voltage | Output        | Certification |
|---------------|----------------|---------------|---------------|
|               | 85 to 270V AC  | Comm. (RS485) |               |
| MFM384-R-C    | Yes            | Yes           | ---           |
| MFM384-R-C-CE | Yes            | Yes           | CE            |