





96 X 96mm

### Features:

- 3Ø True RMS (Voltage, Current)
- 3Ø Power (Active, Reactive, Apparent), Energy (Active, Reactive, Apparent)
- Programmable CT/PT Primary/Secondary
- CT Polarity Error Detection
- Variable Pulse width Selection
- Single Phase Network with Phase Selection
- Modbus RTU Communication (RS485)(Optional)
- Neutral Current Measurement
- THD Upto 31<sup>st</sup> Level.
- Single Pulse Output / Demand
- Phase Sequence Detection

Certifications:  

### Display Specification

Display	4 rows, LCD with backlight
Digits	4 (Lowest 8 digits for energy display)
Bargraph	For Current representation

### Input Specifications

Electrical Connection	3Ø-3/4 wire, 2Ø-3 wire, 1Ø-2 wire
Input Voltage Range	11 to 300V AC, (Phase to Neutral) 19 to 519V AC, (Phase to Phase)
Input Current Range	Nominal 5A AC (Min-11mA, Max-6A)
Frequency	45Hz - 65Hz
Display Scrolling	Automatic / manual
Power Consumption	8VA Max
Display Reset	Programmable (For energy)
Resolution	For energy - 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M (depending upon CT ratio x PT ratio) For Power, Voltage, Current - Auto resolution For Power factor - 0.001
Accuracy	Voltage (L-N / L-L), Current: $\pm 0.5\%$ of F.S Power factor: $\pm 0.01$ Frequency: $\pm 0.1\%$ For L-N Voltage $> 20V$ For L-L Voltage $> 35V$
Memory Retention	Power (Active, Reactive, Apparent) : 1% Energy (Active, Reactive, Apparent) : Class 1 10 years (For energy)
Measuring Parameters	Voltage (L-L / L-N) (Individual / Average) Current (I1, I2, I3) (Individual / Average) Frequency, Power Factor (Individual / Total) Active, Reactive & Apparent power (Individual / Total), Active, Reactive & Apparent Energy (Total), Demand (Min / Max Active Power, Min / Max Reactive Power, Max Apparent Power), %THD upto 31 <sup>st</sup> Level Max Demand Current, Neutral Current, Phase Sequence Detection

### Output Specifications

Pulse Output	Voltage Range - External 24V DC max Current Capacity - 100mA max Pulse Width - 100 ms $\pm 5$ ms
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	100 ms (max and independent of baud rate)

### Auxiliary Supply Specifications

Supply Voltage	MFM384 / MFM384-C : 100 to 240V AC, -15% +12%, 50/60 Hz, ( $\pm 5\%$ )
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### 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)

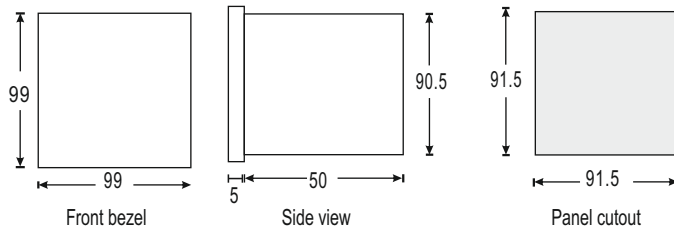
### Environmental Specifications

Temperature	Operating Temperature: $-10^{\circ}$ to $+55^{\circ}$ C Storage Temperature : $-20^{\circ}$ to $+75^{\circ}$ C
Humidity	Upto 85% RH

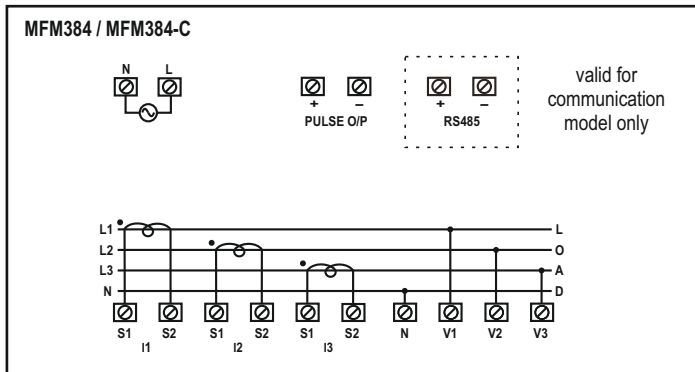
### Mechanical Specifications

Mounting	Panel mount
Weight	318 gms

### Dimensions



### Terminal Connections



### Compliance

Applicable EMI / EMC Standards		
Product Standard : IEC 61326-1		
Category		Standards Compliance
ESD Immunity	IEC 61000-4-2	Level IV (Air discharge : 15kV), (Contact Discharge : -8kV)
Surge Immunity	IEC 61000-4-5	+/- 2kV common mode, (Line to ground) +/- 1kV differential mode, (Line to Line)
Radiated Susceptibility	IEC 61000-4-3	Level III, 80 to 1000MHz (10V/m) Level II, 1.4GHz to 2GHz (3V/m) 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 / 1 cycle (Criteria B), 40% residual voltage / 10 cycles 50Hz / 12 cycles 60Hz (Criteria A) 70% residual voltage / 25 cycles 50Hz / 30 cycles 60Hz (Criteria C) <b>Interruptions</b> : 0% residual voltage / 250 cycles 50Hz / 300 cycles 60Hz (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 (-15% to +12%)	Output		Certification
		Pulse Output	Comm. (RS485)	
MFM384	100 to 240V AC	■		
MFM384-C	100 to 240V AC	■	■	
MFM384-C-CE	100 to 240V AC	■	■	CE