MFM384-C-CU-MID

Multifunction Meter



96 x 96mm

Features :

- True RMS measurement
- MID B+D Certified
- 3Ø True RMS (Voltage, Current)
- 3Ø Power (Active, Reactive, Apparent), Energy (Active, Reactive, Apparent)
- Programmable voltage and current transformer ratio
- 1A or 5A current transformer input (MID certification only on 5A)
- Three phase network compatible
- Modbus RTU Communication (RS485)

Certification : MID CE RoHS compliant

Display Specifications

Display Type	High definition white backlight LCD
Digit height	11.2mm (displayed parameter) 6.35mm (lowest 8 digits)
Page scrolling	Manual by front key / or auto scroll mode
Energy maximum display	99999999
Resolution	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

Input specification

Connection	Three phase four wire
Input voltage range	11 to 300V (L - N), 19 to 519V (L - L)
Certified voltage range	MID certified for 3 x 230V/400V ±10%
Voltage rated burden	<0.2VA
Nominal current input	0.05 to 5A
Max current (Imax)	6A (1.2 x Nominal)
Current Rated Burden	<0.003VA @ 6A
Starting current	10mA
Short time overcurrent	30 x Imax to IEC/EN62053-21 + 23
Impulse voltage withstand	6kV 1.2/50µS 0.5J
AC voltage withstand	3kV 50Hz for 1 min
CT primary current	5 to 6000A
PT primary voltage	100 to 600V
Frequency	50Hz
Current distortion factor	According to IEC/EN50470
Programming access	Password protected (user selectable)
Memory retention	Non volatile memory
Accuracy	
Voltage	0.5% of full scale
Current	0.5% of full scale
Frequency	0.1% of full scale (L - N >20V)
Power factor	1% of unity
Active power	1%
Reactive power	1%
Apparent power	1%
Active Energy	Class 1, Class B (IEC/EN62053-21, IEC/EN50470-3)
Reactive Energy	Class 2 (IEC/EN62053-23)
Total Harmonic Distortion (THD - up to 31st)	3%

Displayed Parameters	Voltage – L-L, L-N and average Current – Phase, total and Max. demand Power Factor – per phase and average Total Harmonic Distortion – Current and Voltage Neutral current (calculated) Frequency Run Hours – Hours & minutes Power – Active, Reactive and Apparent (per phase and total) Power Min./Max. demand – Active, Reactive, Power Max demand - Apparent, Energy – Active, Reactive and Apparent (per phase and total), Import and export Energy – Active, Reactive and Apparent (Total)
Settable parameter	CT Primary current CT Secondary current PT primary voltage PT secondary voltage Communication address Communication speed (Baud) Communication Parity Communication number of stop bits Back-light time-out period Demand period (for integration) Pulse output (kWh) Pulse duration Reset to Factory Default Reset Energy and Maximum Demand Reset Active Energy Reset Reactive Energy Reset Apparent Energy Reset Maximum Current Reset Maximum Active Power Reset Minimum Active Power Reset Maximum Reactive Power Reset Minimum Reactive Power Reset Maximum Apparent Power

NOTE: Once Programming Mode Is entered The values in red will be locked out after 15 mins. No further adjustment is possible without return to factory.

Auxiliary Supply specification

Voltage range	100 to 240V (±15%)
Operating frequency	50/60Hz
Power consumption	<8VA

MID APPROVED FOR BILLING APPLICATIONS
Measuring Instruments Directive

Output Specification

Energy pulses	
Number of pulse outputs	1
Pulse output function	kWh
Pulse output Max. current	100mA
Pulse output voltage range	5 to 27VDC
Pulse duration	50 / 100 / 150 / 200 / 250 / 300ms
Pulse resolution	0.01K, 0.1K, 1K, 0.01M, 0.1M, 1M (depending on CT ratio & PT ratio)
Communication	
Communication type	RS485
Communication protocol	Modbus RTU
Address	1 to 255
Number of bits	8 bits
Parity	None, odd, even
Baud rate (bps)	300, 600, 1200, 2400, 4800, 9600, 19200
Required response time to request	≤100ms
Number of meters connected on the bus	32 (up to 255 with RS485 repeater)
Max distance from Master device	500M

Insulation

Installation category	III
Pollution degree	2
Insulation voltage rating	300V (L - N)

Environmental Conditions

Reference temperature	23°C ±2°C
Specified temperature operating range	–10°C to +55°C
Storage temperature	–20°C to +75°C
Relative humidity	0 to 85%, non-condensing
Mechanical environment	M2
Electromagnetic environment	E2

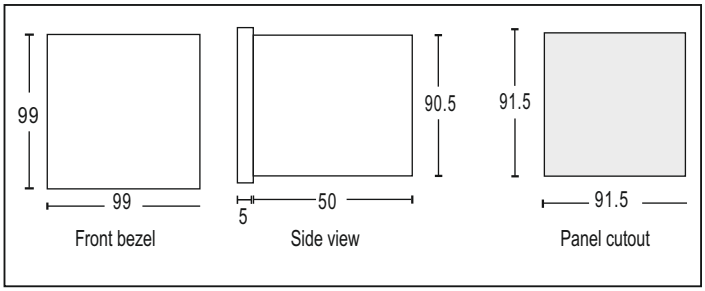
Mechanical specification

Housing	DIN96
Mounting	Panel mounted (Max. panel thickness 6mm)
Tamper sealing	Meter housing (by means of a tamper evident seal). Sealable terminal covers
Housing material	Self-extinguishing polycarbonate (UL94 V-0)
Protection degree (IEC/EN60529)	IP20 (terminals), IP54 (front of housing)
Weight	<320g

Termination

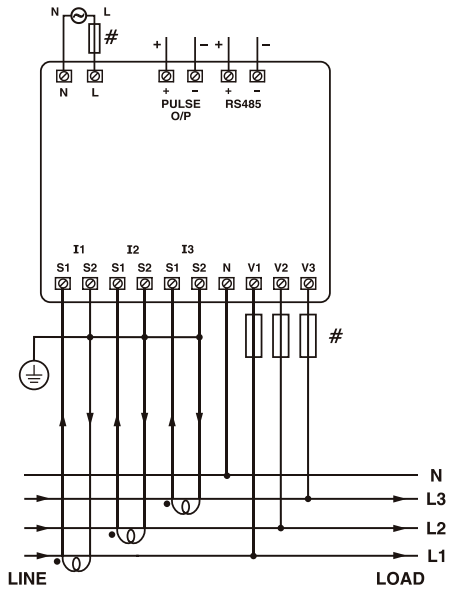
Current input	Screw clamp type
Max wire size	2.5mm²
Voltage input terminal type	Screw clamp type
Max wire size	2.5mm²
Communication output (RS485)	Screw clamp type
Max wire size	1.5mm²

Dimensions (All are in mm)

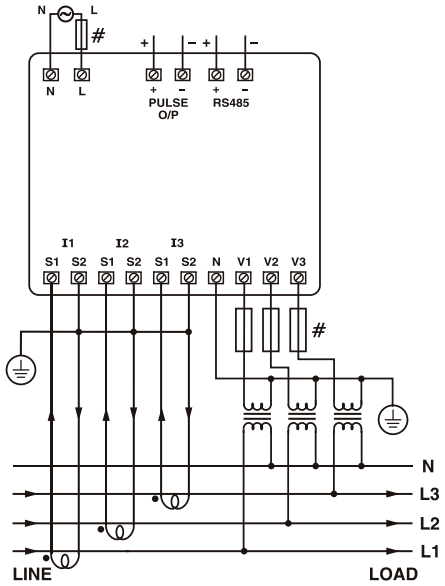


Terminal connection

3 Phase 4 Wire - 3 CTs



3 Phase 4 Wire - 3 CTs and 3 PTs



Note: # All fuse types : 0.5A class CC UL type : 0.5A fast acting 600V

Compliance

Applicable EMI / EMC Standards
Product Standard : IEC 61326 - 1
Electromagnetic compatibility
IEC61326-1, IEC/EN55011 Class A
IEC/EN61000-4-2, -3, -4, -5, -6, -8, -11
IEC/EN50470-1
Accuracy and functionality
IEC/EN50470-1/3
IEC/EN62053-21
IEC/EN62053-23
DIRECTIVE 2015/863/EU
IEC/EN62052-31
Safety
IEC/EN61010-1

Ordering information

Product code	Communication	Certification
MFM384-C-CU-MID	RS485 Modbus output	MID CE