MFM384

Multifunction Meter

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)
- Baragraph representation for current
- % THD Up to 31st level
- Max demand for power
- Single pulse output / Demand
- Phase sequence detection

Certification : CE cULus LISTED

Display specifications

Display	LCD with Backlight, 4rows, 8 digit for energy display
Digits	4 digits (Lowest 8 digits for energy display)
Digit height	0.45 inch
Bargraph	For Current representation
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

Input specifications

Type of measurement	TRUE RMS
Sampling rate	64 Samples / Cycle
Electrical connections	3Ø - 3 wire (Delta), 3Ø - 4 wire (Wye), 2Ø - 3 wire, 1Ø - 2 wire (L - N)
Data update rate	1 sec
Input-voltage	
PT primary	100V to 500kV (Programmable for any value)
PT secondary	100V to 500V AC (L-L) (Programmable for any value)
Voltage nominal	240VAC L - N / 415V AC L - L
Measured V with full range	11 to 300V AC [L - N], 19 to 519V AC [L - L]
Impedance	≥0.8MΩ
Frequency range	45 - 65Hz
VA burden	<0.2VA at 300V AC L-N / Phase
Input current	
CT ratings primary	1 / 5A to 10kA (Programmable for any value)
CT ratings secondary	1 / 5A (Programmable for any value)
Current nominal	5A
Measured Amps with over range & Crest factor	11mA to 6A
Withstand	120A for 1sec
Frequency range	45 - 65Hz
VA burden	0.5VA at 5A / phase

Measurement Accuracy

Measurement	Accuracy	
	MFM384-C-CE MFM384-C-CU	MFM384-C-CE-CL05
Voltage V_{L-N}	±0.5% of F.S.	±0.5% of F.S.
Voltage V_{L-L}	±0.5% of F.S.	±0.5% of F.S.
Current	±0.5% of F.S.	±0.5% of F.S.
Frequency	±0.1% ; For L-N V>20V, For L-L V>35V	±0.1% ; For L-N V>20V, For L-L V>35V
Active Power	1%	±0.5%
Apparent power	1%	±0.5%
Reactive Power	1%	±1%
Power factor	±0.01	±0.005
Active energy	Class 1	Class 0.5S (IEC 62053-22)
Reactive energy	Class 1	Class 2 (IEC 62053-23)
Apparent energy	Class 1	Class 0.5S
MAX / MIN kW	1%	±0.5%
MAX / MIN kVAr	1%	±1%
MAX kVA	1%	±0.5%

Output specifications

Pulse output	Voltage range : External 24V DC max Current capacity : 100mA max Pulse width : 100ms ±5ms Configurable pulse weight from 1 to 9999000 pulses / kWh
Device ID & Parity	1 to 255 & None, Odd, Even
Protocol & Interface	RS485 and MODBUS RTU
Transmission mode	Half duplex
Data types	Float and Integer
Transmission distance	500m maximum
Transmission speed	1200, 2400, 4800, 9600,19200 (in bps)
Stop bits	1 or 2
Response time	100ms (max and independent of baud rate)
Isolation	2kV RMS

Mechanical specifications

Weight	318gms (11Oz)
Material	LEXAN 923-701 BLACK
IP degree of protection	(IEC 60529) IP54 Front only
Torque at terminals	0.68N-m to 0.79 N-m
Wire gauge at terminals	20 to 14AWG;75°C
Mounting position	Vertical

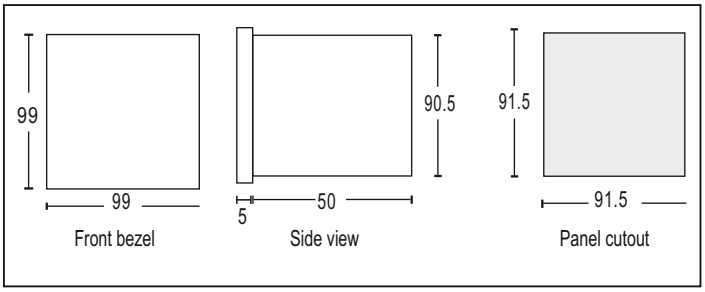
Auxiliary supply specifications

Supply voltage	85 to 300V AC, 50 / 60 Hz, (±5%)

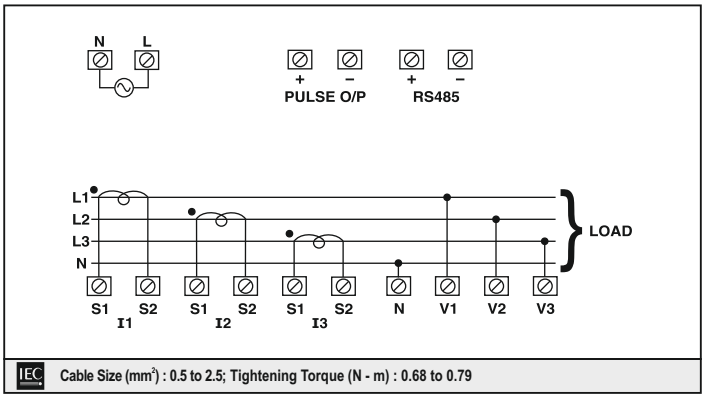
Environmental specifications

Operating temperature	Meter -10°C to +55°C (14°F to 131°F)
Storage temperature	Meter -20°C to +75°C (-4°F to +167°F)
Humidity	Up to 85% RH (Non-Condensing)
Altitude	Up to 2000 meters (6561 ft.)
Measurement category	CAT III
Pollution degree	2

Dimensions (All are in mm)



Terminal connection



Cable Size (mm²) : 0.5 to 2.5; Tightening Torque (N - m) : 0.68 to 0.79

Compliance

Applicable EMI / EMC Standards	
Product Standard : IEC 61326 - 1	
Category	**Standards compliance**
Electrostatic discharge	IEC 61000 - 4 - 2
Immunity to electromagnetic RF fields	IEC 61000 - 4 - 3
Conducted immunity	IEC 61000 - 4 - 6
Immunity to magnetic fields	IEC 61000 - 4 - 8
Immunity to voltage dips and interruptions	IEC 61000 - 4 - 11
Fast transient	IEC 61000 - 4 - 4
Immunity to surge waves	IEC 61000 - 4 - 5
Conducted and radiated emissions	CISPR-22 / CISPR-11
Safety and Standards	
IEC61010 Edition 3.0 CAT III, Protection class II	
IEC 61326 - 1	

Ordering information

Product code	Supply voltage	Output		Certification	
		Pulse Output	Comm. (RS485)		
MFM384-C-CE Class 1	85 to 300V AC 50/60Hz (±5%)	YES	YES	CE	--
MFM384-C-CE-CL05 Class 0.5S	85 to 300V AC 50/60Hz (±5%)	YES	YES	CE	--
MFM384-C-CU Class 1	100 to 240V AC 50/60Hz (±5%)	YES	YES	CE	c UL us LISTED