OP780-V01

96 x 96

DISPLAY
3 Row of 4 Digits
7 Segment LED Display 0.49 inch Height Digit
Integrated with parameter Units

WIRING INPUT
3 Ø - 4 wire, 3 Ø - 3 wire, 2 Ø - 3 wire and 1 Ø - 2 wire (R/Y/B Programmable)

RATED INPUT VOLTAGE
11 to 300VAC (L-N) ; 19 to 519V AC (L-L)
Installation Category III (600V)

FREQUENCY RANGE
45-65 Hz

RATED INPUT CURRENT
Nominal 5A AC (Min-14mA, Max-6A)

BURDEN
0.5VA@5A per phase

CT PRIMARY
1A / 5A to 10,000A (Programmable for any value)
Note : 1A to 10,000A if CT secondary is 1 else 5A to 10,000A

CT SECONDARY
1A or 5A (programmable)
Note : External CT to be used mandatorily.

PT PRIMARY
100V to 500kV (Programmable for any value)

PT SECONDARY
100 to 500V (Programmable for any value)

DISPLAY UPDATE TIME
1 sec. for all parameters

DISPLAY SCROLLING
Auto / Manual / Default

POWER CONSUMPTION
Less than 8VA

ENVIRONMENTAL CONDITIONS
- Indoor use
- Altitude of up to 2000 meters
- Pollution degree II

Temperature : Operating : -10°C to 55°C
Storage : -20°C to 75°C
Humidity : Up to 85% non-condensing

MOUNTING : Panel mounting

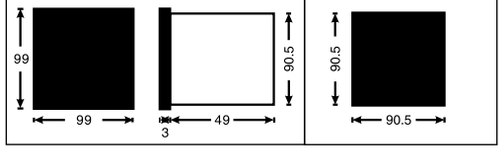
WEIGHT
MFM376-30V : 180gms
MFM376-C-30V : 200gms

OUTPUT
Pulse Output : Voltage range : External 24V DC max.
Current capacity : 100 mA max
Pulse Width : 100ms ± 5ms.

Product	Supply	Certification	
		CE	c UL us LISTED
MFM376-30V	18V - 42V DC, 18V - 28V AC,50/60Hz	—	—
MFM376-C-30V		—	—

Voltage V_{L-N}	±0.25% of Full scale
Voltage V_{L-L}	±0.25% of Full scale
Current	±0.25% of Full scale
Frequency	±0.1% For L-N Voltage >20V, For L-L Voltage >35V
Active Power	0.5%
Apparent power	0.5%
Reactive Power	1%
Power Factor	±0.01
Active Energy	Class 0.5
Reactive Energy	Class 1
Apparent Energy	Class 0.5

For installing the meter
1. Prepare the panel cutout with proper dimensions as shown below.
2. Push the meter into the panel cutout. Secure the meter in its place by fitting the clamp on the rear side. fit clamps on both sides in diagonally opposite location for optimum fitting.
3. For proper sealing, tighten the screws evenly with required torque.



MAINTENANCE
1. The equipment should be cleaned regularly to avoid blockage of ventilating parts.
2. Clean the equipment with a clean dry or damp cloth. Do not use any cleaning agent other than water.

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If the equipment is not used in a manner specified by the manufacturer it might impair the protection provided by the equipment.

- Do not use the equipment if there is any mechanical damage.
- Ensure that the equipment is supplied with correct voltage.

▲ CAUTION :
1. Read complete instructions prior to installation and operation of the unit.
2. Risk of electric shock.
3. The equipment in its installed state must not come in close proximity to any heating sources, oils, steam, caustic vapors or other unwanted process by products.

▲ WARNING :
1. To prevent the risk of electric shock, power supply to the equipment must be kept OFF while doing the wiring arrangement.
2. Wiring shall be done strictly according to the terminal layout. Confirm that all connections are correct.
3. Use lugged terminals.
4. To reduce electromagnetic interference use of wires with adequate ratings and twists of the same in equal size shall be made with shortest connections.
5. Layout of connecting cables shall be away from any internal EMI source.
6. Cable used for connection to power source, must have a cross section of 0.5mm^2 to 2.5mm^2 (20 to 14AWG ; 75°C(min)). These wires shall have current carrying capacity of 6A.
7. Copper cable should be used (Stranded or Single core cable).
8. Before attempting work on device, ensure absence of voltages using appropriate voltage detection device.

▲ CAUTION :
1. This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
2. Conductors must not come in contact with the internal circuitry of the equipment or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
3. Circuit breaker or mains switch must be installed between power source and supply terminals to facilitate power 'ON' or 'OFF' function. However this switch or breaker must be installed in a convenient position normally accessible to the operator.
4. Before disconnecting the secondary of the external current transformer from the equipment, make sure that the current transformer is short circuited to avoid risk of electrical shock and injury.
5. The equipment shall not be installed in environmental conditions other than those mentioned in this manual.
6. The equipment does not have a built-in-type fuse. Installation of external fuse of rating 275V AC / 0.5Amp for electrical circuitry / battery is highly recommended.

≤40	0.01K	0.01K	0.001K
≤400	0.1K	0.1K	0.01K
≤4000	1K	1K	0.1K
≤40000	0.01M	0.01M	1K
≤400000	0.1M	0.1M	0.01M
>400000	1M	1M	0.1M

Note : a) For voltage, current and power resolution is automatically adjusted
b) For power factor resolution is 0.001
c) • Blinking indicates accumulation of energy, if load is connected on any one phase of 3 Phases.

Interface standard and protocol	RS485 AND MODBUS RTU

For eg. If Total Active Energy =1234.12 kWh
Start Address : 30090 , No. of Register: 02
Hexadecimal Equivalent of 1234.12 is 0x449A43D7

	$\overline{A}$	$\overline{B}$
Data stored at 30090 is LSB :	43	D7
	$\overline{C}$	$\overline{D}$
Data stored at 30091 is MSB :	44	9A

Data Format to be followed is C-D-A-B