

selec

j c j P V N L j c j P
Operating Instructions



SPECIFICATIONS

afpmvi
3 Row of 3 Digits
7 Segment LED Display Size 36.5 x 48 mm
Integrated with parameter Units
tfofk m r q
3Ø - 4 wire, 3Ø - 3 wire
o q b f k m s d q d b
11 t o 3 0 0 W C (L - N) 9 t o 5 1 9 W C (L - L)
c o b n r b k e ^ v k d b
50/60 Hz
o q b f k m r q o b k q
Nominal 5A (Min-20mA, Max-6A)
q m o f j v o
1A/5A to 10,000A (Programmable for any value)
k - 1A to 10,000A if CT secondary is 1 else
5A to 10,000A
q p b ^ l k a v o
1A or 5A (programmable)
m q n o f j v o
100V to 500kV (Programmable for any value)
m q p b ^ l k a v o
100 to 500V (Programmable for any value)
a f p m v i r m a q b q = f j b
1 sec. for all parameters
a f p m v i p ^ o l i i f k d =
Auto/Manual
m l t b d k p r j m q f l k
Less than 8VA
b k s f o l k j b i k t k a f q f l k p
- Indoor use
- Altitude of up to 2000 meters
- Pollution degree II
- Installation Category III
Temperature : Operating : -10 °C to 55 °C
Storage : -20 °C to 75 °C
Humidity : Up to 85% non-condensing
o m j : Pole : 0 (Range : 0-98, Selectable in
step 2), Frequency : 45-65Hz
o 3 e = 3 e 9999.9 hr
_ r o a b k = 0.5VA @ 5A per phase
j l r k q f = Rated mounting
t b f d e q = = = = =
MFM391 : 190gms
MFM391-CE : 193gms

ORDERING MAIN

m ° - c 3 i z	p 3 @ @ a a z s - ¥	£ 2 ° S - S S	CE	UL LISTED
j c j P V N	85V - 270V AC, 50/60Hz	—	—	—
j c j P V N	85V - 270V AC, 50/60Hz	■	—	—

ACCURACY

j £ ~ ± 3 ° £ « £ ~ 2 = ^ i i 3 ° ~ i .	
Voltage V _{L-N}	±0.5% of F.S. ± digit
Voltage V _{L-L}	±0.5% of F.S. ± digit
Current	±0.5% of F.S. ± digit
Frequency	±0.1Hz ± digit
Run Hour	±1%
RPM	±0.5%
Active Power	1%
Apparent power	1%
Reactive Power	1%
Power Factor	±0.01

m ~ ° ~ « £ 2 £ ° ± a £ ± i ° S ® 2 S - T ~ S 2		
Voltage (True RMS)	All phase to phase, phase to neutral and average	V, kV
Current (True RMS)	All phases and average	A, kA
Frequency	Frequency of present phase	Hz
Power Factor	All phases and average	PF
Active Power	All phases and Total	k, M
Reactive Power	All phases and Total	k, M
Apparent Power	All phases and Total	k, M
Run Hour	The time for which meter is on	—
RPM	RPM calculated from system frequency	—

SAFETY PRECAUTIONS

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.

WARNING

- Read complete instructions prior to installation and operation of the unit.
- Risk of electric shock.
- 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.

WIRING GUIDELINES

WARNING

- To prevent the risk of electric shock, power supply to the equipment must be kept OFF while doing the wiring arrangement.
- Wiring shall be done strictly according to the terminal layout. Confirm that all connections are correct.
- Use lugged terminals.
- To reduce electromagnetic interference use of wires with adequate ratings and twists of the same in equal size shall be made with shortest connections.
- Layout of connecting cables shall be away from any internal EMI source.
- Cable used for connection to power source, must have a cross section of 0.5mm² to 2.5mm² (20 to 14AWG; 75°C(min)). These wires shall have current carrying capacity of 6A.
- Copper cable should be used (Stranded or Single core cable).
- Before attempting work on device, ensure absence of voltages using appropriate voltage detection device.

INSTALLATION GUIDELINES

WARNING

- 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.
- 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.
- 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.
- 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.
- The equipment shall not be installed in environmental conditions other than those mentioned in this manual.
- 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.

Config. page	Function	Range or Selection	Factory Setting
1	Network Selection	3P4W / 3P3W	3P4W
2	CT Secondary	1A or 5A	5
3	CT Primary	5A to 10,000A if CT Secondary is 5A 1A to 10,000A if CT Secondary is 1A	005
4	PT primary	100V to 500kV	350
5	PT Secondary	100V to 500V	350
6	No. of poles	0 to 98 (Selectable in step 2)	02
7	Reset Run Hour	Yes/No	No

MECHANICAL LAYOUT

For installing the meter

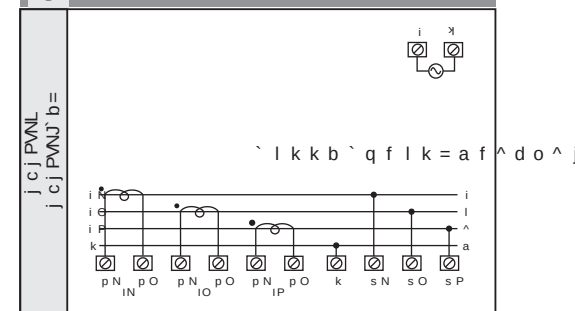
- Prepare the panel cutout with proper dimensions as shown below.
- Push the meter into the panel cutout. Secure the meter in its place by fitting the clamp on the rear side. fit clamps on both sides in diagonally opposite location for optimum fitting.
- For proper sealing, tighten the screws evenly with required torque. Terminal screw tightening torque : 0.5N.m 4.4Lb.in

Outline Dimens (mm)	Panel cutout Dimens (mm)

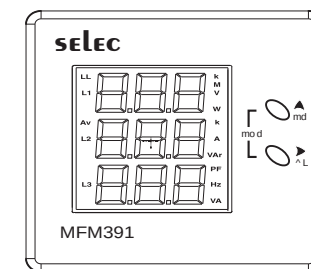
MAINTENANCE

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

TERMINAL CONNECTIONS



FRONT PANEL DESCRIPTION



ONLINE DESCRIPTION

There are two dedicated labels on the meter. Use the 2 key sora parameters simply press the key sora parameters to corresponding parameter display automatically.
1) Key (▲) / (P.G.) To Increment Page.
2) Key (▼) / (A/M) To Increment Page.
Main Page

For 3P4W	
KEY PRESS	ONLINE DESCRIPTION
$m^\circ E \pm 1st$  = screen	Displays three phase line to neutral voltage.
$m^\circ E \pm 2nd$  = screen	Displays three phase line to line voltage.
$m^\circ E \pm 1st$  = screen	Displays three phase line to neutral current.
$m^\circ E \pm 2nd$  = screen	Displays RPM.
$m^\circ E \pm 3rd$  = screen	Displays Run Hour.
$m^\circ E \pm 1st$  = screen	Displays three phase average line to neutral voltage, current and power factor.
$m^\circ E \pm 2nd$  = screen	Displays three phase average line to line voltage, current and frequency.
$m^\circ E \pm 3rd$  = screen	Displays first phase line to neutral voltage , current and power factor.
$m^\circ E \pm 4th$  = screen	Displays second phase line to neutral voltage , current and power factor.
$m^\circ E \pm 5th$  = screen	Displays third phase line to neutral voltage , current and power factor.
$m^\circ E \pm 1st$  = screen	Displays three phase total active power, reactive power and apparent power.
$m^\circ E \pm 2nd$  = screen	Displays first phase active power, reactive power and apparent power.
$m^\circ E \pm 3rd$  = screen	Displays second phase active power, reactive power and apparent power.
$m^\circ E \pm 4th$  = screen	Displays third phase active power, reactive power and apparent power.

SERIAL NUMBER DESCRIPTION

Press ▲ key for 10 sec to display serial number..

CONFIGUR

Press first Key▲ for 2 second to set CT/PT primary values in Kilo from normal and vice versa.
Eg:- If user want to set 1300 = first set digit 001 then hold key▲ for 2 sec to shift in k, then display will show 1.00k ,press ► shift the cursor for next digit next press ▲ key to change values after the decimal point 1.3k and than hold ► key for 2 sec to save the parameters it will show 1.30k.

TYPICAL WIRING DIAGRAM
3 Phase - 4-Wire $\frac{1}{2}$ " x 1" x 1"

$$P = \dot{E} = J = Q = \mu S \cdot \epsilon I = P = \dot{q} \pm$$

$$k \epsilon^2 \mu^{-1} \circledast = p \epsilon^a \epsilon_i^2 S_H \circledast = W = P m Q t$$

For 3P3W		
KEY PRESS	ONLINE DESCRIPTION	
$m^{\circ} \text{ } \pounds \pm 1^{\text{st}}$  = screen	Display three phase line to line voltage.	
$m^{\circ} \text{ } \pounds \pm 1^{\text{st}}$  = screen	Displays three phase line to line current.	
$m^{\circ} \text{ } \pounds \pm 2^{\text{nd}}$  = screen	Displays RPM.	
$m^{\circ} \text{ } \pounds \pm 3^{\text{rd}}$  = screen	Displays Run Hour.	
$m^{\circ} \text{ } \pounds \pm \pm 1^{\text{st}}$  = screen	Displays three phase average line to line voltage, current and frequency.	

TYPICAL WIRING DIAGRAM	#All fuse types : 0.5A class CC UL type ; 0.5A fast acting 600V
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3 Phase - 3 Wire
$$P = \dot{E} = J = P = \mu \S^{\circ} \epsilon \mid = O = \text{`q} \pm = \sim \neg \Phi = C$$

k - 2 £ and W is applicable only for DC Product.

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

1 Phase - 2 Wire

$$= m \mathbb{N} = \dot{E} = J = O = \mu \text{ } \S \text{ } ^{\circ} \text{ } \mathcal{E} \text{ } | = N = \text{ ` } q$$

$$k \text{ } \mathcal{E} \text{ } ^2 \text{ } \mu \text{ } - \text{ } ^{\circ} \text{ } \odot = p \text{ } \mathcal{E} \text{ } ^a \text{ } \mathcal{E} \text{ } i \text{ } ^2 \text{ } \S \text{ } - \text{ } \neg = W = P m Q$$
[illegible]

(Specifications subject to change as development is a continuous process)

[illegible]