

**SPECIFICATIONS****AC VOLTMETRE**

<b>Product name</b>	MV15, MV205, MV305
<b>Description</b>	1Ø digital voltmeter
<b>Display</b>	3 digit 7 segment LED display
<b>Display range</b>	20 to 600V
<b>Input range</b>	50 to 600V AC
<b>Input frequency</b>	50 / 60Hz
<b>Max continuous input range</b>	600V
<b>Over range indication</b>	"Or" for input > 600V
<b>Input impedance</b>	1M ( $\pm 5\%$ )
<b>Resolution</b>	1V
<b>Electrical connection</b>	1Ø - 2 wire
<b>Supply voltage(Vn)</b>	240V AC ( $\pm 20\%$ ), 50/60Hz
<b>Weight :</b>	MV15 : 75gm MV205 : 80gm MV305 : 112gm

**AC AMMETER (CT INPUT)**

<b>Product name</b>	MA12, MA202, MA302
<b>Description</b>	1Ø digital ammeter
<b>Display</b>	4 digit 7 segment LED display
<b>Display range</b>	0 to 5760A
<b>Input range</b>	50mA to 5A AC
<b>Input frequency</b>	50/60Hz
<b>Max continuous input range</b>	7A
<b>Over range indication</b>	"Or" for input > 7.2A
<b>CT primary setting</b>	5 to 4000 (programmable in steps)
<b>CT secondary setting</b>	5A fixed
<b>Resolution</b>	0.001, 0.01, 0.1, 1A (depending upon CT primary setting)
<b>Electrical connection</b>	1Ø - 2 wire
<b>Supply voltage</b>	240V AC ( $\pm 20\%$ ), 50/60Hz
<b>Weight</b>	MA12 : 80gm MA202 : 85gm MA302 : 120gm

**Accuracy****Measurement method**

<b>Environmental conditions</b>	Temperature : Operating : -10 °C to 55 °C Storage : -20 °C to 75 °C Humidity : Up to 85% RH (non condensing) Altitude : Up to 2000 meters Pollution degree : II
<b>Installation category</b>	III (480V), II (600V)
<b>Protection class</b>	II
<b>Mounting</b>	Panel mounting
<b>IP</b>	IP51 (front) IP20 (back)

**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.

**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, caustic vapors, oils, steam, or other unwanted process by products.

**WIRING GUIDELINES****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<sup>2</sup> to 2.5mm<sup>2</sup>(20 to 14AWG; 75°C(min)). These wires shall have current carrying capacity of 7.5A.
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.

**INSTALLATION GUIDELINES****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/0.5A for electrical circuitry / battery is highly recommended.

**MECHANICAL INSTALLATION**

For installing the meter:

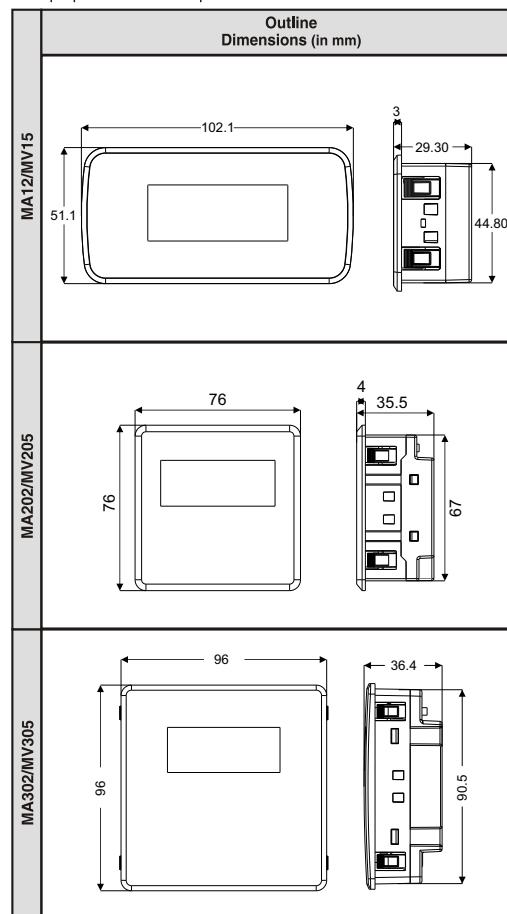
1. Prepare the panel cutout with proper dimensions as shown below.
  2. Push the meter into the panel cutout. Secure the meter in its place by pushing it into panel cutout.
  3. For proper sealing, tighten the screws evenly with required torque.
- Terminal screw tightening torque : 0.68 N-m to 0.79 N-m (6.018 In-Lb to 6.992 In-Lb)  
Screw clamp tightening torque : 0.1N-m (0.885 Lb-inch)

**MAINTENANCE**

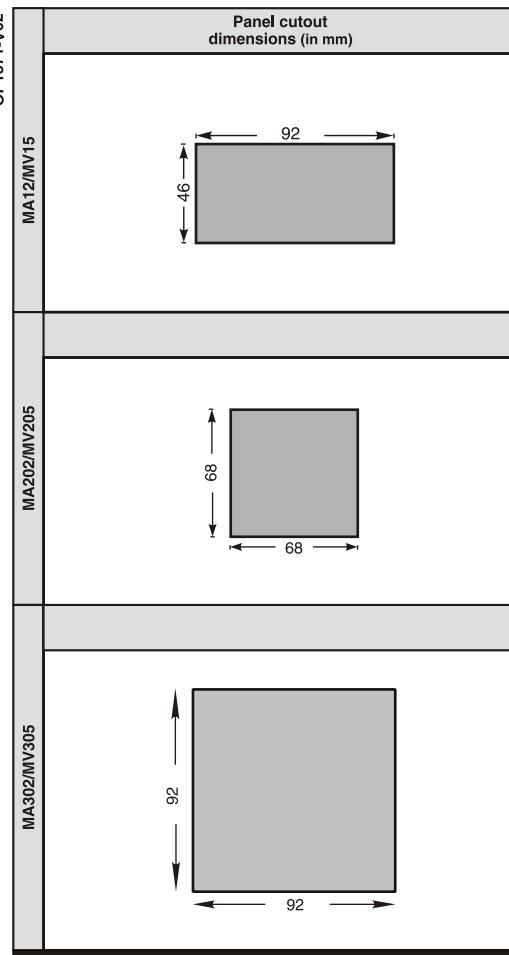
1. The equipment should be cleaned regularly to avoid blockage of ventilating parts.
2. Clean the equipment with a clean dry or damp cloth. Do not use any cleaning agent other than water.

**INSTALLATION**

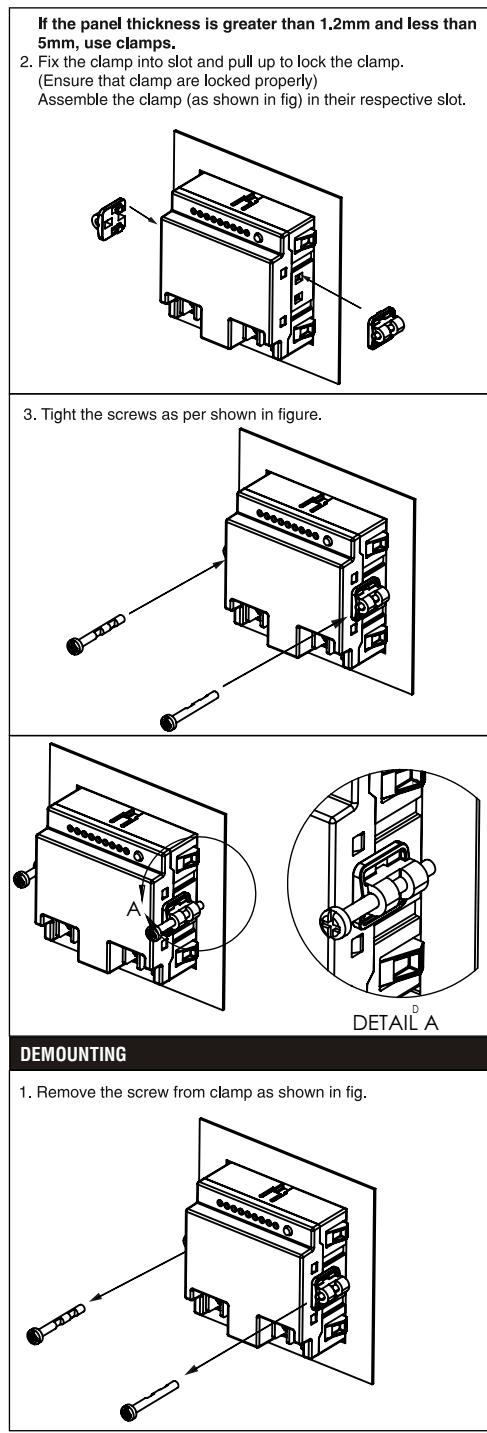
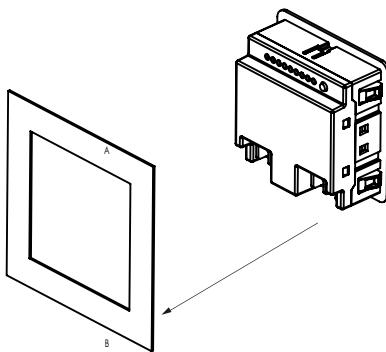
For mounting and demounting of the meter, prepare the panel cutout with proper dimension as per below

**Ordering information**

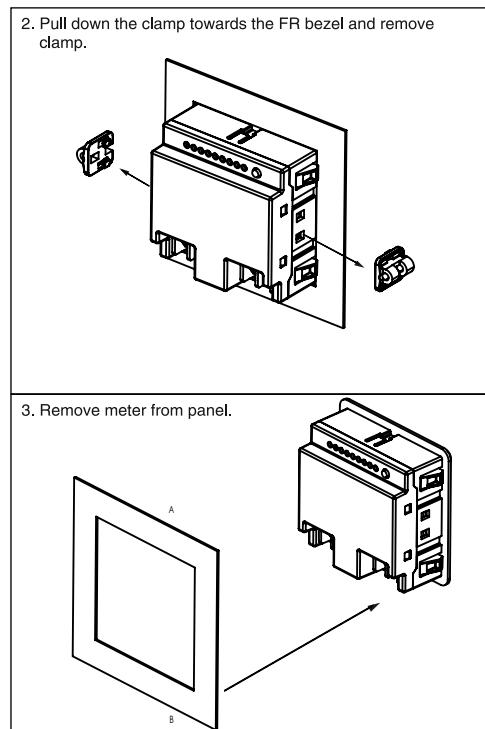
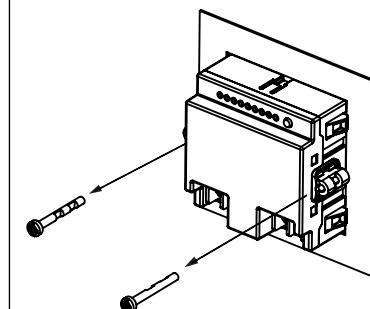
Product	Supply range
MA12	240V AC ( $\pm 20\%$ )
MA202	240V AC ( $\pm 20\%$ )
MA302	240V AC ( $\pm 20\%$ )
MV15	240V AC ( $\pm 20\%$ )
MV205	240V AC ( $\pm 20\%$ )
MV305	240V AC ( $\pm 20\%$ )
ACC SELFLOCK CLAMP + SCREW	Set of 2 (Available on request)

**MOUNTING**

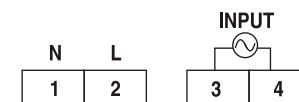
1. Insert meter into panel & ensure self lock clamps are fit.

**DEMOUNTING**

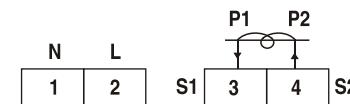
1. Remove the screw from clamp as shown in fig.

**TERMINAL CONNECTIONS**

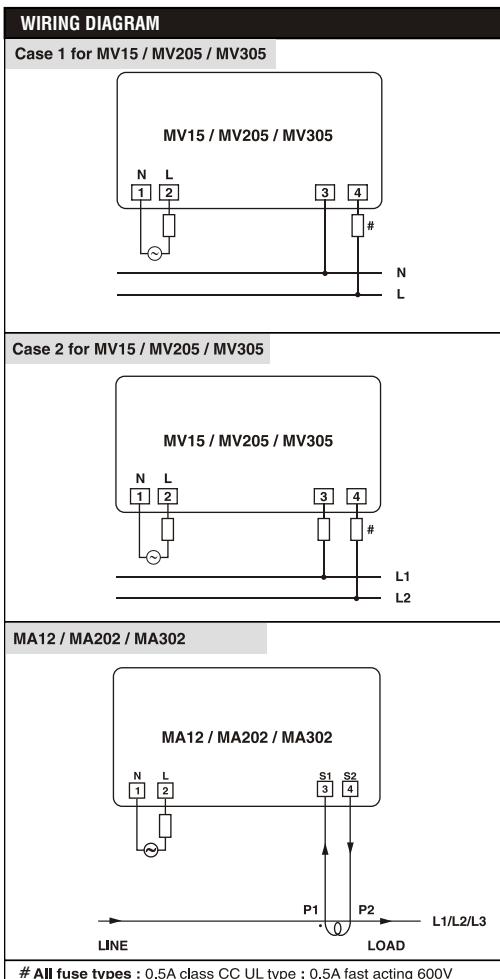
MV15 / MV205 / MV305



MA12 / MA202 / MA302



Clamps are available on request



(Specifications are subject to change, since development is a continuous process.)

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