Nominal Voltage Ranges:
120V to 480V, 2-wire, Single-phase, One Line & Neutral
120V to 480V, 3-wire, Single-phase, 2 Lines & Neutral
120V to 415V, 3-wire, 3-phase, 3 Lines, No Neutral
120V to 480V, 4-wire, 3-phase, 3 Lines and Neutral


The equipment is protected throughout by double insulation as indicated by this symbol: □

Certifications: California Type Approval for revenue grade metering

Safety Precautions:
- Meter should be installed by a qualified electrician.
- Turn off all power supplying the equipment before performing any wiring. Use a properly rated volt meter to confirm power is off.
- Use of this device inconsistent with this manual can cause permanent damage to the unit and/or serious harm to the operator.

Tools/Materials List:
- Volt meter
- Small standard screwdriver
- Wire stripper
- DIN-Rail
- 16-22 AWG stranded copper wire
- Inline fuse holder with maximum 1Amp fuse
- Use a Type 4 Enclosure (with appropriate conduit and fittings) if meter will be installed outdoors

Installation Instructions
For All Systems:
1. Disconnect or switch power off before attempting to install, connect, disconnect or service the meter or the external current transformers (CTs). ALL POWER MUST BE DISCONNECTED!
2. Mount the meter using 35mm DIN Rail in a protected indoor location. If installing outdoors, a UL Listed Type 4 Enclosure is required.
3. IMPORTANT: Distinguish and then identify the Neutral and the Line(s) ('hot' wire(s), usually black or red). Label the Neutral and then, depending on your electrical system, assign labels as described below.

120V, 2-Wire, Single Phase:
1. Label Line 1 as L1.
2. Fit CT1 around L1. Make sure the arrow is facing towards the load (in the direction of flow).
3. Black CT wire connects to Port 1 on the Omnimeter. White CT wire connects to Port 2.
4. With split core CTs, close the CT around the wire to be measured and press firmly until you feel and hear it click to indicate full closure.
5. To power the meter and get a voltage reference: Use a maximum 1.0 Amp inline fuse on L1. Connect one fuse holder pigtail to the breaker, lug or an appropriate line-tap device, and connect the other pigtail to A fuse holder pigtail on L1. Connect one fuse holder pigtail to the breaker, lug or an appropriate line-tap device, and connect the other pigtail 16-22 AWG UL rated stranded copper wire for connection to the meter.
6. L1 connects to Port 7 on the Omnimeter, Neutral to Port 10.
7. Once the meter is properly mounted to the DIN Rail or enclosure and all wiring is completed, with terminal block covers installed, power can be turned back on.
8. Meter will then begin cycling through meter values. For details go to:
9. A video of proper install of a 120V system can be found here:
   http://www.youtube.com/watch?v=ky9sgr1LTMk

120V, 240V Single-Phase 2-Wire Load Blk Wht L1
10. 120/208V, Single Phase, 3-Wire:
    1. Label L1 and L2. (Arbitrarily assign labels.)
    2. You will be using 2 CTs for this install. Label them CT1 and CT2.
    3. Fit CT1 around L1. Make sure the arrow is facing towards the load (in the direction of flow).
    4. Fit CT2 around L2.
5. Black wire from CT1 connects to Port 1 on the Omnimeter. White wire from CT1 connects to Port 2. (Fig 3)
6. Black wire from CT2 connects to Port 3. White wire from CT2 connects to Port 4. (Fig 3)
7. With split core CTs, close the CT around the wire to be measured and press firmly until you feel and hear it click to indicate full closure. The buttons should be fully out. Use a zip tie to ensure the CTs remain securely closed.
8. To power the meter and get a voltage reference: Use a maximum 1 Amp inline fuse on L1 and L2. Connect one fuse holder pigtail to the breaker, lug, or an appropriate line-tap device. Connect the other pigtail to 16-22 AWG UL rated stranded copper wire.
9. Tap into L1 with a small stranded copper wire. This L1 tap connects to Port 7 on the Omnimeter with a 1A fuse inline. (Fig 3)
10. Tap into L2 with a small stranded copper wire. This L2 tap connects to Port 8 on the Omnimeter with a 1A fuse inline. (Fig 3)
11. Neutral connects to Port 10.
12. Once the meter is properly mounted to the DIN Rail or enclosure and all wiring is completed, with terminal block covers installed, power can be turned back on.
13. Meter will then begin cycling through meter values. For details go to: http://documents.ekmmetering.com/EKM_Metering_LCD_Display_Value_Reading.pdf
14. A video of a proper install of a 120V/240V system can be found here: http://www.youtube.com/watch?v=_TFxszMpQQg

120V-415V, 3-Phase, 3-Wire:
1. Label L1, L2 and L3. (Arbitrarily assign labels.)
2. You will be using 3 CTs for this install. Label them CT1, CT2 and CT3.
3. Fit CT1 around L1. Make sure the arrow is facing towards the load (in the direction of flow).
4. Fit CT3 around L3.
5. Black wire from CT1 connects to Port 1 on the Omnimeter. White wire from CT1 connects to Port 2. (Fig 4)
6. Black wire from CT3 connects to Port 5 on the Omnimeter. White wire from CT3 connects to Port 6. (Fig 4)
7. With split core CTs, close the CT around the wire to be measured and press firmly until you feel and hear it click to indicate full closure. The buttons should be fully out. Use a zip tie to ensure the CTs remain securely closed.
8. To power the meter, use a maximum 1.0 Amp inline fuse on each line.
9. To power the meter and get a voltage reference: Tap into L1 at the breaker panel. Connect one fuse holder pigtail to the breaker, lug or an appropriate line-tap device, and connect the other pigtail to 16-22 AWG UL rated stranded copper wire for connection to the meter. This L1 tap connects to Port 7 on the Omnimeter. Tap into L2 and L3 and repeat the connection process. L2 tap connects to Port 8. L3 connects to Port 9. Neutral connects to Port 10. (Fig 5)
10. Once the meter is properly mounted to the DIN Rail or enclosure and all wiring is completed, with terminal block covers installed, power can be turned back on.
11. Meter will then begin cycling through meter values. For details, go to: http://documents.ekmmetering.com/EKM_Metering_LCD_Display_Value_Reading.pdf
12. A video of a proper install of a 120V-208V, 3-Phase, 3-Wire system can be found here: http://www.youtube.com/watch?v=upNgFNV6EDM

120V-480V, 3-Phase, 4-Wire:
1. Label L1, L2 and L3. (Arbitrarily assign labels.)
2. You will be using 3 CTs for this install. Label them CT1, CT2 and CT3.
3. Fit CT1 around L1. Make sure the arrow is facing towards the load (in the direction of flow).
4. Fit CT2 around L2.
5. Fit CT3 around L3.
6. Black wire from CT1 connects to Port 1 on the Omnimeter. White wire from CT1 connects to Port 2. (Fig 5)
7. Black wire from CT2 connects to Port 3 on the Omnimeter. White wire from CT2 connects to Port 4. (Fig 5)
8. Black wire from CT3 connects to Port 5 on the Omnimeter. White wire from CT3 connects to Port 6. (Fig 5)
9. With split core CTs, close the CT around the wire to be measured and press firmly until you feel and hear it click to indicate full closure. The buttons should be fully out. Use a zip tie to ensure the CTs remain securely closed.
10. Use a max 1.0 Amp inline fuse on each line to protect the meter.
11. To power the meter and get a voltage reference: Tap into L1 at the breaker panel. Connect one fuse holder pigtail to the breaker, lug or an appropriate line-tap device, and connect the other pigtail to 16-22 AWG UL rated stranded copper wire for connection to the meter. This L1 tap connects to Port 7 on the Omnimeter. Tap into L2 and L3 and repeat the connection process. L2 tap connects to Port 8. L3 connects to Port 9. Neutral connects to Port 10. (Fig 5)
12. Once the meter is properly mounted to the DIN Rail or enclosure and all wiring is completed, with terminal block covers installed, power can be turned back on.
13. Meter will then begin cycling through meter values. For details, go to: http://documents.ekmmetering.com/EKM_Metering_LCD_Display_Value_Reading.pdf
14. A video of a proper install of a 120V-208V, 3-Phase, 4-Wire system can be found here: http://www.youtube.com/watch?v=DeKiZzdR0K8
Within two years from the date of sale, and on the condition that the user abide by the specifications and installation instructions listed here, stacked on a platform no more than ten units high.

humidity should be ≤85%. There should be no toxic chemicals present and no corrosive substances or gases in the air. The meters should become damaged. The process of transportation, handling, and installation should be done according to the transportation and storage rule of GB/T15464-1995. Keep the meter in the original packaging when stored. The storage temperature range should be 0–40ºC. The relative humidity should be ≤85%. There should be no toxic chemicals present and no corrosive substances or gases in the air. The meters should be reset.

The meter should be handled with care, as there are precision components inside that could break and/or cause faulty readings should the meter become damaged. The process of transportation, handling, and installation should be done according to the transportation and storage rule of GB/T15464-1995. Keep the meter in the original packaging when stored. The storage temperature range should be 0–40ºC. The relative humidity should be ≤85%. There should be no toxic chemicals present and no corrosive substances or gases in the air. The meters should be stacked on a platform no more than ten units high.

*Note: Some Omnimeter I v.3 meters have a slightly different configuration for the pulse output terminals. These meters are identifiable by a sticker on the meter case showing the different configuration. In the case of these meters, please follow the direction of the sticker, not of this spec sheet.

Working Principle:
When the meter is working, the energy consumed by the user is transformed into voltage and current signals, which are sampled by sample circuits. A pulse signal is then produced by a specialized IC. The Pulse signal is directly proportional to power consumption. The MCU records and stores the corresponding energy use. The LCD screen displays the energy use. Recorded information and data can be transferred using the RS-485 interface.

Data:
The LCD display shows 15 pieces of data: total energy consumption(kWh), reverse kWh, voltage L1, voltage L2, voltage L3, current(Amps) L1, current L2, current L3, power(watts) L1, power L2, power L3, total power(watts), COSΦ(power factor) L1, COSΦ L2, and COSΦ L3. Every five seconds the LCD screen will display a new piece of data. The meter also provides max demand(kW) data and the demand period can be set to one of three intervals: 15minutes, 30 minutes, or 60 minutes. The max demand can be reset to zero in software over RS485. The meter has four time-of-use tariffs(T1, T2, T3, T4) to calculate the power during different time periods, and it can set up to four time periods per day, and specify the number of the tariff for that period(from T1 to T4). The meter time can be set using the RS485 interface. By design the kWh cannot be reset. The meter will go at least 30 years without power and still keep its kWh readings. In other words, the memory will not be erased if there is no power. See Figure 8 for meter display values:

<table>
<thead>
<tr>
<th>#</th>
<th>LCD Display Data</th>
<th>#</th>
<th>LCD Display Data</th>
<th>#</th>
<th>LCD Display Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Total kWh (forward + reverse)</td>
<td>06</td>
<td>Amps L1</td>
<td>11</td>
<td>Watts L3</td>
</tr>
<tr>
<td>02</td>
<td>Reverse kWh</td>
<td>07</td>
<td>Amps L2</td>
<td>12</td>
<td>Watts Total</td>
</tr>
<tr>
<td>03</td>
<td>Volts L1 (Line 1)</td>
<td>08</td>
<td>Amps L3</td>
<td>13</td>
<td>CosΦ L1 (Power Factor)</td>
</tr>
<tr>
<td>04</td>
<td>Volts L2</td>
<td>09</td>
<td>Watts L1</td>
<td>14</td>
<td>CosΦ L2</td>
</tr>
<tr>
<td>05</td>
<td>Volts L3</td>
<td>10</td>
<td>Watts L2</td>
<td>15</td>
<td>CosΦ L3</td>
</tr>
</tbody>
</table>

Transport and Handling:
The meter should be handled with care, as there are precision components inside that could break and/or cause faulty readings should the meter become damaged. The process of transportation, handling, and installation should be done according to the transportation and storage rule of GB/T15464-1995. Keep the meter in the original packaging when stored. The storage temperature range should be 0–40ºC. The relative humidity should be ≤85%. There should be no toxic chemicals present and no corrosive substances or gases in the air. The meters should be stacked on a platform no more than ten units high.

Warranty:
Within two years from the date of sale, and on the condition that the user abide by the specifications and installation instructions listed here, and the sealing is kept completely intact. If the meter does not correspond with the rule of the enterprise standard, the meter shall be repaired free or replaced.