



User manual

Part: MPM1P, MPM1C
MID certified, LCD or Counter
 Single phase 1 wires energy meter
 5(45)A direct, 35mm DIN Rail,
 1TE, 17.8mm width
 Manual Revision: 1V03



MECHATRONIC



Product Picture
MPM1P



MPM1C



Showing without sealable protection covers and with sealable protection covers
 Covers are included standard in all meter types.

Available types, order codes:

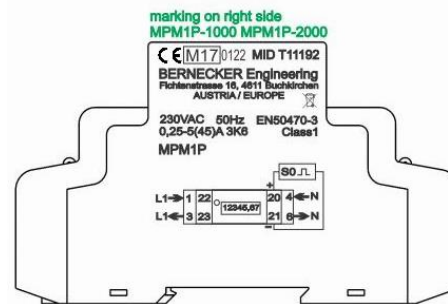
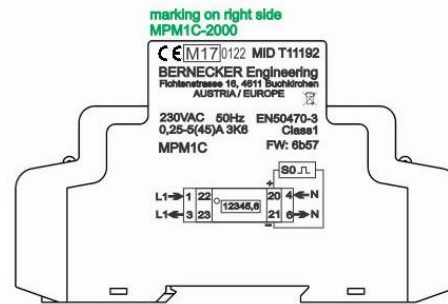
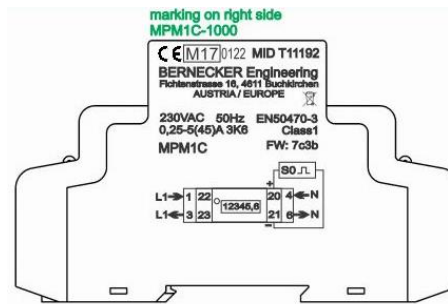
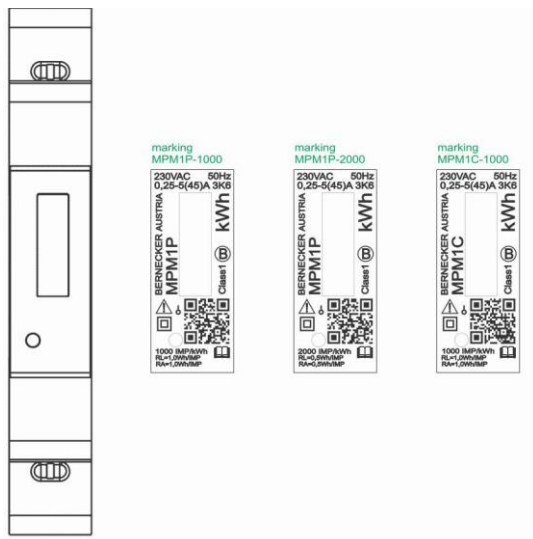
MPM1P-1000, 0,25-5(80)A 230VAC 50Hz, LCD green backlight, 1000IMP/kWh
 EAN: 0729389737856 ASIN: xxxx

MPM1C-1000, 0,25-5(80)A 230VAC 50Hz, rolling counter display, 1000IMP/kWh
 EAN: 0729389737863 ASIN: xxxx

These types are available on special request, MOQ 1000pcs:

MPM1P-2000, 0,25-5(80)A 230VAC 50Hz, LCD green backlight, 2000IMP/kWh

MPM1C-2000, 0,25-5(80)A 230VAC 50Hz, rolling counter display, 2000IMP/kWh



Notes:

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1. Foreword

The MPM1P series meter is produced according to EN50470-3 and fulfils strict quality inspection.

Under normal conditions your product should give you years of benefit and pleasure. In case there is a problem with the energy meter you should contact your dealer immediately. All energy meters are sealed with a special seal. Once this seal is broken there is no possibility to claim for warranty. Therefore NEVER open meter by yourself or break the seal of the energy meter. The warranty time is 12 months after installation, and only valid for construction faults.

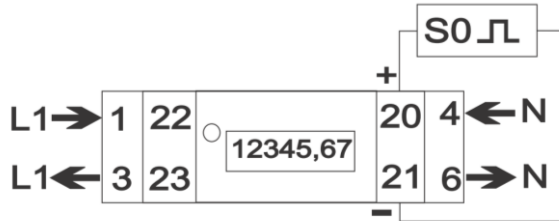
2. Installation

| |
|---|
|  CAUTION |
| <ul style="list-style-type: none">◆ Turn off all the power before working on it.◆ Always use a properly rated voltage sensing device to confirm that power is off. |
|  WARNING |
| <ul style="list-style-type: none">◆ Installation should be performed by qualified personnel familiar with related procedures and regulations.◆ Use insulating tools to install the meter.◆ Fuse or thermal cut-off or single-pole circuit breaker can't be fitted on the supply line and not the neutral line.◆ The case is sealed, do not broken it |

- ◇ We recommend that the connecting wire which is used to connect the meter to the outside circuit should be sized according to local codes and regulations for the capacity of the circuit breaker or over current device used in the circuit.
- ◇ An external switch or a circuit-breaker should be installed on the inlet wire, which will be used as a disconnection device for the meter. And there it is recommended that the switch or circuit-breaker is near the meter so that it is more convenience for the operator. The switch or circuit-breaker should comply with the specifications of the building electrical design and all local regulations.
- ◇ An external fuse or thermal cut-off which will be used as a over-current protection device for the meter must be installed on the supply side wire, and it is recommended that the over-current protection device is near the meter so that it is more convenience for the operator. The over-current protection device should comply with the specifications of the buildings electrical design and all local regulations.
- ◇ This meter can be installed indoor directly, or in a meter box which is waterproof outdoor (IP67), subject to local codes and regulations.
- ◇ To prevent tampering, secure the meter with a padlock or a similar device.
- ◇ The meter has to be installed against a wall which is fire resistant.
- ◇ The meter has to be installed in a good ventilated and dry place.
- ◇ The meter has to be installed in a protection box when placed in dangerous or dusty environment.
- ◇ The meter can be installed and used after being tested and sealed with a letter press printing.
- ◇ The meter can be installed on a 35mm DIN rail.
- ◇ The meter should be installed in an available height so that it is easy to read.
- ◇ When the meter is installed in an area with frequent surges due to e.q. thunderstorms, welding machines, inverters etc, protect the meter with Surge Protection Devices.
- ◇ After finishing installation, the meter must be sealed to prevent tampering.

2.1. Connection

Connection of the wires should be done in accordance with the underneath connection diagram.



| connection diagram | |
|--------------------|---------------------------------|
| L IN | L phase wire IN |
| L OUT | L phase wire OUT |
| N | Neutral wire IN,OUT |
| 21 | active pulse output contact "-" |
| 20 | active pulse output contact "+" |

Screw terminals L IN,L OUT, N:

maximum Torque is 1.2Nm !

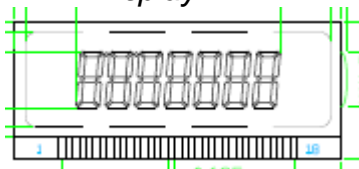
Wire range 0.5-10mm², 16mm² rectangle shape (cage opening 4.2mmx4.2mm)

Screw terminals 20-21:

maximum Torque is 0.2Nm !

Wire range 0.12-1.5mm²

2.2. Display kWh



MPM1P with LCD, Display has seven digits with automatic comma adjustment. 2 decimal place can show maximum 99999.99kWh or 1 decimal place can show maximum 999999.9kWh.



MPM1C has a rolling counter display with 1 comma place. Maximum value showing is 99999,9kWh. Then the rollover starts with 00000,0kWh

3. Performance criteria:

| | |
|--|---------------------------|
| Operating humidity | ≤ 75% |
| Storage humidity | ≤ 95% |
| Operating temperature | -25°C - +55°C |
| Storage temperature | -30°C - +70°C |
| International standard | EN 50470-1 and EN 50470-3 |
| Accuracy class | 1 |
| Protection against penetration of dust and water | IP51 |
| Insulating encased meter of protective class | II |

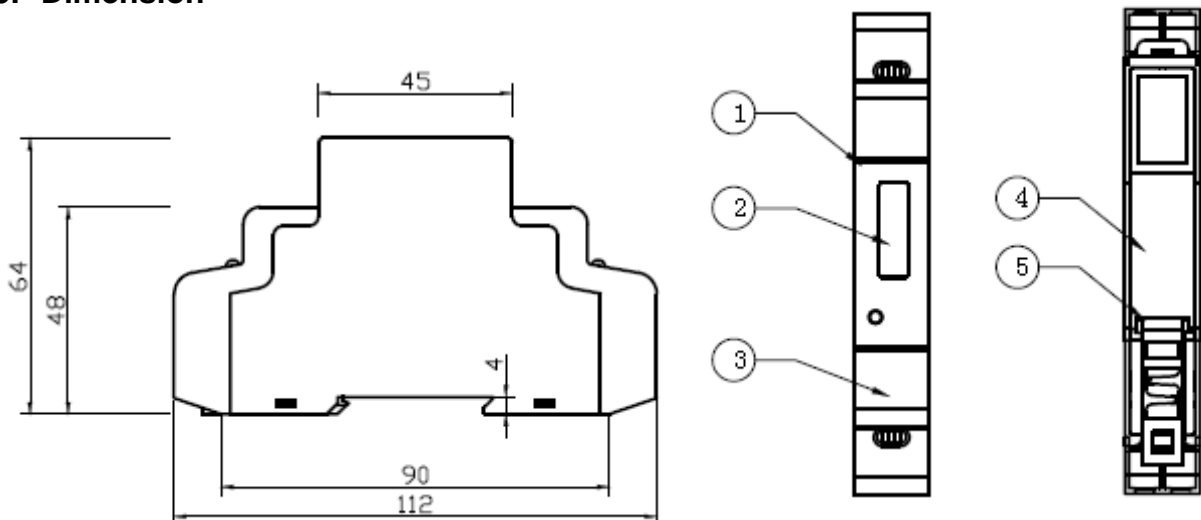
4. Meter specifications:

| | |
|----------------------------------|--|
| Meter type | MPM1P |
| Nominal voltage (Un) | 230V AC |
| Operational voltage | 195-253V AC |
| AC voltage withstand | Insulation capabilities: 4KV for 1 minute |
| Impulse voltage withstand | 6KV – 1.2µS waveform |
| Basic current (Ib) | 5A |
| Maximum rated current (Imax) | 45A |
| Operational current range | 0.4% Ib- Imax |
| Over current withstand | 30Imax for 0.01s |
| Operational frequency range | 50Hz ±10% |
| Internal power consumption | ≤2W /phase- ≤10VA/phase |
| Test output flash rate (RED LED) | 1000/2000imp/kWh |
| Pulse output rate (pins 20 & 21) | 1000/2000imp/kWh |
| Consumption indicator (RED LED) | Flashing at load running |

4.1. Basic errors:

| | | |
|--------------|-------------|-------|
| 0.05Ib | Cosφ = 1 | ±1.5% |
| 0.1Ib | Cosφ = 0.5L | ±1.5% |
| | Cosφ = 0.8C | ±1.5% |
| 0.1Ib - Imax | Cosφ = 1 | ±1.0% |
| 0.2Ib - Imax | Cosφ = 0.5L | ±1.0% |
| | Cosφ = 0.8C | ±1.0% |

5. Dimension



Width 17.8mm, 1 DIN Module
 Weight 0.12 kg (net)
 0.15 kg (packed in carton)

5.1. Material

| | |
|-------------|---------------------------|
| Front panel | PC inflammable retarding |
| Cover | ABS inflammable retarding |
| Base | ABS inflammable retarding |

6. Technical support

| Problem | Check | Solution |
|--|---|--|
| No light for the Power supply indicator. | Is AC power supply connected to the meter ? Is the 1 and 4 connecting correct ? Maybe there is a fault in the inside circuit. | Check switch or circuit-breaker and fuse or thermal cut-off. Reinstall terminal screws on the 1 and 4. Make sure all screws are fixed. Than there should be a 230V 50Hz AC voltage between the terminal screws on the 1 and 4 when power supply is input. Please contact your technical supporter to replace this meter. |
| No light for the consumption indicator. | Is the load running ? Is the operating power too low ? Maybe there is a fault in the inside circuit. | Only when load is running, this LED will flash. If the operating power is too low, the spacing interval of flashing will take some more time, this is why it seems like LED isn't burning. Please contact your technical supporter to replace this meter. |
| The register can't run. | Is there a power supply inside the meter ? Is the operating power too low ? Maybe there is a fault in the inside circuit. | Check that the power supply indicator is burning. If the operating power is too low, the spacing interval of the pulses will take some more time, this is why it seems like the meter won't count. Please contact your technical supporter to replace this meter. |
| No pulse output. | Is DC power supply connected to the meter ? Is the connecting correct ? Maybe there is a fault in the inside circuit. | Check the external voltage source (Ui) is 5-27V DC. Check correct connecting: connect 5-27V DC to connector 20 (anode), and the signal wire (S) to connector 21 (cathode). Please contact your technical supporter to replace this meter. |
| Pulse output rate wrong. | Maybe there is a fault in the inside circuit. | Please contact your technical supporter to replace this meter. |

7. MID certificate

| | |
|---|---|
|  | EU-type examination certificate |
| | Number T11192 revision 0 Project number 1901495 Page 1 of 1 |
| Issued by | NMI Certin B.V., designated and notified by the Netherlands to perform tasks with respect to conformity modules mentioned in article 17 of Directive 2014/32/EU, after having established that the Measuring instrument meets the applicable requirements of Directive 2014/32/EU, to: |
| Manufacturer | Bernecker Engineering Fichtenstrasse 16 4611 Buchkirchen Austria |
| Measuring instrument | A static Active Electrical Energy Meter Type : MPM1C, MPM1P Manufacturer's mark or name : Bernecker Engineering Reference voltage : 230 V Reference current : 5 A Destined for the measurement of : electrical energy, in a - single-phase two-wire network Accuracy class : A or B Environment classes : M1 / E2 Temperature range : -25 °C / +55 °C |
| | Further properties are described in the annexes: - Description T11192 revision 0; - Documentation folder T11192-1. |
| Valid until | 11 September 2027 |
| Issuing Authority | NMI Certin B.V., Notified Body number 0122 11 September 2017  C. Oosterman Head Certification Board |
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