# AD3-80MBIC

- **Three Phase Four Wire kWh Meter (Import & Export) 230/400 Volt - 50 Hz - 80 Amp**
- **MID Certified Appendix "B" and "D"**
- **RS-485 Modbus Protocol (Autometers V.6)**
- **2-Rate register (requires external time switch)**

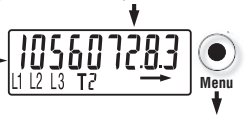
**⚠ WARNING**

**The Autometers range of DIN rail mounted meters should only been installed by a competent and qualified electrician who is fully aware of the latest electricity regulations concerning the installation of Electricity meters. The AD3-80MBIC must be installed in a suitable enclosure.**

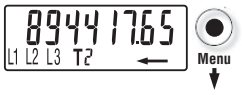
## Main Menu

**Device Switch ON**

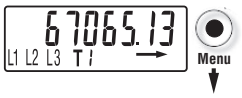
**Main Page**: When the meter has been installed and power has been applied the meter register will default to Active energy, according to the tariff and type of load you are monitoring (Import or Export).
In most cases it will default to Active energy, Import, tariff 1. (illustration below)



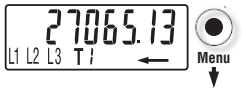

**Second Active Energy Page**



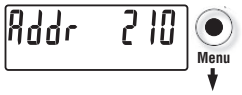

**Third Active Energy Page**




**Fourth Energy Page:** In the second, third and fourth pages are represented the other 3 energy registers

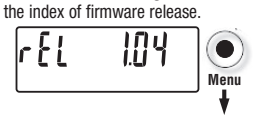



**Modbus Address Page**: In this page the Modbus address appears. You can modify its value between 1 and 247. See the section editable value.

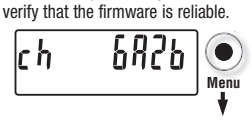



**Modbus Baudrate Page**: In this page the Modbus baud rate appears. you can choose among 1200, 2400, 4800, 9600 and 19200 bits per second.
See the section editable value.


**Firmware Release Page**: You can read the index of firmware release.




**Firmware CheckSum Page**: The checksum is periodically calculated to verify that the firmware is reliable.




**Display Test Page**: All the display segments are visible.
**Whichever the page on the display, if no key is pushed for at least 20 sec., the main page appears again.**


**Partial** →

**Partial counter** ←

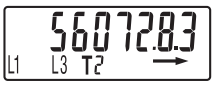
## Partial counter

**Partial Active Energy Counters**:
By pushing the **"Partial key"** partial active energy counters are readable in the main,second, third and fourth pages (i.e. for monthly energy consumption).

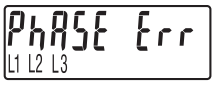

These counters are resettable.
By keeping the **"Menu key"** pushed for 4 sec., **"Reset"** appears on the display.
The key must be released. To do the reset, push shortly the **"Menu key"** again.
By pushing the **"Partial key"** in any of the four pages, you go back to the Main menu

## Diagnostic Messages

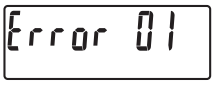
**One or more missing phase**: In case one or more phase is not detected, the corresponding icon disappears from the bottom row of the display. E.G. L2 is not detected.



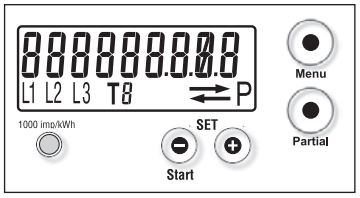

**Phase sequence error**: When the three phases are not in the correct zero-crossing sequence this message appears andthe icons L1 and L2 blink. To make this message to disappears, you can keep pushed the **"Menu key"** for at least 4 seconds.




**Error condition**: When the display shows the message "ErrOr 01", the meter has got a malfunction and must be replaced.




## Display




- Energy value
- Energy export (absorbed ←)
- Energy import (supplied →)
- Eingabe der Parameter
- Parameters set

T8 • Tarif Running tarif, called tarif

L1 L2 L3 • Energy line (L1-2-3)

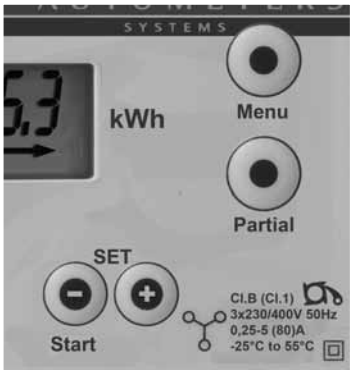
P • Energy value "Partial"

1000 imp/kWh • Precision control LED

Partial • Command button for "partial" reading selection

Menu • Menu key for reading selection

## Adjusting the Modbus address and Baudrate




**1)** Press the **"Menu"** key until **"Addr 001"** appears on the display

**2)** Press and hold down the **"-"** key for 4 sec. and release

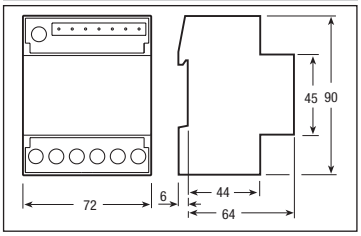
**3)** You will notice **"001"** blinking

**4)** Press the **"+"** key to increment the number.

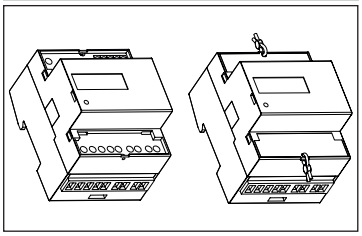
**5)** To lock the number press and hold down the **"Menu"**key for 4 seconds.
The Modbus address has now been set.

- **To alter the Baudrate:**
Press the **"Menu"** key until **"br 9600"** appears and repeat above steps 2-5.

## Dimension



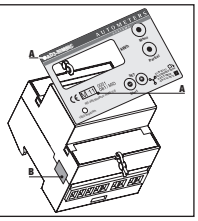

## Sealable terminal covers



## MID calibrated

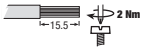
**A)** Device code and certification data indications

**B)** Safety-sealing between upper and lower housing part

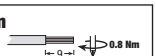


## Cable stripping length and max. terminal screw torque

**80 A direct connection main terminals**
**Screw driver PZ2**

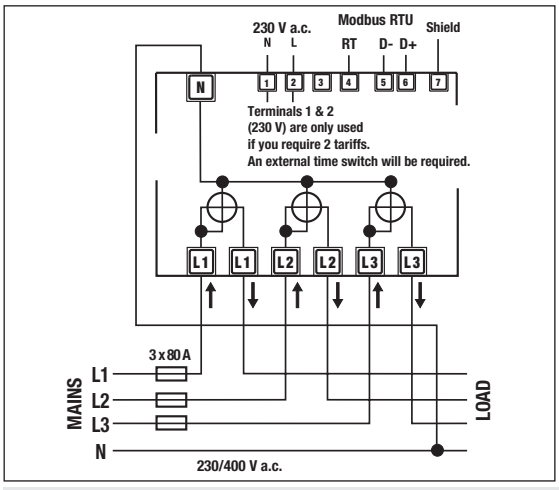



**Tariff and communication terminals**
**Screw driver blade 0.8x3.5 mm**

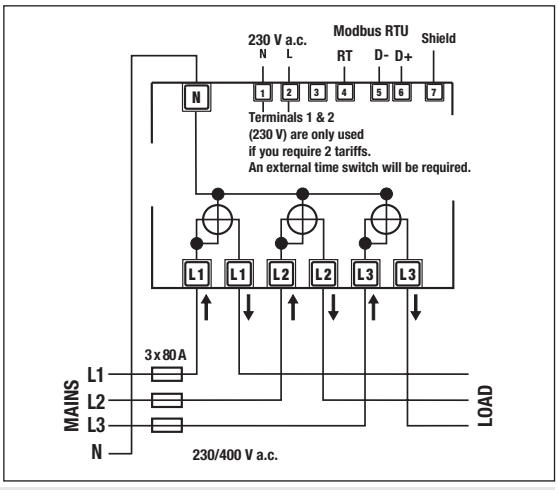



## Wiring diagram

**3 Phase 4 wire**




**Alternative 3 phase 4 wire**




**(N) Neutral wire must be connected the meter**

# Technical data

| Data in compliance with EN 50470-1, EN 50470-3 | | | **AD3-80MBIC Direct 80 A** |
|---|---|---|---|
| **General characteristics** | | | |
| • Housing | DIN 43880 | DIN | 4 modules |
| • Mounting | EN 60715 | 35 mm | DIN rail |
| • Depth | | mm | 70 |
| **Operating features** | | | |
| • Connectivity | to three-phase network | n° wires | 4 |
| • Storage of energy values and configuration | digital display (EEPROM) | - | yes |
| • Display tariffs identifier | for active energy | n° 2 | T1 and T2 |
| **Supply** | | | |
| • Rated control supply voltage ***Un*** | | V a.c. | 230 |
| • Operating range voltage | | V | 184 ... 276 |
| • Rated frequency ***fn*** | | Hz | 50 |
| • Rated power dissipation (max. for phase) ***Pv*** | | VA (W) | ≤8 (0.6) |
| **Overload capability** | | | |
| • Voltage ***Un*** | continuous; phase/phase | V | 480 |
| | 1 second: phase/phase | V | 800 |
| | continuous; phase/N | V | 276 |
| | 1 second: phase/N | V | 300 |
| • Current ***Imax*** | continuous | A | 80 |
| | momentary (0,5 s) | A | - |
| | momentary (10 ms) | A | 2400 |
| **Display (readouts)** | | | |
| • Connection errors and phase out | discernible from phase-sequence indic. | - | PHASE Err |
| • Display type | LCD | n° digits | 9 (2 decimals) |
| | digit dimensions | mm x mm | 6.00 x 3 |
| • Active energy: 1 display, 9 digit - 2 tariffs | min. measuring energy | kWh | 0.01 |
| + display import or export (arrow) | max. measuring overflow | kWh | 9999999.99 |
| • Instantaneous tariff measurement | 1 display, 1-digit | - | T1 or T2 |
| • Display period refresh | | s | 1 |
| **Measuring accuracy** | | | |
| • Active energy and power | acc.to EN 50470-3 | class | B |
| **Measuring input** | | | |
| • Type of connection | | - | direct |
| • Voltage ***Un*** | phase/phase | V | 400 |
| | phase/N | V | 230 |
| • Operating range voltage | phase/phase | V | 319 ... 480 |
| | phase/N | V | 184 ... 276 |
| • Current ***Iref*** | | A | 5 |
| • Current ***In*** | | A | - |
| • Current ***Imin*** | | A | 0.25 |
| • Operating range current ***(Ist ... Imax)*** | direct connection | A | 0.015 ... 80 |
| • Frequency | | Hz | 50 |
| • Input waveform | | - | sinusoidal |
| • Starting current for energy measurement ***(Ist)*** | | mA | 15 |
| **Optical interfaces** | | | |
| • Front side ***(accuracy control)*** | LED | imp/kWh | 1000 |
| **Safety acc. to EN 50470-1** | | | |
| • Indoor meter | | - | yes |
| • Degree of pollution | | - | 2 |
| • Operational voltage | | V | 300 |
| • AC voltage test (EN 50470-3, 7.2) | | kV | 4 |
| • Impulse voltage test | | 1.2/50 µs-kV | 6 |
| • Protection class (EN 50470) | | class | II |
| • Housing material flame resistance | UL 94 | class | V0 |
| • Safety-sealing between upper and lower housing part | | - | yes |
| **Embedded communication** | | | |
| • Modbus RTU | RS-485 - 3 wires | - | up to 19.200 bps |
| **Connection terminals** | | | |
| • Type cage main current paths | screw head Z +/- | POZIDRIV | PZ2 |
| • Type cage pulse output | blade for slotted screw | mm | 0.8 x 3.5 |
| • Terminal capacity main current paths | solid wire min. (max.) | $mm^2$ | 1.5 (35) |
| | stranded wire with sleeve min. (max.) | $mm^2$ | 1.5 (35) |
| • Terminal capacity pulse output | solid wire min. (max.) | $mm^2$ | 1 (4) |
| | stranded wire with sleeve min. (max.) | $mm^2$ | 1 (2.5) |
| **Environmental conditions** | | | |
| • Mechanical environment | | - | M1 |
| • Electromagnetic environment | | - | E2 |
| • Operating temperature | | °C | -25 ... +55 |
| • Limit temperature of transportation and storage | | °C | -25 ... +70 |
| • Relative humidity (not condensation) | | % | ≤80 |
| • Vibrations | 50 Hz sinusoidal vibration amplitude | mm | ±0.075 |
| • Degree protection | housing when mounted in front (term.) | - | IP51(*)/IP20 |

(*) **For the installation in a cabinet at least with IP51 protection.**