M-Bus reading device **MBM-** **M-Bus Series**

Instruction Manual

MBM is a reading device for tax meters, connected directly or through m-bus counters to an m-bus network. It is both m-bus converter and local display for reading data. MBM can read and store data for up to 250 tax meters. Data is shown on device display, but can also be read with a personal computer/notebook via RS-232 interface and free Gineers software. Furthermore, transmitting devices like Ethernet or GPRS converters can be connected so data can be read remotely. Normally it is mounted on a flat vertical or horizontal surface

1. Main Technical Parameters

- max. number of devices to read	– 64/250
- power supply voltage	– 55-250 Vac
- m-bus nominal output voltage	- 36 VDC ± 1V
- max. m-bus output current	- 450mA/140mA for 250/64 devices
- max. power consumption	– < 21 W (for 250 devices, max load)
- display	– LCD, 4 x 20 symbols, backlit
- keyboard	– 6 tactile buttons
- interface	– 1xM-bus, 1xRS232C
- storage temperature	– -20÷+50 °C
- air humidity	– 40÷90 %
- dimension (H/W/D)	– 160/175/65 mm
- protection class	- IP 33
- serial port RS-232C baud rate	– 300/1200/**2400**/4800 bps, 8, E, 1
- m-bus speed	– 300/1200/**2400**/4800 bps, 8, E, 1
- weight	– 1.1 kg

2. MBM operation

MBM must be set by qualified personnel, familiar with safety instructions and regarding this instruction. In normal working mode MBM displays sequentially the values of tax meters to be read. The display changes every 4-12s (this parameter can be set with our software). The display for every tax meter includes user number (0 to 9999), medium (cold/hot water, electricity, gas, etc.), the address of the device in the m-bus network, free text up to 20 symbols, value and type of measured value (like 465.8 m^3 or 44556.3 kWh), current date/hour as shown here:

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  28-Cold water/A024
Apartment  28
Count:     136.5 m3
28-MaY-2010    12:23
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The data is shown with accuracy 0.1 of measured value.

Pressing «up arrow» or «down arrow» keys display data of the next or previous tax meter in the list.

MBM starts reading the whole m-bus network four times a day (at 0h, 6h, 12h и 18h) and the data is stored in non-volatile memory. Last measured data is displayed.

Pressing the «OK» key MBM displays the start (measured when the network and MBM is set up) and the current pulse count for the selected tax meter. After predefined time without key press MBM shows the basic data for the next meter in the list.

Pressing «left arrow» or «right arrow» MBM displays historic values of the selected tax meter, if available. These historic values are saved at the beginning of every month (day 1, 0:00h). Historic data saves data for the last 12 months after that the oldest data is overwritten. The historic data is shown with the reading date.

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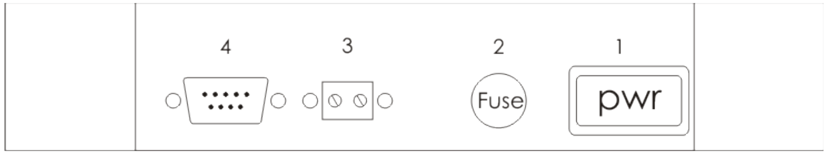
When power is interrupted, MBM continues to work in sleep mode (only clock enabled) until the internal battery is discharged (about 30 days). The display is not lit. When the power is restored, the display starts showing the data again and if the internal battery is discharged, the clock data is lost. Tax meter data is always kept and cannot be lost.

The device powers all m-bus devices connected. It tracks continuously the m-bus network and if maximum output current is reached a LED called "over" is lit. If the current reaches certain levels above maximum or there is a short circuit – LED called "Prot" is lit and m-bus network is shut down. When the problem is solved around 20 seconds later devices start to operate normally. M-bus current levels are different for MBM-250 and MBM-64 and are related to max number of devices that can be connected. One standard m-bus load is assumed to be 1.5mA.

3. Mounting, electrical connection and setup

The mounting of MBM must be done by qualified personnel, familiar with safety instructions and setup instruction for MBM.



All MBM connections are external, described below:

No	Description
1	Power 55-250 Vac (cable included)
2	Protection Fuse - 0.5A slow-blow for MBM-64, 1A slow-blow for MBM-250
3	M-bus – polarity does not matter
4	RS-232C DB9 null modem – for programming or readout (cable included)

4. Warranty

The warranty of the device is limited to 2 years from the date of sale. If the device shows any defect or malfunctions during that period, the manufacturer is obligated to repair the device in its own service for manufacturer's expense, or, if the repair is impossible, to replace the device with the new one. The transportation costs to the manufacturer's service are due to the client. The warranty voids if this manual's instructions are not met, warranty seals are removed or the device was opened by unauthorized by the manufacturer personnel.

Serial No:.................... Sale Date:........................

Signature:........................

5. The Package Contains

- MBM – 1 pcs.
- 1xPower cable, 1xRS-232C programming cable
- Instruction Manual – 1 pcs.

6. Manufacturer

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