

M-BUS Module

User Guide



Version 1.0

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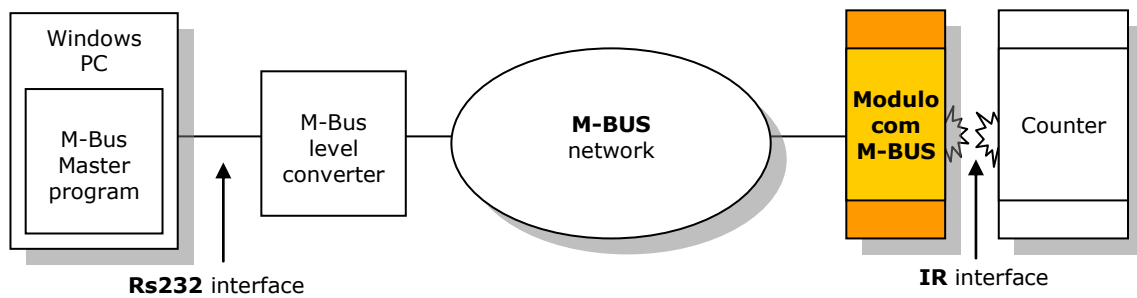
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2. Preface

2.1. System description

This document describes the usage of the **M-Bus communication interface**.

Below you have an example of connection for the module. A minimal system configuration require at least one counter beside the module and a master station (in case with a M-Bus gateway for the hardware compatibility) to control the communication and the configuration.



2.2. Software

In the CD provided with the product, you can find a **M-Bus master application** for Ms Windows ®, useful to manage the communication module for:

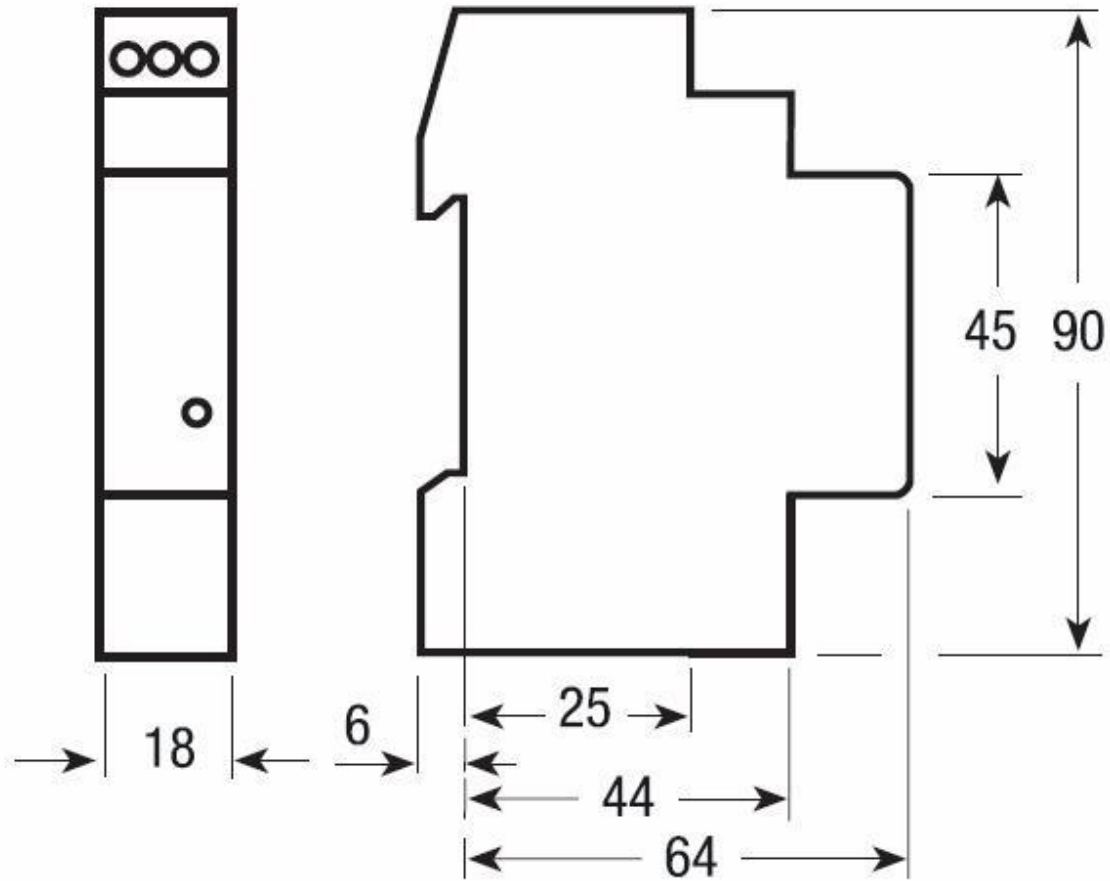
- Configuration of the M-Bus device
- Data readings
- Storage of the capture measures
- Diagnostic

A **Data analyzer** Ms Excel ® sheet is also provided to allow the generation of graphic charts starting from the data captured and stored by the M-Bus master application.

2.3. Documentation

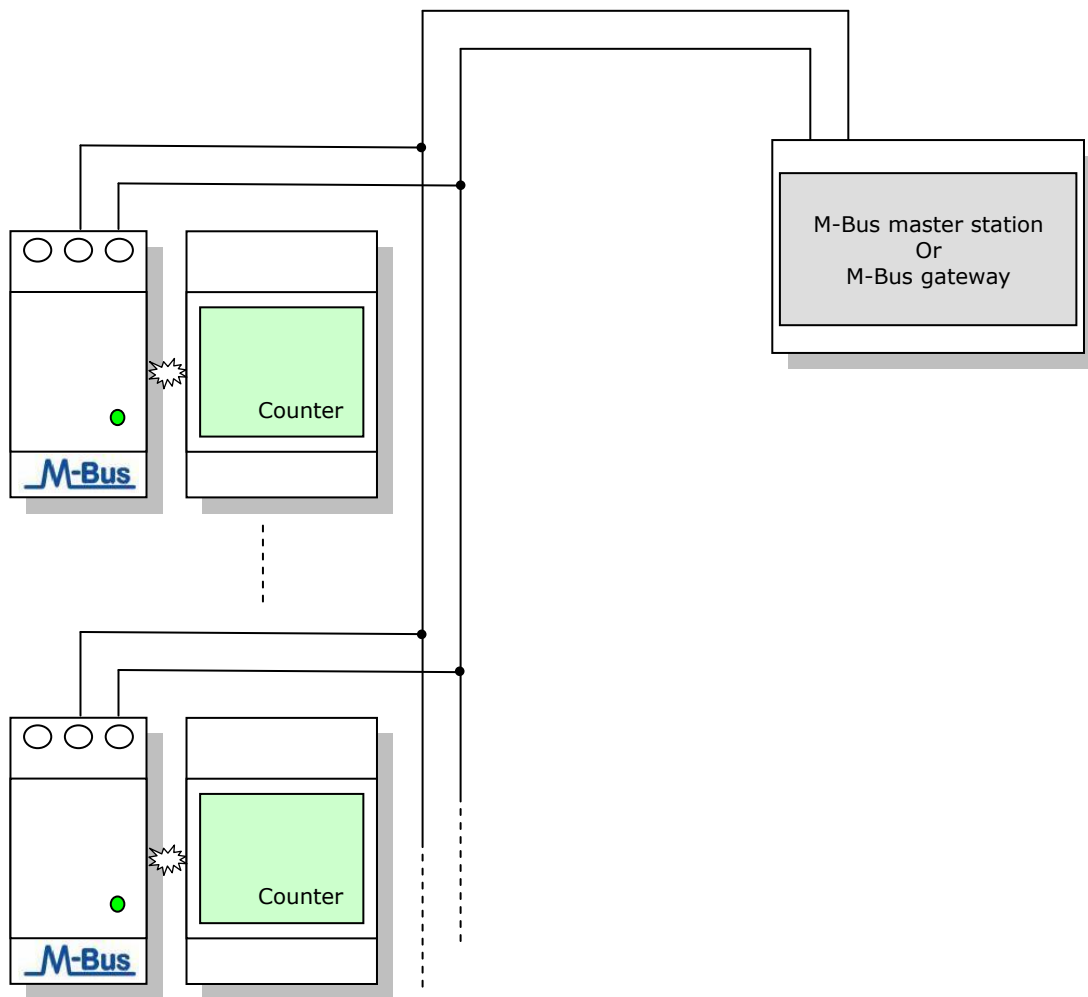
Quick start guideBasic notes for a quick installation
M-Bus module user guideThis guide
M-Bus master application - user guideManual dedicated to the M-Bus master software provided with the module
M-Bus protocol - technical referenceA detailed technical reference for the M-Bus protocol implemented on the interface.
Data analyzer descriptionShorthand guide for the Data analyzer tool.

3. Mechanical reference



4. Wiring

The only two wires to use are the one of the M-Bus data transmission. The power supply is got by the bus lines. The connection is polarity independent.



5. Technical reference

Data in compliance with EN 61010-1, EN 61000-6-2, EN 61000-6-3 and EN 61000-4-2

General characteristics - Housing - Mounting - Depth	DIN 43880 EN 60715	DIN 35 mm mm	- 1 module - DIN rail - 70
Power supply - Supply			- Through bus connection
Operating features - two models available: Type 1 for energy and power transmission type 2 for energy, power, V, I, P.F, freq. - suitable for both single-phase and three-phase energy meters			
M-BUS interface - HW interface - SW protocol - Baudrate		Baud	- 2 screw clamps - M-Bus according to EN1434 - 300 to 9600
Interface to measuring instrument - HW interface - SW protocol	Optical IR	No.	- 2 (Tx, Rx) - Proprietary
Safety acc. To EN 61010-1 - Degree pollution - Overvoltage category - Working voltage - Material group - Clearance - Creepage distance - Test voltage - Housing material flame resistance	In equipment On printed wiring boards (not coated) Impulse (1,2/50 µs) peak value 50 Hz 1 min UL 94	V mm mm mm KV KV class	- 2 - II - 300 - II - >= 1.5 - >= 2.1 - >= 1.5 - 2.5 - 1.35 - V0
Connection terminals - Type cage - Connection	Screw head Z +/- Solid wire min. (max) Stranded wire with sleeve min. (max)	POZIDRIV mm ² mm ²	- PZ1 - 0.15 (2.5) - 0.15 (4)
Environmental conditions - Operating temperature - Storage limits - Relative humidity - Vibrations - Protection class - Degree of protection	Sinusoidal vibration amplitude at 50 Hz Acc. to EN 61010-1 Housing when mounted	°C °C % mm	- 0 ... +55 - -25 ... +70 - <= 80 - +/- 0.25 - II - IP50 (IP20)

6. Settings

6.1. Default settings

Baud rate: 2400 bit/s
M-Bus Primary address: 00
M-Bus secondary address: see the label stuck on the interface case (00 00 00 00 when no label is present)

6.2. Interface types

Two types of M-Bus interfaces are available. **Type1 (energy-counter)** is for remote reading of all of the energy registers available in the measuring instrument. Additional measurements (voltage, current, power...) are readable with **Type2 (analyzer)** interface only.

Status bytes are available as well, containing information about the status of the energy meter, the load and the tariff in use.

Quantities available by default when connected with a single-phase counter:

Interface type 1 (energy counter)

Active energy imported, tariff 1
Active energy imported, tariff 2
Active Power
Tariff in use
Status

Interface type 2 (analyzer)

Active energy imported, tariff 1
Active energy imported, tariff 2
Active Power
Voltage
Current
Power factor
Frequency
Tariff in use
Status

Quantities available by default when connected with a three-phase counter:

Interface type 1 (energy counter)

Active energy imported, tariff 1, L1
Active energy imported, tariff 1, L2
Active energy imported, tariff 1, L3
Active energy imported, tariff 1, total
Active energy imported, tariff 2, L1
Active energy imported, tariff 2, L2
Active energy imported, tariff 2, L3
Active energy imported, tariff 2, total
Active Power L1
Active Power L2
Active Power L3
Tariff in use
Status

Interface type 2 (analyzer)

Active energy imported, tariff 1, L1
Active energy imported, tariff 1, L2
Active energy imported, tariff 1, L3
Active energy imported, tariff 1, total
Active energy imported, tariff 2, L1
Active energy imported, tariff 2, L2
Active energy imported, tariff 2, L3
Active energy imported, tariff 2, total
Active Power L1
Active Power L2
Active Power L3
Voltage L1
Voltage L2
Voltage L3
Current L1
Current L2
Current L3
Power factor L1
Power factor L2
Power factor L3
Power factor total
Tariff in use
Status

7. Frontal panel

A green LED reports the state of the communication with the measuring instrument:

- LED blinkingcommunication not active
- LED ON.....communication active

It can be used as diagnostic indicator to check whether or not the counter beside the M-Bus interface is sending properly the measures through the IR port.

On the frontal panel is present a RESET button that can be used to force the interface to come back to the default settings in case of needs.