

Description

The EB 401 is a M-Bus master designed to communicate with M-Bus Slaves. It complies with the EN 1434-3 specification. In case the energy is supplied from the supplied transformer, it is possible to connect up to 60 slaves to a single EB 401. The M-Bus interface is optically coupled to the RS232/485 interface.



Mechanical construction

The EB 401 is equipped with terminals for power input, M-Bus line and RS485 interface. The RS232 interface is provided via D-shell 9F connector. The EP 485 line terminator pins are located beside EP485 terminal. A jumper has to be installed over these pins in order to activate the line terminator. It is not necessary to remove any cover to access the terminals and connectors.

There are three LEDs under the transparent cover. Their function is described in table 1.

The jumper for selecting the interface (RS232/485) and another two jumpers for setting the communication mode are located under the transparent cover.

Color	Marking	Description
Red	Tx	Transmitting data to M-Bus
Yellow	Rx	Receiving data from M-Bus
Green	OK	The M-Bus is powered (turns off only when the power is cut or short circuit occurs on the M-Bus line).

Table 1 – LEDs description

The M-Bus interface

The EB401 M-Bus Master is designed to communicate with max.100 slaves. However, when using a supplied transformer, the maximum number of slaves is limited to 60.

The M-Bus line is short circuit resistant. In case of short circuit the green LED turns off. The green LED indicates the presence of the M-Bus power supply and it is directly powered from M-Bus line voltage. When the EB 401 transmits data to M-Bus the light intensity of this LED may vary. If the short circuit on M-Bus line lasts less than 10 seconds, recovery process from this state after removing the short circuit may take up to 1 second. In the case of longer lasting shorts the recovery may take more than 60 seconds. Do not connect any external voltage to the M-Bus line.

Power supply

To power the EB 401 use the supplied 230V/34V/150mA transformer. This transformer is usable for up to 60 slaves connected to M-Bus lines. Alternatively, it is possible to use other DC power supply with output voltage 44 to 48V. The power supply is to be connected to PWR terminal. It is not necessary to observe right polarity.

The color-coding of the transformer wires is as follows:

- 230V/50Hz - blue, brown
- 34V - white, green.

The power input of the EB 401 is protected by auto reset fuse.



The RS232/485 interface

The setting of the J3 jumper determines the active interface (RS232 or RS485) for output to M-Bus (RS232 is factory default). Both interfaces are active for input from M-Bus at all times (i.e. the data received from the M-Bus is always sent to both of the interfaces). This jumper is located under the transparent cover.

The J7 jumper determines the data flow control mode when the RS232 interface is selected. When the J7 jumper shorts the pins on the right side, the RTS modem signal controls the direction of data flow. When the RTS is high, the data reception from M-Bus is enabled.

Pin	Marking	Description
2	Rx	Data from RS232 to M-Bus
3	Tx	Data from M-Bus to RS232
5	GND	Ground (common)
7	RTS	Data flow control

Table 2 - RS232 interface

Should the J7 jumper short the two left pins, the data flow control mode is set to AUTO. In this mode, the data reception from M-Bus is disabled when data is transmitted to M-Bus. When the data transmission to the M-Bus stops, the data reception from the M-Bus is enabled after approx 8, or 35 ms delay. This delay depends on the J4 jumper (35 ms when J4 is installed). Factory setting of J7 is AUTO.

Marking	Description
-	Data/ of RS485
+	Data of RS485

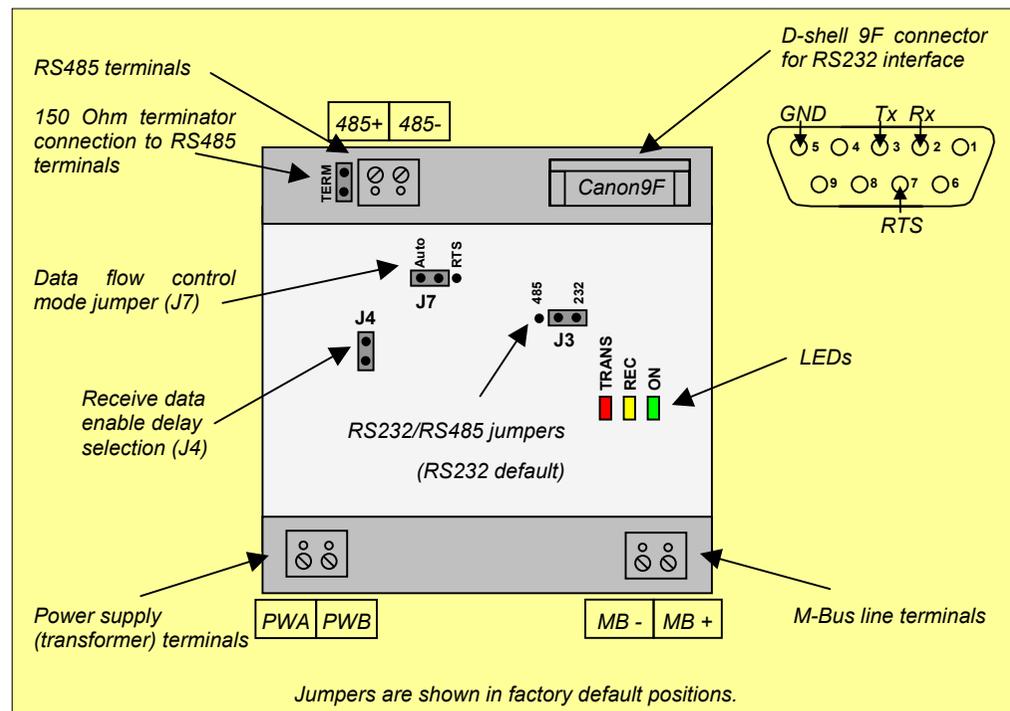
Table 3 - RS 485 interface

When the RS485 interface is selected, the AUTO mode of data flow control should be used (left side pins shorted on J7). The J4 should be installed (factory default) if 300 Bd speed is used for the communication. The 150 Ohm terminator can be connected to EP485 interface terminals by installing the jumper J8 (TERM) (factory default).

The maximum communication speed of the EB 401 is 2400 Bd.

Terminals and configuration jumpers

For connection to RS232 interface is the 9M/9F cable is used (part of the package).

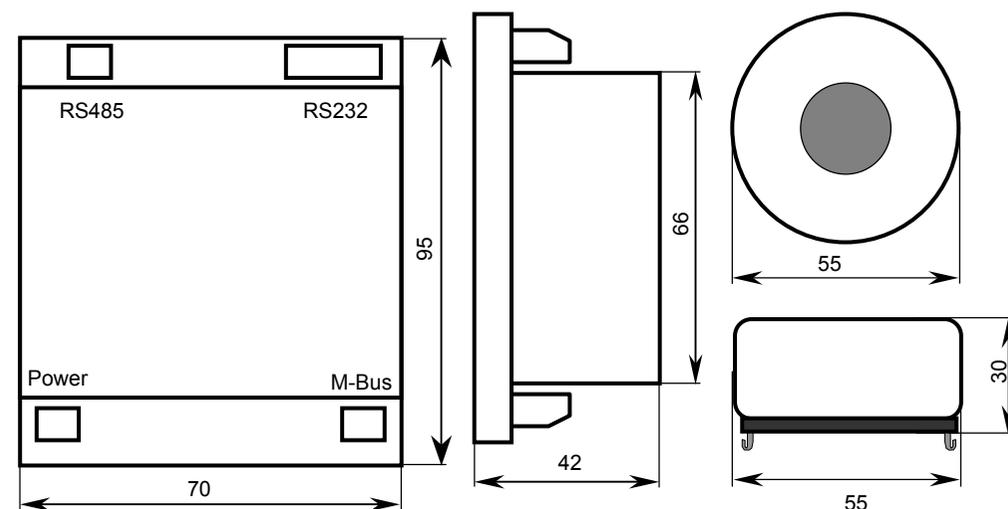


Specifications

Power supply:	34V/150mA/AC (transformer is a part of the package)
Power consumption:	depends on the number of slaves, max 5VA
Montage:	DIN 35 rail
Dimensions:	70 / 95 / 42 mm (height/width/depth)
Dimensions of the transformer:	55 / 30 mm (diameter/depth)
RS232/485 interface:	jumpers for mode selection. The RS232/485 interface is optically coupled to M-Bus interface.
M-Bus interface:	Max. 60 slaves (with standard transformer). Short circuit protection.
Recommended communication speed:	300 - 2400 Bd
Contents of the package:	EB401, Power transformer, RS232 cable 9M/9F 1.5m

Mechanical characteristics

Mechanical characteristics of the EB401 and transformer.



ALFA Mikrosystémy, s.r.o.
Rudná 839 / 90
700 30 Ostrava, Czech republic

Phone: +420 596 788 689, +420 596 788 691
E-Mail: sekretariat@alfamik.cz
URL: <http://www.alfamik.cz/>