



## MM-I485/bibi

Isolated RS232-RS485 interface



### Technical data:

- RS232 side:
  - ◆ speed: 115 200 baud
  - ◆ connection length: 10 m
  - ◆ connector: D-SUB 9
  - ◆ power supply voltage: 9V DC
  - ◆ current consumption: 100mA
- RS485 side:
  - ◆ speed: 57 600 baud
  - ◆ connection length: 1 km
  - ◆ connector: Terminal Block
  - ◆ isolation: 2,5 kV RMS
- dimensions: 108 x 43 x 28 mm
- operating temperature: 0°C...+70°C

### General device characteristics

The MM-I485 isolated interface allows many devices with the RS485 interface to be connected to one RS232 port in a computer.

The bibi system uses a specially configured interface - described as MM-I485/bibi - which allows effective cooperation with bibi system controllers. Apart from the standard function (changing RS232 transmissions into RS485 transmissions) it acts as a Master responsible for proper addressing of controllers in a RS485 network. Up to 100 bibi controllers can be connected to the interface.

### Interface power supply

The MM-I485 interface should be powered by the stabilized 9V DC power supply allowing for 100mA current consumption. Power is supplied at the RS232 side of the device.

### The RS232 connection

This link is a D-SUB9 socket. It can be plugged directly into the COM port of a computer or by using a typical screened RS232 DB-9 DB-9 cable.



The MM-I485 interface uses 4 signal wires: RxD, TxD, RTC, CTS and the GND ground wire.

### Isolation

Devices in an RS485 network can be installed in different, remote places. That is why the ground potential of each controller can be different. If a lightning strikes or there is an overvoltage the difference of potentials can reach big values.

To avoid the flow of too big currents which appear during such situations, the interface is equipped with galvanic isolation which withstands 2,5 kV RMS.

In addition all other RS485 devices from the bibi system have the same galvanic isolation.

### The RS485 connection

The RS485 connection must have the form of a single line (cannot branch) which runs through all connected controllers and the MM-I485 interface. The maximum length of such a connection is 1000 m. It is possible to connect individual devices by short stub lines from the main line. Maximum length of such a stub line is 10 m. A connection with short stub lines makes it easier to disconnect (if necessary) one of the controllers without braking connection with others.

The connections should be made using a UTP cable (commonly used in computer networks). The connection uses two pairs of wires.

Each device connected to the RS485 line (controllers, the interface) has three terminals (labeled RSA, RSB and RSG) destined for this connection. Wires should be connected in the following way:

- first pair of twisted wires:
  - wire 1 - connects RSA terminals of all devices
  - wire 2 - connects RSG terminals of all devices
- second pair of twisted wires:
  - wire 1 - connects RSB terminals of all devices
  - wire 2 - connects RSG terminals of all devices

The RSG terminals (isolated ground of the RS485 connection) are connected with two wires (one in each pair). Those two wires should be additionally connected in one place with the protective ground of the building. It is easiest to make that connection next to one of the controllers. The connections of the isolated ground of the RS485 line prevents from gathering of electrostatic charges in the line. It is very important to make that connection in only one place. If the RSG wires would be connected to the building's protective ground in many places it would cause the flow of circulating currents which would annihilate the effectiveness of the galvanic isolation used in the controllers.

To avoid reflections in the RS485 line, suitable resistors should be placed at its ends. That is why there should be END jumpers placed in devices at the ends of the line. These jumpers should be taken out of all other devices.

The MM-I485 interface can be one of the devices in the line, just like any of the controllers. This allows to run the RS485 line in both ways of the computer. To remove the END jumper in the MM-I485 interface it is necessary to open the casing (normally the jumper is on).

