

MBC-24 Modbus RTU-ASCII-TCP Gateway (RS485 / Ethernet) Short guide

Safety



WARNING

Dangerous voltage!

Electric shock could kill or seriously injure.

All electrical connections must be performed by a fully qualified electrician.

Ensure that the mains voltage matches the voltage marked on the device.

Ensure that the device is provided with its own power supply line and electric fuse.



NOTICE

Switch on the power supply only after wiring of the device has been completed.

1. Overview

The MBC-24 Modbus RTU-ASCII-TCP Gateway is designed for bidirectional conversion and routing communication between ModbusRTU / ASCII via RS485 and Modbus TCP via the Ethernet interface. The Master and Slave modes are supported.

For detailed information please refer to the MBC-24 user guide available at www.akytec.de.

2. Specifications

Table 1 Specifications

Parameter	Value
Power supply	
Power supply	24 (10...48) V DC
Power consumption, max.	6 W
Galvanic isolation	1770V
RS485	
Protocols	Modbus RTU (Master/Slave) Modbus ASCII (Master/Slave)
Baud rate	1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 115200 bps
Cable length, max.	1200 m
Default address	1
Number of Slaves, max.	32
Ethernet	
Protocol	Modbus TCP (Master/Slave)
Baud rate	10/100 Mbps
Type of connector	8P8C (RJ45)
Default address	192.168.1.99
Slave ID (fixed)	1

Parameter	Value
Number of Slaves, max.	31
USB	
Standard	USB 2.0
Connector type	Micro-USB
Device power supply	yes
Mechanical	
Mounting	DIN rail
Dimensions	55 × 96 × 58 mm
IP code	IP20
Weight	approx. 150 g
Average service life	10 years
Mean time between failures (MTBF)	80000 hours

3. Environmental conditions

The device is designed for natural convection cooling which should be taken into account when choosing the installation site.

The following environmental conditions must be observed:

- clean, dry and controlled environment, low dust level;
- closed non-hazardous areas, free of corrosive or flammable gases.

Table 2 Environmental conditions

Condition	Permissible range
Ambient temperature	-40...+55 °C
Relative humidity	10...95 % (non-condensing)
Altitude	up to 2000 m above sea level
EMC emission / immunity	conforms to IEC 61131-2
Vibration / shock resistance	

4. Dimensions

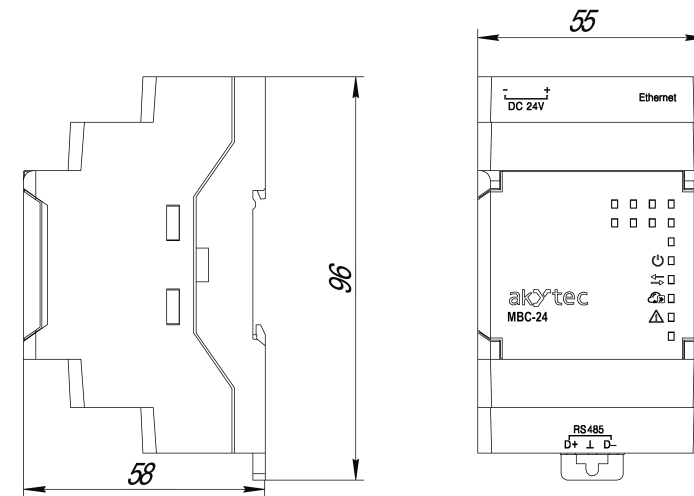


Fig. 1 Dimensions

5. Connection

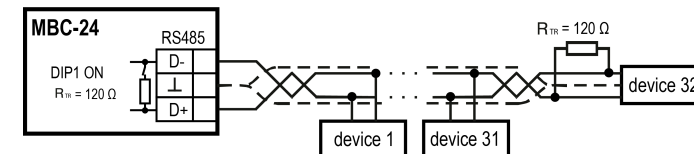


Fig. 2 Connection

6. Indication and control

There are 4 LEDs on the front panel of the gateway:

Table 3 Indicators

LED	State	Description
⏻	ON	Power is on
RS	Flashing	Data transfer over RS485 interface
Eth	Flashing	Data transfer over Ethernet interface
⚠	OFF	No errors
	ON	Error (see Table 4)

Table 4 Error indication and remedy

LED	State	Description	Remedy
	ON	Hardware / firmware error	Contact akytec service staff
	Flashing	Static IP address setup error	Reassign IP address if it was configured using <i>akytec Tool Pro</i>
		Cannot establish connection over Ethernet	Check the Ethernet cable and connection
	ON (Power, RS, Warning triangle)	Invalid RS485 configuration: 7-N-1	Select a valid combination of parameters (see Table 5)
	ON (All LEDs)	Firmware startup error	Restart the device. Repeat the firmware update if necessary

Table 5 Supported Modbus data parameters' combinations

Modbus RTU	Modbus ASCII
8-N-1	8-N-1
8-N-2	8-N-2
8-O-1	8-O-1
8-O-2	8-O-2
8-E-1	8-E-1
8-E-2	8-E-2
—	7-O-1
—	7-O-2
—	7-E-1
—	7-E-2

**NOTE**

The parameter value Data bits = 7 is not supported by Modbus RTU.
The combinations 7-N-1 and 7-N-2 are not supported by Modbus ASCII.

Under the cover:

- Service button
- 4 DIP switches;
- Micro-USB connector.

The service button can be used for the following functions:

- Factory settings restoration (long press up to 12 s.);
- Device reset (short press).

**NOTE**

DIP switch positions are read in ascending order starting from 1.

Table 6 DIP switches

DIP switch	Description
 DIP1 = ON	120 Ω terminating resistor is connected
 DIP2 = ON	Only for akytec service staff. DIP switches 2, 3 and 4 must be turned off during normal operation
 DIP3 = ON	
 DIP4 = ON	

7. Using the device

The gateway configuration parameters must be set before using the device. Connect the gateway to the *akytec Tool Pro* software and set the following configuration parameters: the operation mode, the connected device address in the RS485 network, Ethernet settings, and the data conversion protocol required. After the gateway is disconnected from PC and powered, it starts bidirectional Modbus RTU/ASCII and Modbus TCP conversion.

For more information please see HELP of the *akytec Tool Pro* software and the MBC-24 user guide available at www.akytec.de

Before use it is necessary to determine the interface to be assigned for Master and then configure the data communication scenario accordingly.

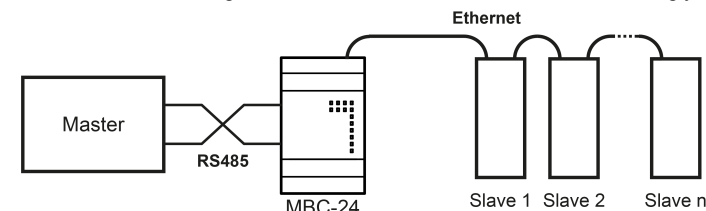


Fig. 3 Using the gateway with Master via RS485 interface

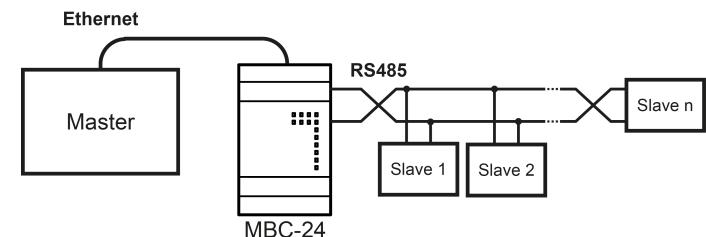


Fig. 4 Using the gateway with Slaves via RS485 interface