Default communication parameters

The default communication parameters (i.e. segment 8 of the DIP switch set to the ON position when the converter firmware is started) are set to the values:

LAN	IP:	192.168.0.99
	mask:	255.255.255.0
	gateway:	192.168.0.200
	port:	502 (fixed)
Modbus TCP server	UnitID:	255
	timeout:	5 s (see note 1)
Modbus RTU master	baud rate:	9600 Bd
	parity:	even
	timeout:	330 ms (see note 2)
	repetition:	without repetition (see note 2)
Modbus RTU slave	baud rate:	9600 Bd
	parity:	even
	address:	247
USB + COM port	baud rate:	115200 Bd
	parity:	sudá
	address:	255

The operating parameters (i.e. parameters defined by the configuration program and stored in the EEPROM) are factory-set to the same values as the default.

- *Note 1:* If the Modbus TCP client is idle for longer than the set timeout, the MU-1052M* close the TCP connection. For further communication, the Modbus TCP client must reopen the TCP connection.
- Note 2: If the Modbus RTU device connected to the "master" interface does not respond within the time defined by the set timeout, the MU-1052M* does not wait any longer and continues with another attempt (up to the set number of retries). If communication with a Modbus RTU device fails, the MU-1052M* will respond to the Modbus TCP client with error code 11.

The MU-1052M1 version is equipped with a USB device interface. In addition to the normal operating function (i.e. configuration or communication with I/O modules connected to the Modbus RTU Master interface), it allows powering control core of the converter from the USB port, so no power supply is required for configuration. The MU-1052M2 version is equipped with a USB host interface. The interface is intended only for configuring the converter parameters from a file stored on a flash drive created by the converter configuration program without the need for a computer connection. Both USB connectors are accessible after removing the front panel of the housing.

 Manufacturing, sales office, service center and technical support:

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 TEDIA spol. s r. o.

 Zabelska 12, 31200 Plzen, Czech Republic

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CE

MU-1052M* (version M, M1, M2)

Installation Guide

(further guides and software available at https://www.tedia.eu/mu)

General description

The MU-1052M* converter (all versions) works as a Modbus TCP to Modbus RTU converter. (RS-485) and allows access to the RS-485 line by up to four Modbus TCP clients concurrently.

In addition to the main RS-485 line with Modbus RTU master function, the module is equipped with a second RS-485 line with Modbus RTU slave function, which allows communication with modules on the Modbus RTU master interface concurrently with Modbus TCP clients (MU-1052M* works as a converter of two Modbus RTU segments with the possibility of setting different transmission parameters). RS-485 lines are not isolated from each other.

The MU-1052M1 includes an isolated USB device interface with a driver creating a virtual COM port and enabling the same functions as an RS-485 Modbus RTU slave line. All versions of MU-1052M* can be configured from the LAN interface and second RS-485 line, version M1 additionally via USB interface; all interfaces can also be used for remote supervisioning. The MU-1052M2 converter is additionally equipped with a USB host interface, which allows configuration from a file stored on a flash drive.

General instructions for use

The DAQ&C modules of the MicroUnit serie may be used only according to the manufacturer's recommendations and precautions given in manuals and other general standards and terms and may be used only such a way, that its failure caused by any reason will not be dangerous to any person or property.

Instalace

The converters are intended for mounting on a 35 mm DIN rail, operating temperature of -10~60 °C with relative humidity up to 90%, noncondensing. The location and meaning of the terminals are described in the figure and in the tables.

When connecting the power supply ($10 \sim 30 V_{DC}$; power consumption 2.0 W max.), it is necessary to pay attention to the correct polarity and voltage tolerance; failure to observe the permitted limits may result in permanent damage. Also, connecting the supply voltage to another terminal of the module can cause permanent damage.

When connecting the communication line, use shielded double line cable meeting RS-485 requirements. The cable shield must be connected to terminal 11.

Technical specifications

LAN interface:	10BaseT/100BaseTX (RJ45)
supported protocols:	IPv4, ARP, ICMP, UDP, TCP,
	DHCP (from 10.2024)
communication interface:	2x RS-485 (rychlost 2400 Bd ~ 115,2 kBd),
	USB device + virtuální COM port (ovladač)
termination impedance:	120 Ohm / 0,3 V (RS-485 Modbus RTU master)
wire length:	100 m max. (ehernet, UTP)
	1200 m max. (RS-485)
	2 m max. (USB)
housing dimensions:	90x60x55 mm

eight configuration switches located under the terminal cover (to release the cover or front panel, carefully press on the housing at the arrow location)



Supply voltage and communication line terminals		
11	PGND (supply voltage, negative)	
12	PWR (supply voltage, positive)	
13	TX/RX- (RS-485, signal A), Modbus RTU slave	
14	TX/RX+ (RS-485, signal B), Modbus RTU slave	
15	TX/RX- (RS-485, signal A), Modbus RTU master	
16	TX/RX+ (RS-485, signal B), Modbus RTU master	

Meaning of LED indicator

- 17 green LED indicating the presence of supply voltage on terminals 11/12
- 18 yellow LED indicating the activity of one of the RS-485 lines
- 19 yellow LED indicating LAN activity

Meaning of DIP switch segments

- 1 terminating impedance of the RS-485 Modbus RTU master line
- 2 (ON-ON turns on, OFF-OFF turns off, other combinations are not allowed)
- 3 ON turns on the backup battery (reserved for special converter versions)
- 4 ON blocks writing to the 1st Flash memory (contains configuration data)
- 5 ON blocks writing to the 2nd Flash memory (reserved for special versions)
- 6 ON activates special mode (reserved for backup converter firmware)
- 7 ON enables the firmware update function (see description of the software utility)
- 8 ON sets default communication parameters (OFF user values), see the next page

Note: The position of segments 6-8 is detected only when the supply voltage is turned on or the converter is restarted. Default position is all OFF.