domat
control system

M035	Ethernet – RS485 data converter and Modbus RTU / TCP router

Summary

M035 is a RS485 to 10/100 Mbit Ethernet converter, also called „terminal server", configurable as Modbus RTU/TCP router.

Applications

- ▪ **remote Modbus RTU / RS485 devices to SCADA Modbus IP connection via Ethernet network**

Functions

The M035 module is able to connect a Modbus RTU RS485 device to a PC with Modbus TCP master via an Ethernet network. Maximum RS485 communication speed is 115 200 bps.

The module parameters and functions are configured over a secured web communication (HTTP / HTTPS protocols). Default IP address is 192.168.1.37/24, or use configuration utility which is available at **www.rcware.eu**, Download, Software, Digi utility. Power presence is indicated by a green LED close to the Ethernet connector. The Ethernet connector provides two LEDs: Link (yellow) and Network activity (green). The network switches automatically between 10 and 100 Mbit/s.

The Modbus RTU slave at RS485 device connects through 2-wire connector. It is possible to terminate the RS485 bus by setting the two jumpers below to ON. The RS485 bus is galvanically isolated (insulation voltage 1000 V).

Technical data

Supply voltage	10 V ÷ 35 V DC, 14 V ÷ 24 V AC, any polarity
Consumption	1500 mVA
Working temperature of the device	-40 ÷ 85°C
Communicatio	high speed RS485, 1200 ... 115 200 bit/s
Ethernet	automatic 10 or 100 Mbit/s
IP addressing	fixed or DHCP assigned IP address
Protocols	TCP, UDP, DHCP, SNMP, SSL / TSL, Modbus, HTTP, SMTP, ICMP, IGMP, and ASR
Security	based on SSL V3.0 / TSL V1.0 (DES 56 bit, 3DES 168 bit, AES 128 / 256 bit)
Memory	4MB Flash, 8MB RAM
Dimensions	see below

Terminals

1, 2	power supply, any polarity
TE	technical ground (optional)
Ethernet	Ethernet network, RJ45 8 pin connector
K1+, K1-	RS485, Modbus RTU

Commissioning

In case the communication on the serial port seems not to be working, check the configuration and set it as follows:

- start telnet and enter the IP address of the M035, eg.: **telnet 192.168.1.37**

- log in as user: **root**, password: **dbps**

- set the industrial automation profile: **set profile port=1 profile=ia**

- reboot device: **boot action=reset**

Or perform the IA port profile settings over the web interface, which is available at TCP port 80 with the same user name and password as above.

The Modbus router listens at the default Modbus TCP port 502.

Do not change the advanced settings in the web interface unless you know what you are doing. False settings may result in communication trouble, timeouts etc.

RTU Master

If the converter is connected as RTU Master the RS485 interface is connected to the communication master (client), the Ethernet interface is at the Slave side (which is Modbus server(s)). The settings can be changed in the **Configuration / Serial Ports / Port Profile Settings / Industrial Automation Settings / Change Protocol** menu; select **Serial Master** (default is Serial Slave).

The Modbus RTU devices at RS485 are connected over a 2-pole removable connector. The RS485 bus may be terminated by a pair of BUS END switches set to ON.

LEDs and switches
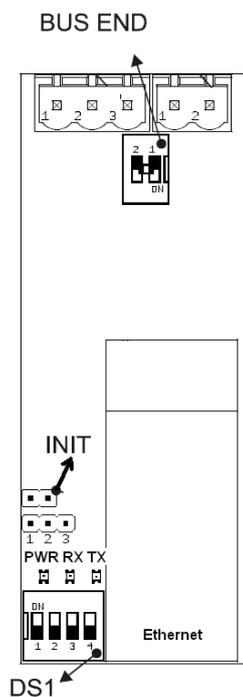
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BUS END	RS485 bus termination
INIT	Ethernet chip init jumper
PWR	power OK, green LED
RX	receive data from RS485, green LED
TX	transmit data to RS485, red LED
Ethernet	Link, yellow LED
	Network activity, green LED
DS1	RS485 Baud rate switch:

SW DS1	1	2	3
1 200 bps	OFF	OFF	OFF
2 400 bps	ON	OFF	OFF
4 800 bps	OFF	ON	OFF
9 600 bps	ON	ON	OFF
19 200 bps	OFF	OFF	ON
38 400 bps	ON	OFF	ON
57 600 bps	OFF	ON	ON
115 200 bps	ON	ON	ON

SW4 - OFF 8 bit
- ON 9 bit

Dimensions

Application example

Serial Slave connection   Serial Master connection
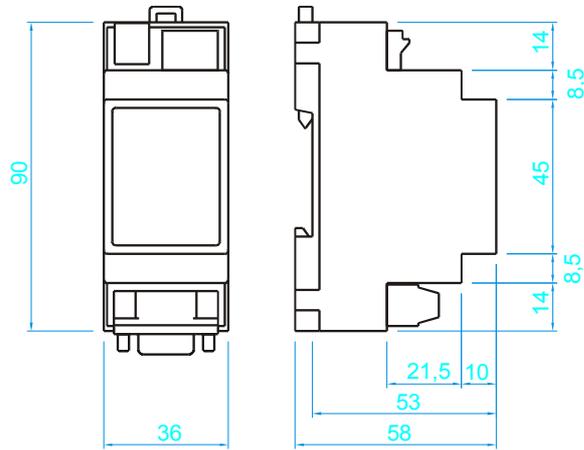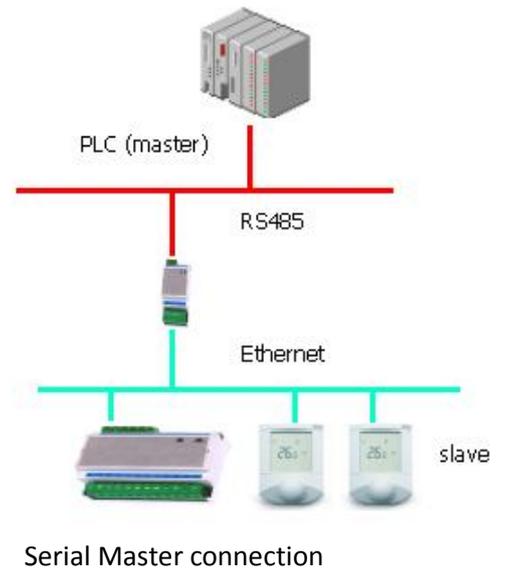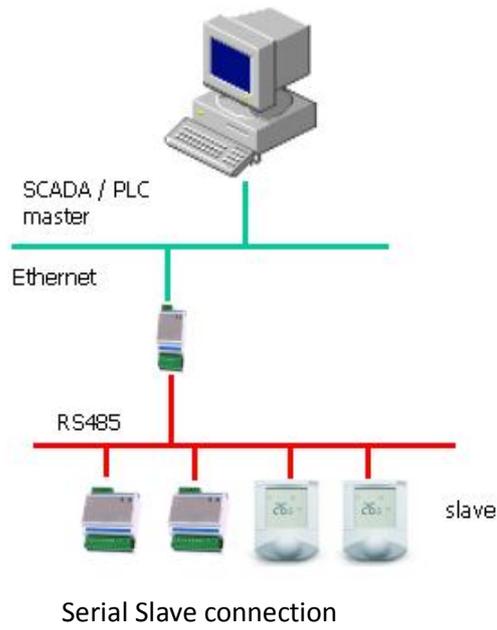
Related products	**UC100**	communicative heating controller
	UC200	communicative heating and cooling controller
	UC300	communicative floor heating controller
	FC010	communicative fan coil controller
	FC020	communicative fan coil controller for analogue room unit
	RC-Vision	SCADA software
	IPCT.1	process station with touch screen
	M020	RS232 / Ethernet converter, terminal server
	M025	RS232 / Ethernet converter, Modbus router
	M030	RS485/422 / Ethernet converter, terminal server
	M031	RS485 / Ethernet converter, terminal server
	M040	RS232 / WiFi converter, terminal server
	M050	RS485 / WiFi converter, terminal server