Data Logger
Short guide

1. Overview

MSD200 is intended for data monitoring and logging in industrial automatic control systems.

The device can operate as Master or Slave via Modbus RTU / ASCII or AKYTEC protocol over RS485 interface.

The device can be configured with the configuration tool *MSD200 Configurator* via USB or RS485 interface. The configuration tool as well as the complete user manual is available on the device page at *akYtec.de*.

2. Environmental conditions

- Ambient temperature: –10 … +55 °C
- Transportation and storage: –15 … +55 °C
- Relative humidity: up to 80 % (at +25 °C, non-condensing)
- Altitude: up to 2000 m ASL
- Clean, dry and controlled environment, low dust level
- Closed non-hazardous areas, free of corrosive or flammable gases

3. Specifications

General specification	
Power supply	24 (20…33) V DC
Appliance class	III
Power consumption, max.	5 W
Interfaces	2x RS485 (RS1, RS2); 1x USB
Dimensions (with terminal blocks)	23 x 109 x 120 mm
Weight	Approx. 150 g
Analog inputs	
Quantity	4
Input signal	0-5 mA, 0-20 mA, 4-20 mA
Sampling time	100 ms
Basic accuracy	±1.0%
Input resistance	133 Ω
Galvanic isolation between inputs	None
Logging	
Log channels	64
Dataset size (per channel), max.	20 Byte
Memory card type	SD, SDHC, microSD
Memory card capacity, max.	32 GB
Memory card fie system	FAT32
File type	*.CSV
Logging cycle	1…65535 s
Backup battery	CR2032
Backup time	2 years
RS485 interfaces	
RS1 (PC) — Operation mode	Slave
RS1 (PC) — Protocol	Modbus RTU
RS2 (DEV) — Operation mode	Master, Slave, Slave Ext, Spy*
RS2 (DEV) — Protocol	Modbus RTU, Modbus ASCII, AKYTEC
Baud rate	1.2…115.2 kbit/s
USB interface	
Type	USB 2.0
Transport layer protocol	CDC
Application layer protocol	Modbus RTU
Baud rate	79 kB/s
Cable type	USB A/B

** With AKYTEC protocol only.*

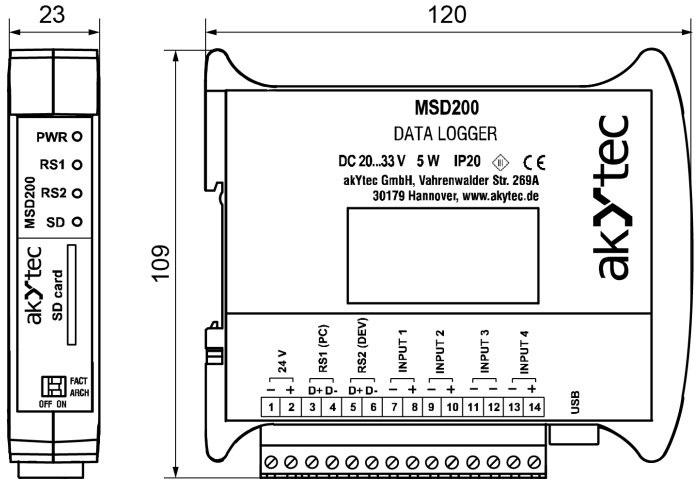

Fig. 1

4. Installation and connection

WARNING
Ensure the mains voltage matches the voltage marked on the nameplate.
Ensure the device is provided with its own power supply line and electric fuse.

NOTICE
De-energize the device before working on it.
Switch on the power supply only after completing all works on the device.

NOTICE
Supply voltage may not exceed 33 V. Higher voltage can damage the device.
If the supply voltage is lower than 20 V DC, the device cannot operate properly but will not be damaged.

NOTICE
If the device is brought from a cold to a warm environment, condensation may form inside the device. To avoid damage to the device, keep the device in the warm environment for at least 30 minutes before powering on.

NOTE
To ensure compliance with the EMC requirements:
- Signal cables should be routed separately or screened from supply cables.
- Shielded cable should be used for signal lines.
- Use a shielded twisted pair cable for RS1/RS2 interfaces.

NOTE
When the device is connected over USB, the RS1 interface is temporarily disabled. The RS1 interface is available again when the USB interface is disconnected.

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Mounting

1. According *Fig. 2*.
2. Wire external connections in accordance with *Fig. 3* using plug-in terminal blocks (included).

Removal

1. Take off the terminal blocks without disconnecting the wires (*Fig. 4*).
2. Insert a screwdriver into the eyelet of the slide interlock.
3. Loosen the slide interlock by pushing it with the screwdriver in direction of arrow 1, then remove device from the DIN rail in direction of arrow 2 (*Fig. 5*).

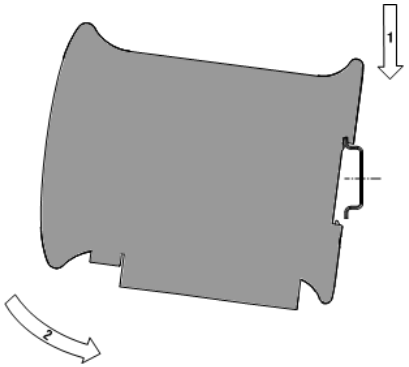

Fig. 2 Mounting on the DIN-rail

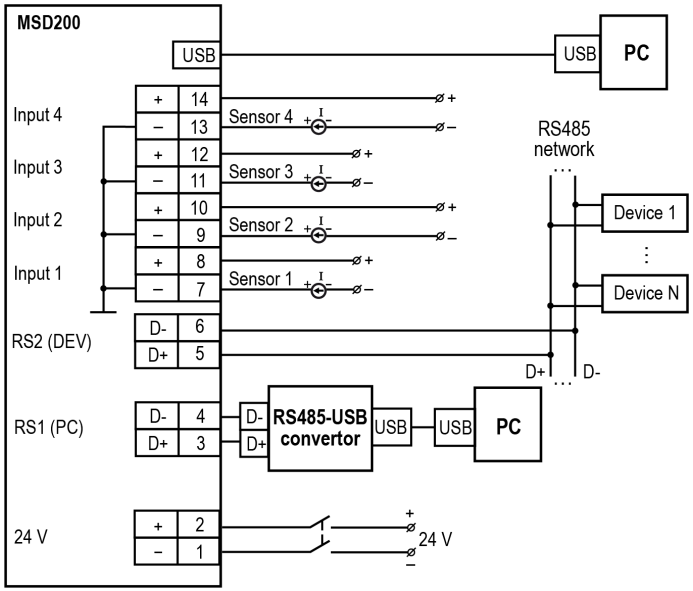

Fig. 3 Connection diagram

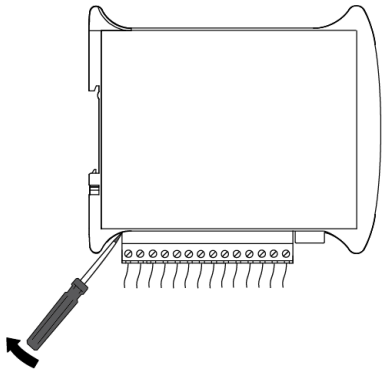

Fig. 4 Replacement of terminal blocks

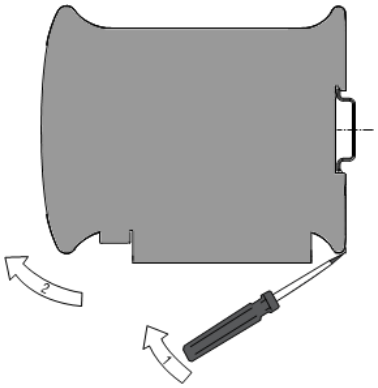

Fig. 5 Removing from the DIN-rail

5. Control elements

LEDs and DIP switches on the front panel:

Table 1 DIP switches

DIP switch	State	Description
FACT	Off	RS1 interface parameters (device address and baud rate) are set to user settings
	On	RS1 interface parameters are reset to default: Device address = 16 Baud rate = 9.6 kbit/s
ARCH	Off	Stop data logging
	On	Start data logging

Table 2 LEDs

LED	Color	State	Description
PWR	—	Off	Supply voltage off or outside the permissible range
	Green	On	Supply voltage inside the permissible range
RS1	—	Off	No data transmission over RS1 or USB
	Green	Flashing	RS1 or USB with user settings, data transmission in progress
	Yellow	On	RS1 or USB with default settings
		Flashing	RS1 or USB with default settings, data transmission in progress
RS2	—	Off	No data transmission over RS2
	Green	On	Interval between data packets
		Flashing	Data packet received over RS2
	Yellow	On	Interval between data packets, query cycle exceeded, no timeout
	Red	On	Interval between data packets, timeout
SD	Red	On	No memory card, data stored to the built-in flash memory
		Flashing	Data loss, memory card or built-in flash memory is full
	Green	On	Logging paused, memory card can be removed
		Flashing	Logging in progress, memory card inserted and CANNOT be removed
	Yellow	On	Memory card inserted, logging stopped

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