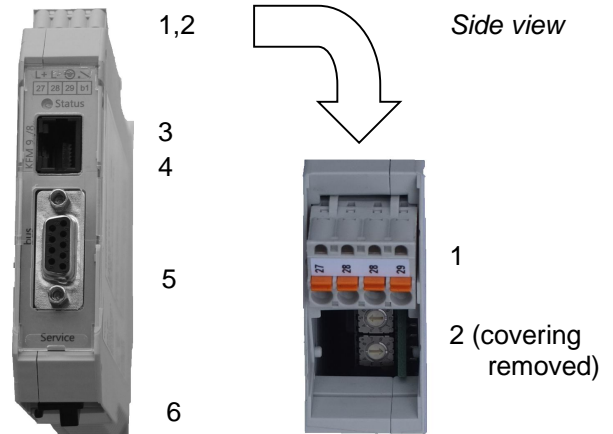


- 1 Terminals supply voltage
- 2 Coding switches address adjustment
- 3 Status-LED
- 4 RJ-45 connector KFM device
- 5 9-pole D-SUB plug Modbus- RTU
- 6 Configuration interface (service) for PC connection



Brief description:

The connection of KFM devices to the MODBUS- RTU is realised by the external bus adapter 99sm.. which is configured to the requested transmission data e.g. actual value and setpoint. The MODBUS interface is able to replace separate wiring of external analogue (external setpoints, signal outputs) or digital signals (via binary inputs and status bits respectively via relay outputs and control bits).

The MODBUS interface is carried out as RS232-, RS485- or RS422- bus interface. The adapter has to be connected directly to the bus wiring using the 9-pole D-SUB plug.

Suitable resistors (e.g. in the connector plugs) must be present at the beginning and at the end of the bus line for communication via data bus. Shielded and twisted cables must be used. Lay the shield to ground potential. The communication between the adapter and the service interface of the KFM device takes place by a patch cable(1,5m), which is delivered with each adapter. For each segment 32 devices could be installed, with a repeater up to 99. The bus adapter provides the MODBUS-functions 01/05 (read single bit), 03 / 04 (read input register) and 16 (write multiple register). Analogue values are transmitted as 2 x 16 bit floating point numbers, binary values as 1 bit or 2 byte-word (16 bit, if necessary a multiple of it). The function of the adapter can be supervised by a fault bit. Additionally connection faults are recorded in the fault memory for diagnostic purposes.

Types:

fifth and sixth position

99sm04. Adapter for 4 MODBUS values, power supply 24V DC
 99sm12. Adapter for 12 MODBUS values, power supply 24V DC
 99sm28. Adapter for 28 MODBUS values, power supply 24V DC

seventh position

99sm..2 for RS 232 interface
 99sm..4 for RS 485 interface
 99sm..6 for RS 422 interface

device variants (last number):

.0 Functional module without power supply for connection to power supply modules
 .0i Functional module for connection to power supply of already existing KFM-assemblies

Power supply module:

99e500 Power supply module 100-250 V AC

Adjustments:

The MODBUS adapter is delivered preadjusted. In case of changes, the preadjustments can easily be modified by a configuration program in the WinPKS PC software via the service interface.

	<i>designation</i>	<i>KFM parameter</i>	<i>MODBUS-register#</i>	<i>factory setting read / write</i>
Data word 1	Control word 1	1004	10 ("Dec")	write
Data word 2	Bus setpoint 1	1060	20 ("Dec")	write
Data word 3	Actual value 1	1010	30 ("Dec")	read
Data word 4	Actual value 2*	1011	40 ("Dec")	read
* = depending on type # =memory area in the modbus master for further parameter codes according to protocol KFM 2.0 refer to manual 99sm.				
Bus monitor	Monitor check time (0..100 sec), period within which a bus request shall take place, otherwise LED signals a failure. <i>Hint: Bus monitor is deactivated by setting 0</i>			5
Delay time	Delay time (0..250ms) for a modbus-adapter reply			0
Baudrate	Modbus baudrate (9600/19200/38400)			9600
Parity, Stopbits	Modbus parity (None/Even/Odd), number of stopbits (1, 2)			none, 2 stop
Bus address	0..99, Coding switch , available after removing the covering			5

Hint: In case of multiple bus participants different addresses are to be adjusted !

Commissioning:

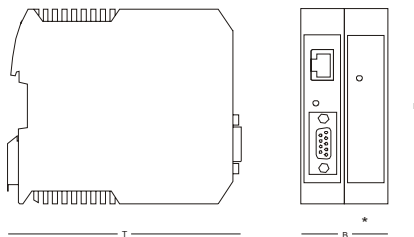
Set the desired modbus-address by use of the coding switch. Connect Modbus with 9-pole D-SUB connector and patch wire (1,5m) with service interface of the KFM device.

Use of the supply voltage on the Modbus interface only for terminating resistors.

The LED on the front signalises the operating status:

- yellow permanent: Normal operation
- yellow flashing: Communication error between KFM device and MODBUS adapter
Hint: all transmitted values of the respective device are set to "0", bit 8 of the respective status byte (communication error) ist set to "0".
The respective fault memory will be increased by 1.
- red flashing: Communication error MODBUS, MODBUS not active,
the respective fault memory will be increased by 1.
- red yellow flashing: Communication error MODBUS and KFM device,
each fault memory will be increased by 1.

Installation dimensions:



H= 99mm, * Version without or with power supply module: B = 22,5mm or 45mm, T = 116mm

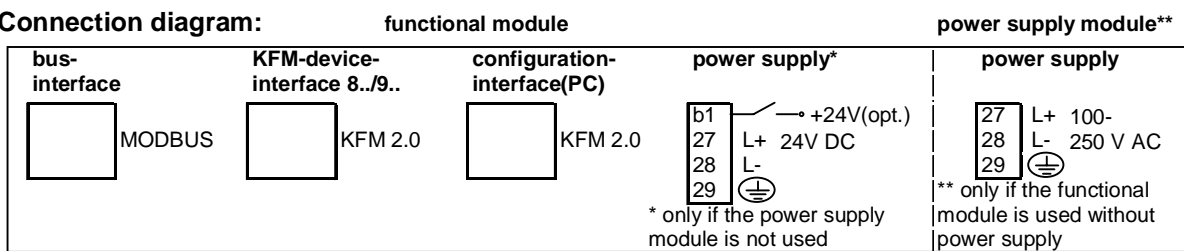
Technical data:

- Housing: for fastening to 35mm mounting rail
- Installation orientation: optional
- Type of protection: IP20 according to EN 60529
- Perm. ambient temperature: 0..60°C
- Nominal temperature: 20°C
- Power supply: 24V DC, about 100 mA

Technical data:

Modbus-interface:	RS232	RS485	RS422
Connection (serial):	asynch.,2-wire (+GND)	asynchronous, 2-wire	asynchronous, 4-wire
Cable lenght	15m	1000m	1000m
Max. number of devices:	1	31	31

Connection diagram:



Wiring example:

