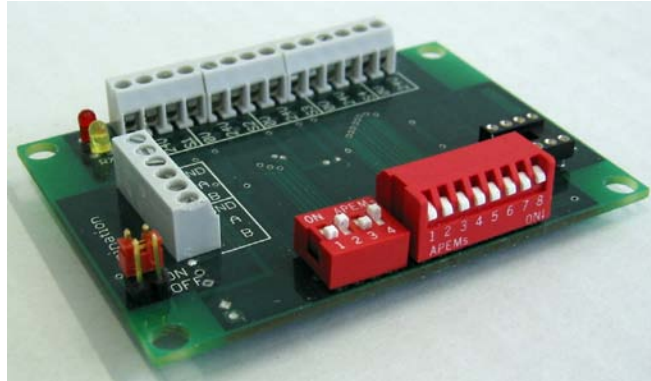


MODBUS CARD FOR 4-20mA SIGNALS FOR GAS DETECTION SYSTEMS



MODBUS card

1. Setting and Function of Switches

1.1 Address Switch

On the MODBUS card, the address switch configuration is as follows ("ON" corresponds to 1):

Quality rating of switches:

LSB

MSB

1	2	3	4	5	6	7	8
1	2	4	8	16	32	64	128

Switch

Quality Rating

Setting of address 5 as follows:

LSB

MSB

1	2	3	4	5	6	7	8
On	Off	On	Off	Off	Off	Off	Off

Switch

Setting



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1.2 Baud Rate Switcher

With the help of this switcher, the speed of data communication can be adjusted.

Baud rate	Switch 3	Switch 4
2400 bits/s	off	off
9600 bits/s	on	off
14400 bits/s	off	on
19200 bits/s	on	on

1.3 Parity Switch

With the help of this switch, the parity of data communication can be adjusted. Data communication is possible without parity or with even parity.

Parity	Switch 2
Even parity	on
No parity	off

1.4 Termination

Each MODBUS card can be terminated by plugging "On" or "Off" with 120 Ohm. Typically the farthest MODBUS card has to be terminated "On".

2. Measuring Input

The analogue measuring input is for mA measuring. A sensor with 4 – 20 mA current interface is possible.

Measuring range	0 – 25mA
Metering precision	> +/-2% minimum 0,04mA
Load	390 Ohm +/-1%

Measuring inputs can be read by the input register (30004 to 20007). The indicated value shows the measuring signal as 0,01 mA.

Should an error occur in the reference voltage or in the conversion value, a measuring value of "0" is shown on the input register. The status of the device can be seen on input register 30003.



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3. Input Register

30001 : Type Of Device

Return of identification

Type of device	Device identification
MODBUS card	0 x 9000

30002 : Software update MODBUS card

Shows update status of the MODBUS card. The number corresponds to software status.

30003 : Status of device and error register

Indicates status device. If the device is working and is fault free, the value 0 or 1 is returned.

If not, the internal proof routines detect an error.

The meaning of the bits is explained in the following list:

Bit	Function		Reason
15	No function		
14	No function		
13	No function		
12	Testing of conversion parameter	0 1	OK Not less than 1 parameter out of range
11	Testing of internal voltage rates	0 1	OK The internal voltage rates are wrong



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10	Checking of program memory	0 1	OK Test result is wrong
9	Testing of conversion parameter	0 1	OK Not less than 1 parameter is wrong
8	Testing of internal RAM (lead through every 20h)	0 1	OK Minimum 1 RAM cell is damaged
7	No function		
6	No function		
5	System fault	0 1	No At least one fault in bit 8 to 12
4	Signal status channel 4	0 1	OK Measuring signal faulty
3	Signal status channel 3	0 1	OK Measuring signal faulty
2	Signal status channel 2	0 1	OK Measuring signal faulty
1	Signal status channel 1	0 1	OK Measuring signal faulty
0	Internal use	0/1	



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30004 : Measuring value channel 1 in 0,01mA

Measurement result of channel 1 is stored. The numerical value corresponds with the signal in 0,01mA.

For example:

400 = 4,00mA
1054 = 10,54mA
2000 = 20,00mA

30005 : Measuring value channel 2 in 0,01mA

Measurement result is stored in channel 2. The numerical value corresponds with signal in 0,01mA.

30006 : Measurement channel 3

Measurement value of channel 3 is stored.

30007 : Measurement channel 4 in 0,01mA

Measurement result of channel 4 is stored. The numerical value corresponds to signal in 0,01mA. See input register 30004.

