

VELOMAT

MESSELEKTRONIK GmbH



Analog load monitoring VMV-0131



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The limit switch VMV-0131 is a proven product in the VELOMAT VMV-family. It works as a threefold limit switch for sensors with current output. The device is configurable with DIP switches and suitable to 230 V AC.

VMV-0131 is designed for overload switch-off of lifts, cranes, special machinery and hoists.

The sensor input is configurable for 1 ... 9 mA or 4 ... 20 mA signal range. One potentiometer per comparator enables the adjustment of one switching threshold which corresponds to a certain physical value of the sensor connected. Each comparator output controls a relay and a control LED.

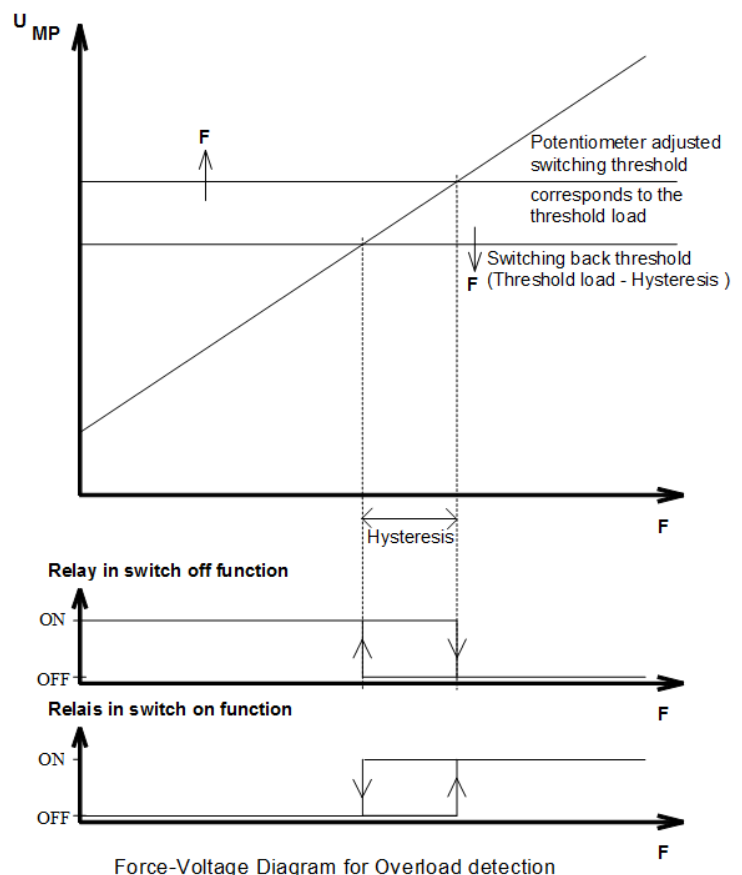
The function of the relays can be adjusted between switching on or off when exceeding the threshold. An additional comparator switches all relays into the overload state in case of broken sensor cable.

Functions:

- Slake rope detection
- Overload advance warning
- Overload switch-off

The device can be complemented optionally by the external VELOMAT service device. The connection is accomplished over the 6-pin connector MP1.

It enables the checking of sensor functionally and adjustment values.



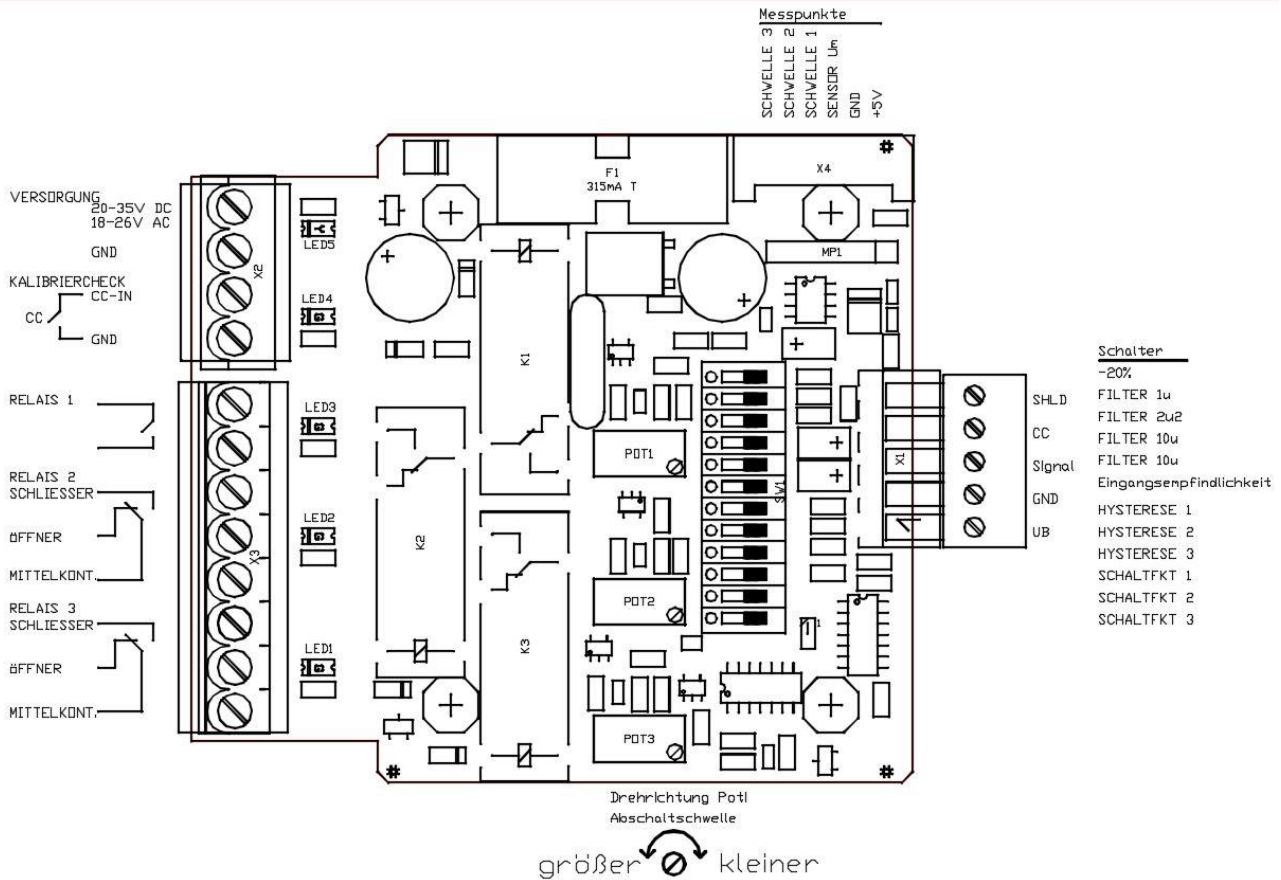
Force-Voltage Diagram for Overload detection

Power supply:	24 V AC -20 % / +10 % 24 V DC -10 % / +40 %
Current consumption:	max. 100 mA (without sensor)
Sensor supply:	18 V DC
Input strain gauge sensor:	Current input 1 ... 9 mA or 4 ... 20 mA
Load resistance:	360 Ω or 180 Ω
Output:	3 relays
Operating temperature:	0 ... +70 °C
Case:	
Fixture:	Fixing clip for DIN top-hat rail
Outer dimensions:	99 x 88 x 40 mm ²
Degree of protecting:	IP 40

Specification of the relays used V23061-B1007-A401

Max. switching voltage:	300 V DC
VDE110 Group C:	250 V AC
Max. switching current:	8 A
Switching power:	max. 250 V AC / 2000 VA max. 300 V DC / 50 – 250 W (depending on voltage)
Contact material:	silver-cadmium oxide

PIN assignment



Terminal connector X1

Connector	Description	Remark	Cable colour
1	Ub	Operation voltage sensor 21 V DC (internally generated)	Brown
2	GND	Ground	Green
3	Im	Sensor signal 4 ... 20 mA (1 ... 9 mA)	Yellow
4	CC	Calibration check	White
5	Screen	Screen of connection cable	Blue

Terminal connector X2

Connector	Description
1	24 V AC power supply or 24 V DC
2	24 V AC power supply (GND) or 24 V DC (GND)
3	CC Signal
4	Ground

Terminal connector X3		
Connector	Description	Potentiometer
1	Relay 1, Normally open contact	
2	Relay 1, Middle contact	POT 1
3	Relay 2, Normally open contact	
4	Relay 2, Normally closed contact	
5	Relay 2, Middle contact	POT 2
6	Relay 3, Normally open contact	
7	Relay 3, Normally closed contact	
8	Relay 3, Middle contact	POT 3

Terminal connector X4	
Connector	Signal
1	UB (5 V)
2	GND
3	Measurement voltage
4	Adjustment value POT 1
5	Adjustment value POT 2
6	Adjustment value POT 3

DIP Switch configuration	
1	Input voltage divider (-15 %)
2-5	Signal attenuation measurement input (4 steps)
6	Load resistance (360 Ω / 180 Ω)
7	Hysteresis comparator 1 (20 mV / 70 mV)
8	Hysteresis comparator 2 (20 mV / 70 mV)
9	Hysteresis comparator 3 (20 mV / 70 mV)
10	Relay 1, opening / closing
11	Relay 2, opening / closing
12	Relay 3 opening / closing