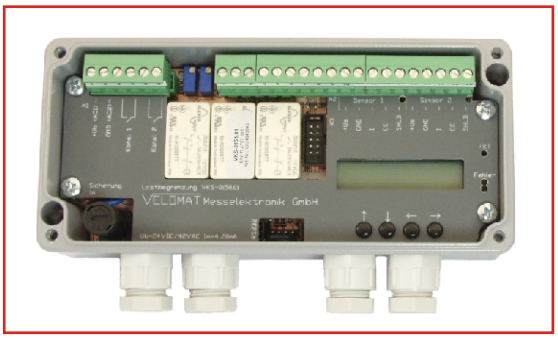
load monitoring
VKS-0151

VELOMAT
MESSELEKTRONIK GmbH

functional description



The load monitoring VKS-0151 is special designed for the overload control changing forces as soon as for reliable deactivation of cranes or lifting units on identifivation an overload.
Internal monitoring and checking routines admit the handling of the system in regions which make demands on definite interruption processes at overload.

VKS-0151 has available:

- 2 measuring channels independent of each other (according to requirements for one or two load sensors possible)
- **electronic**: evaluation of measured values and generation of two interruption tracks (safety relay)
- **firmware:** evaluation of measured values, of the state of sensor, of the automatic checking of functional components including of connected sensor(s) and for the generation of switch signals
- internal control unit and display for service and startup

optional add-on:

- external unit to display of operating parameters (**service unit VHB-0250**)
- RS232 interface for tests and startup functions as soon as for the update of firmware via PC
- combined USB and SD card interface for communication tasks as soon as for storage of measured values on a SD memory card
- bluetooth communication modul for networking several VKS-0151 units and load summation for the total construction

The system controls the measured value of the sensors periodical. The loads can be evaluated separately or as summation according to configuration and firmware version. These resultant loads are compared to two thresholds. Two trimmer potentiometer are into the electronic part for this which output the values for two thresholds independent of each other. The result of the comparison is indicated outwards by dint of two interruption tracks.
The firmware cuts off the interruption tracks in addition with occured malfunctions of unit or sensor.

technical specifications

power supply	15...60 V DC ±10 % (internal invers-polarity protection) 12...48 V AC ±10 % (halve-wave rectification)
controller	ATMEGA128
inputs	2 x analog (0...10 V or 1...9 mA or 4...20 mA); 12 Bit resolution 2 x digital inputs 0...75 V DC, I_L < 8 V
outputs	2 threshold channels (composed of 3 safety relay) max. threshold load 250 V 6 A 1 RS232 (115200,n,8,1) V24 at X2 1 RS232 (115200,n,8,1) TTL pegel at X3 and X4 1 SPI for add-on (SD card, Ethernet) at X3
regulation	adjustment of two limit values with reference potentiometer
case	BOPLA, IP 65, aluminium die-cast
external dimensions / fastening	175 mm x 80 mm x 57 mm / 2 boreholes with ∅ 4,2 mm
operating temperature	-25 ºC to +70 ºC
permitted humidity	75 % in annual average, no condensation

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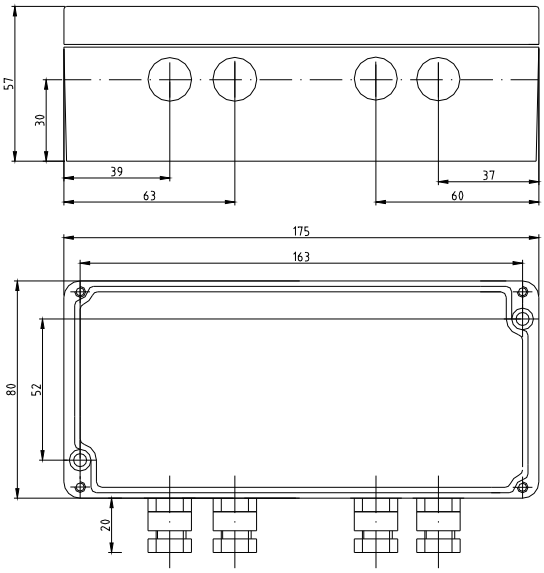
mechanical design

The electronic is assembled in an aluminium die-cast box.

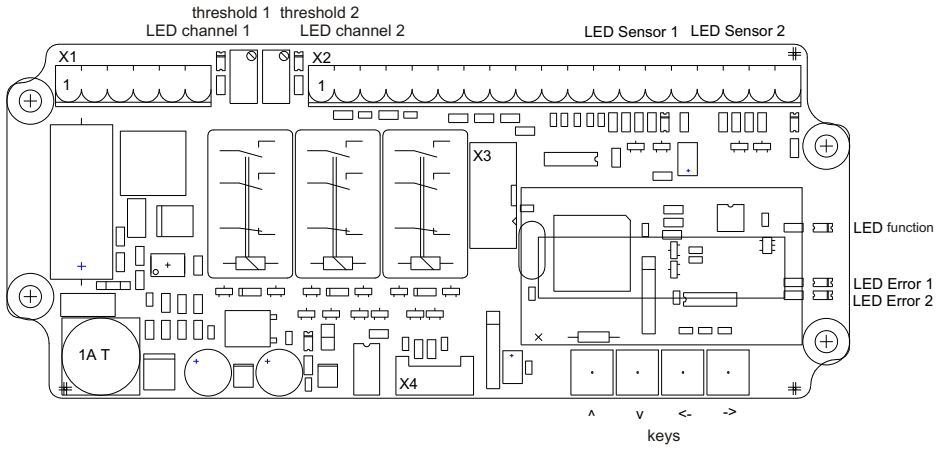
There are available four lead-in PG7 for the connecting of cables. These approve cable diameter of 3...6,5 mm. The mounting is to be made that the cable lead-in shows downwards.

All controls and display elements of the electronic part are available after opening of the top cover.

One covering plate protects the electronic and it includes all inscriptions.



connection of electronic



pin	remark
clamp X1:	
1	power supply +UB / AC1
2	power supply –UB / AC2
3	cut-off channel 1 – contact 1
4	cut-off channel 1 – contact 2
5	cut-off channel 2 – contact 1
6	cut-off channel 2 – contact 2
clamp X2:	
1	power supply +12,5V output
2	RS232 V24 transmit-signal
3	RS232 V24 transmit-signal
4	GND of power supply
5	+12,5V output
6	digital IN1
7	GND (ground)
8	digital IN2
9	GND (ground)
10	+12,5V – sensor 1 excitation
11	GND – sensor 1 excitation
12	sensor 1 signal input
13	sensor 1 calibration check signal
14	sensor 1 shield contact
15	+12,5V – sensor 2 excitation
16	GND – sensor 2 excitation
17	sensor 2 signal input
18	sensor 2 calibration check signal
19	sensor 2 shield contact

terminal lay-out of the system (standard):