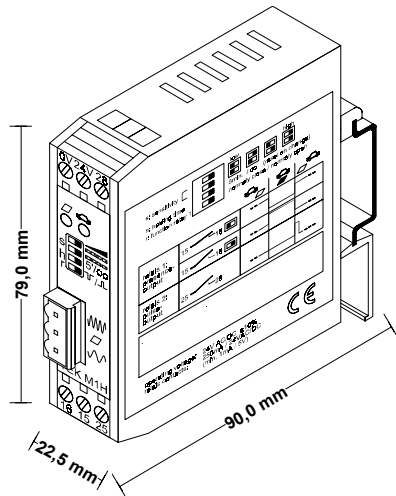


Operation Instruction

1-channel induction loop detector for installation on DIN- or C-rail



Please read these instructions and security directions attentively before initial operation of the detector !

1 General

Applications:

- barrier controller
- door and gate controller
- parking and traffic technology

Characteristics:

The induction loop detector VEK M1H is a system for inductive acquisition of vehicles with the following characteristics:

- isolation transformer between loop and detector electronics
- automatic calibration of the system after switching on
- continuous rebalancing of frequency drifts
- usable for single place parking space supervising
- sensitivity independent of the loop inductivity
- occupied signal by LED display
- potential free relay contacts for permanent and pulse output
- pulse output when leaving the loop
- signaling of loop frequency by LED
- loop connection pluggable for diagnosis

For planning and installation of loops please note our manual "detection of vehicles with the induction loop detector".

2 Adjustment possibilities

2.1 Sensitivity

The adjustment of the sensitivity calls the electronics to a value of frequency deviation which a vehicle must produce for setting the output of the detector. The sensitivity can be adjusted in 4 steps with the two *DIP-switches* s on top of the front panel.

sensitivity step		DIP-switch s
1 low	(0,64% $\Delta f/f$)	
2	(0,16% $\Delta f/f$)	
3	(0,04% $\Delta f/f$)	
4 high	(0,01% $\Delta f/f$)	

2.2 Holding time and Reset

The holding time can be adjusted with *DIP-switch h*. After run off of the holding time it will be displayed "loop free" and the detector calibrates automatically. The holding time starts with the occupation of the loop.

holding time	DIP-switch h
5 minutes	
infinite	

A automatic calibration of the loop frequency will be done by the detector after switch-on of the power supply. In case of short power cuts <0,1s there is no calibration

A reset with calibration can be effected by changing the holding time adjustment.

2.3 Operation principle of the permanent or presence relay

The detector has one relay for presence output and another relay for pulse output each with a potential free contact. The operation principle of the presence relay can be adjusted with the *DIP-switch r*

operation principle presence relay	DIP-switch r
principle of rest current (n.c.) (contact normally close)	
principle of operation current (n.o.) (contact normally open)	

2.4 Frequency adjustment

The operation frequency of the detector can be adjusted in two steps by the 3-pole connection jack in the front panel. The permissible frequency range is 30kHz up to 130kHz. The frequency is dependent to the loop inductivity (depending itself on: loop geometry, number of loop turns and loop lead-in) and the adjusted frequency step.

upper position = high frequency
down position = low frequency

3 Outputs and LED display

3.1 Contact mode of the relays

The following index shows the position of the relay contacts depending to the detector mode.

detector mode	permanent relay		pulse relay
	n.c.	n.o.	
loop free	close	open	open
loop occupied	open	close	open
loop went free	close	open	pulse 200ms
loop failure	open	close	open
power off	close	close	open

In case of a loop failure the detector will check the loop conditions in cycle mode and operates automatically normal after the elimination.

3.2 LED display

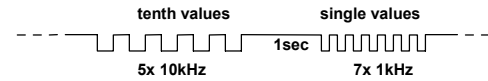
The green LED displays that the detector is ready for operation. Display of the red LED is dependent from the occupation of the loop an shows the activating of the relay output.

LED green loop control	LED red loop condition	detector function
off	off	power off
flash	off	calibration or output of frequency
on	off	detector ready for operation, loop free
on	on	det. ready f. operation, loop occupied
off	on	loop failure

3.3 Output of loop frequency

Approx. 1 sec. after calibration of the detector the loop frequency will be displayed by pulse signals of the green LED. Firstly the 10kHz position of the frequency value will be given out. For every 10kHz frequency value the green LED flashes one time. After a break of 1 sec. the 1kHz position is displayed in the same manner. If there is value of '0' in the 1 kHz position there will be displayed 10 flashes . The flashes for 1 kHz position are a little bit shorter than for the 10kHz position.

Example for 57kHz loop frequency:



4 Security and warning directions

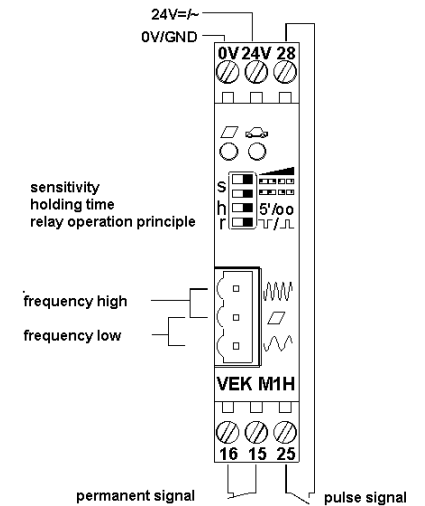
- The device should only used for the applications described by the manufacturer
- Please keep this operation instruction always accessible and hand it out to every user
- Unpermissible changes to the device, use of replacements and additional components which are not sold or recommended from the manufacturer can cause burning, electric shock and injurance. Therefore the manufacturer has no liability and this excludes all demands of warranty.
- The warranty regulations of the manufacturer are valid in the version of the purchase date for that device. There is no liability for not suitable, wrong manual or automatic adjustments also regarding no suitable applications of the device
- Repairs may only made by the manufacturer
- All connections, the start-up, maintenance, measuring and adjustment operations to the detector have to be made from electrical specialists who have special know-how in the prevention of accidents
- For the use of devices which have contact to electrical power, please pay attention to the valid security instructions and all prevention orders of fire and accidents
- All operations with the device and its placement have to be done in accordance with national and general electrical instruction orders.
- The user is responsible for an installation which has conformity, to all technical rules in the country where the device is mounted, and also to all regional valid orders. For that the dimension of cabling, fuse protection, connection to ground, switch off, disconnection, isolation controlling and the protection for overload current have to be regarded in detail.
- The detector can not be used as a security device regarding to the security instructions of electrical machines. Using in systems with high danger potential it is necessary to include additional protection devices !

5 Technical data

Dimensions	79x22.5x90 mm (hwxwd without plug)
Protection class	IP 40

Power supply	24V AC/DC $\pm 10\%$ max. 1,5W
Operating temperature	-20 °C up to +70 °C
Storing temperature	-20 °C up to +70 °C
Humidity	max. 95 % not condensing
Loop inductivity	25-800 μ H, recommended 100-300 μ H
Frequency range	30-130 kHz in 2 steps
Sensitivity	0,01 % up to 0,65 % ($\Delta f/f$) in 4 steps 0,02 % up to 1,3 % ($\Delta L/L$) 5 minutes or infinite
Holding time	
Loop lead-in	max. 250 m
Loop resistance	max. 20 Ohm (incl. loop lead-in)
Relays	250mA / 24V AC/DC (min. 1mA/5V) contact n.c. (adjust. operation principle) contact n.o.
permanent relay pulse relay	
Signal duration	> 200 ms
Cycle time	40 ms (reaction time 80 ms)
Connections	screw binders (power supply, relays) binder plug (loop connection)
CE- standards	EN 50082-2, Feb. 1996 EN 50081-1, March 1993

6 Connections



Note

All information in this description can be changed without previous announcement.

With this description all previous issues lose their validity. The summary of information in this description was done with all possible acknowledge and by the best conscience. LiftMaster cant give a guaranty for the correctness of all information. Particularly there is no liability by *LiftMaster* for damages which result from a wrong installation of the device In spite of all efforts to correctness we are very thankful for every point to a mistake in this description.

The recommended installations in this description are based on optimum conditions. For wrong environment conditions *LiftMaster* doesn't give a warranty to optimum operation of the detector.