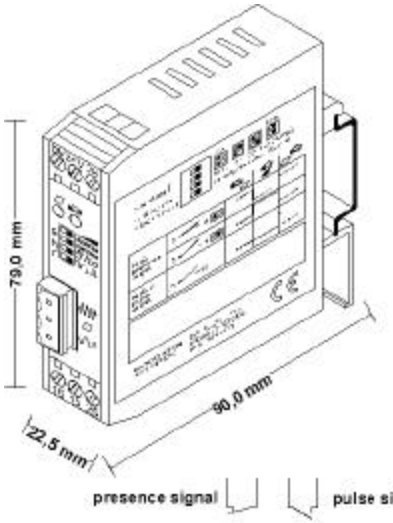
MAGNETIC AUTOMATION CORP.
3160 Murrell Rd. Rockledge, FL 32955

Operation Instruction

Single channel loop detector for DIN-rail mounting MID 1E-800



Please read these instructions and safety information and warnings attentively before initial operation of the detector !

1 General

Applications:
- barrier controls
- door and gate controls
- parking and traffic technology

Features:
The induction loop detector MID 1E-800 is a system for inductive recognition of vehicles with the following characteristics:
isolated 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
- presence signal feedback by LED display
- potential free relay contacts for presence and pulse output
- pulse output while leaving the loop
- signalling of loop frequency by LED
- loop connection plug-in for diagnosis

2 Setting options

2.1 Sensitivity

The setting of the sensitivity tells 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% Δf/f)	
2	(0,16% ?f/f)	
3	(0,04% ?f/f)	
4 high	(0,01% ?f/f)	

2.2 Hold time and Reset

The hold time can be adjusted with *DIP-switch 'h'*.
At the completion of hold time it will be displayed "free loop" and the detector calibrates automatically. The hold time starts with the occupation of the loop.

hold time	DIP-switch 'h'
5 minutes	
infinite	

The detector will do an automatic calibration of the loop frequency after turning-on the power supply. In case of short power cuts < 0.1s there is no calibration

A reset with calibration can be affected by changing the hold time setting.

2.3 Operation principle of the 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 changed with the *DIP-switch's'*

operation principle presence relay	DIP-switch 'r'
contact normally closed	
contact normally open	

2.4 Frequency adjustment

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

upper position = high frequency
lower position = low frequency

3 Outputs and LED

3.1 Contact mode of the relays

The following table shows the state of the relay contacts depending on the detector mode.

detector mode	presence relay		pulse relay
free loop	close	open	open
covered loop	open	close	open
loop gets free	close	open	200ms pulse
loop failure	open	close	open
power off	close	close	open

In case of a loop failure the detector checks the loop condition cyclically and continues automatically after elimination.

3.2 LED signals

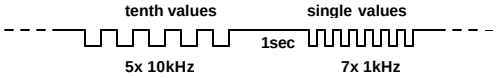
The green LED signals that the detector is ready for operation. Via the red LED, the activation of the relays output is announced depending on the occupation status of the loop.

LED green loop control	LED red loop condition	detector function
off	off	power off
flashing	off	calibration or output of frequency
on	off	detector ready for operation, free loop
on	on	det. ready for operation, covered loop
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 indicated. For every 10kHz frequency value the green LED flashes once. After a break of 1sec the 1kHz position is displayed in the same manner. If there is value of '0' in the 1kHz position there will be displayed 10 flashes. The flashes for 1kHz position are a little bit shorter than for the 10kHz position.

Example for 57kHz loop frequency:



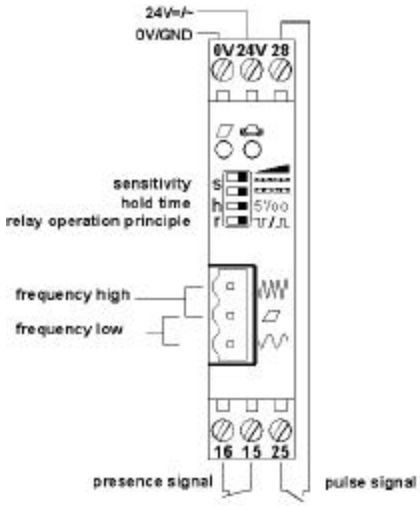
4 Safety information and warnings

- The device should only used for the applications described by the manufacturer.
- Please keep this operation instruction always accessible and hand it over to every user.
- Inadmissible modifications to the device, use of repair parts and supplementary equipment that are not sold or recommended by the manufacturer can cause burning, electric shock and injuries. 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, measurements 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 that 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 cannot 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 (H x W x D without plug)
Protection class	IP 40
Power supply	24V AC/DC ±10% max.1.5W
Operating temperature	-20 °C to +70 °C
Storing temperature	-20 °C to + 70 °C
Humidity	max. 95 % not condensing
Loop inductivity	25-800 µH, recommended 100-300uH
Frequency range	30-130 kHz in 2 steps
Sensitivity	0,01 % up to 0,65 % (Δf/f) in 4 steps 0,02 % up to 1,3 % (ΔL/L)
Hold time	5 minutes or infinite
Loop lead length	max. 250 m
Loop resistance	max. 20 Ohm (incl. loop lead)
Relays	250mA / 24V AC/DC (min. 1mA/5V)
presence relay	contact N. C. (adjust. operation principle) contact n.o.
pulse relay	
Signal duration	> 200 ms
Cycle time	40 ms (reaction time 80 ms)
Connections	screw terminals (power supply, relays) binder plug (loop connection)
CE- standards	EN 50082-2, Feb. 1996 EN 50081-1, March 1993

6 Connections



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AUTOMATION CORP. can't give guaranty for the correctness of all information. Particularly there is no liability by *MAGNETIC AUTOMATION CORP.* for damages that 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 installation recommendations in this description are based on optimum conditions. For wrong environment conditions *MAGNETIC AUTOMATION CORP.* doesn't give a warranty to optimum operation of the detector.