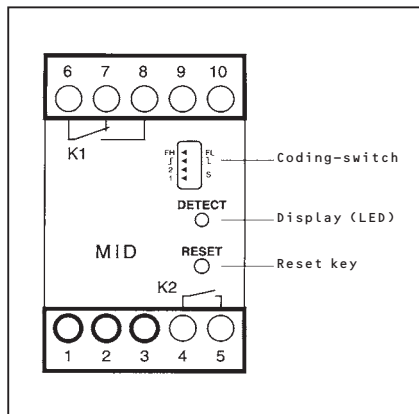


adjustment

MID 1 control unit



1.) Application areas

The MID 1 detector is used for

- registration
- counting of vehicles (bicycles, cars, fork lifts, trucks, busses) and has concrete areas of application in:
 - barrier control systems
 - gate control systems
 - car wash control systems
 - signal lamp systems
 - parking garages
 - industrial facilities
 - etc.

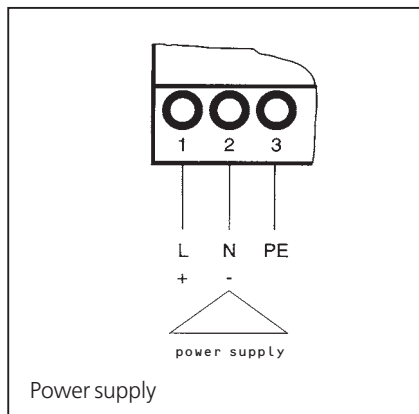
2.) Principle of operation

A wire loop with several windings is installed in the traffic lane. The inductivity or the loop changes depending on whether or not a vehicle (= metal object) is situated on the loop. This change in inductivity is evaluated by the detector.

The balancing of the loop caused by a vehicle is displayed by the LEDs. At the same time, the presence relay K 1 is activated.

As soon as the vehicle leaves the loop, the LED goes out and the presence relay K 1 is de-activated.

The pulse relay K 2 is activated according to the previously set mode of operation.



3.) Installation

3.1) Assembly: Snap detector into place on the DIN EN 50022-35 top-hat rail.

3.2) Mains connection

3.2.1) Operation using alternating current (115 V AC, 230/240 V AC)

The mains connection must be provided as follows:

- Terminal 1 = L
- Terminal 2 = N
- Terminal 3 = PE

Installation work must be carried out by qualified personnel.

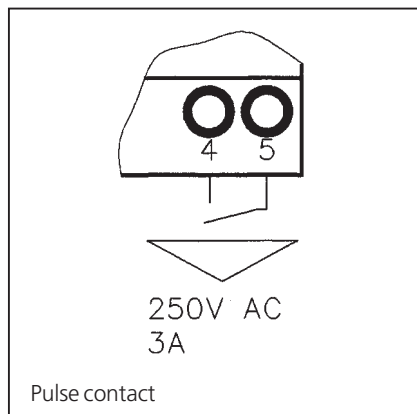
3.2.2) Operation using direct current (12 VDC, 24 VDC)

The direct-current connection must be provided as follows:

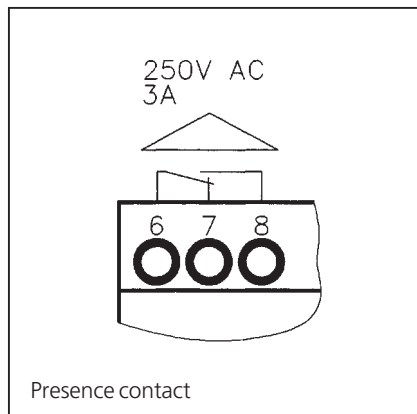
- Terminal 1 = +
- Terminal 2 = -
- Terminal 3 = not assigned

3.3) The pulse relay has make contact. It is brought out potential-free on terminals 4 and 5.

The make contact can be subjected to a load of 250 V AC / 3 A.



3.4) The relay contact of the presence relay is brought out potential-free to the terminals.



Relay K 1

Terminal 6 = common

Terminal 8 = make contact (closes when a vehicle is on the loop)

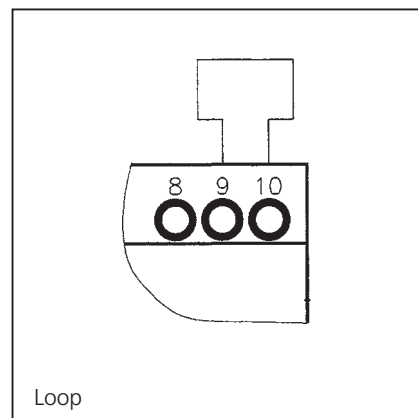
Terminal 7 = break contact (opens when a vehicle is on the loop)

The change-over contacts can be subjected to a load of 250 V AC / 3 A.

3.5) Loop connection

The loop must be connected to terminals 9 and 10. The supply conductors to the detector must be transposed.

The inductivity of the loop must be between 70 μ H and 1000 μ H.



4.) Adjustments

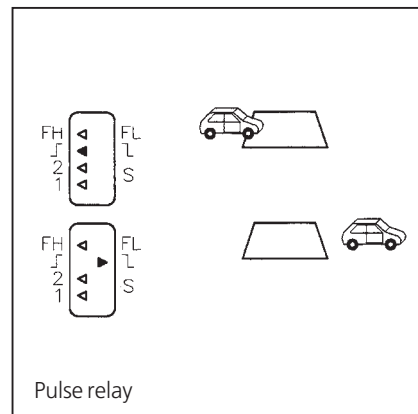
4.1) Adjustment of the types of operation for the pulse relay.

The pulse relay K 2 can be set to two modes of operation.

Switch 2: the release of a pulse for the mode of operation as pulse relay can be triggered by a rising or by a falling pulse transition:

Position : rising transition (relay picks up for 0,3 s when vehicle enters loop)

Position : falling transition (relay picks up for 0,3 s when vehicle leaves loop)



4.2) Adjustment of the frequency

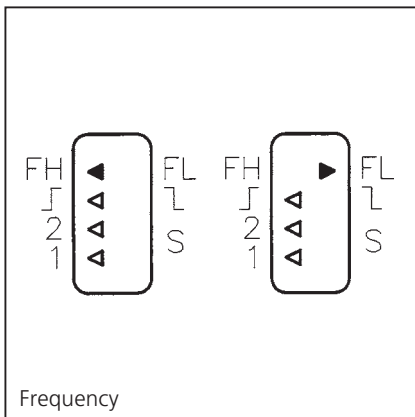
The adjustment of the loop frequency is located on the front plate.

FH = high frequency

FL = low frequency

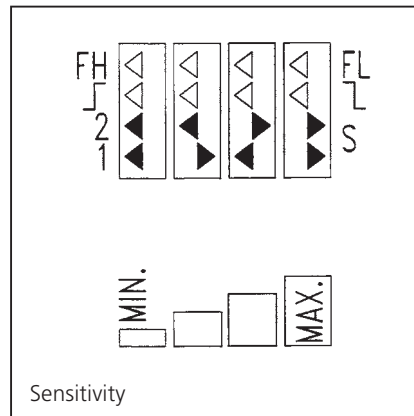
When two MID 1 units are used, the loops may interfere with one another. One detector must then be set to position –FH– and the second detector to –FL–.

- Following any change in the position of the frequency switch, the detector balancing operation must be carried out again (press “RESET” key).



4.3) Adjustment of the sensitivity

The response sensitivity at which a vehicle is detected can be set to 4 levels ranging from “min.” to “max.” using two DIP switches – 2 and 1.



5.) Putting the unit into operation

- Select the frequency range (FH or FL)
- Set sensitivity to “min.”
- Set desired type of operation for the pulse relay
- Remove metal objects (vehicles, tools, etc.) from the loop area
- Switch on the operating voltage

The detector begins with the balancing operation. During the balancing operation, the LED flashes with decreasing frequency. Following the balancing operation, the LED goes out.

During the balancing phase, the detector performs a loop test. Accordingly, the loop is checked to determine if it is within the permissible inductivity range or if a loop interruption or loop short-circuit has occurred. In case of error detection, the LED will flash continuously in 1-Hz-cycles.

If no error is present, the LED goes out following the balancing operation. The detector is then ready for adjustment of the sensitivity:

Drive a vehicle on to the loop. The detector must detect the vehicle, i.e. the LED must light up and the presence relay K 1 must become active (terminals 6 and 8 closed).

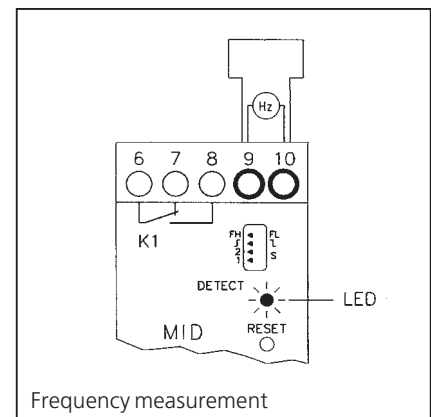
If this is not the case, the sensitivity must be increased.

6.) Measurement of the loop frequency

For this measurement step, the frequency meter must be connected parallel to terminals 8 and 10.

During the measurement, the LED can be flashing. The detector is not operational during this time.

- Following the frequency measurement, the detector balancing operation must be carried out (press “RESET” key).



7.) Malfunctions

Malfunction	Cause	Corrective measure
Vehicle is not detected	Sensitivity adjusted too low	Set DIP switches “2 and 1” to higher value
	Operating voltage missing	Check connection
	Fuses defective	Replace
Detector detects all kinds of metal objects	Sensitivity adjusted too high	Set DIP switches “2 and 1” to lower value
Detector is sending signals in damped form without a vehicle being present	Adjacent or available detectors are operating on the same frequency	Select different ranges “FH or FL”
LED is flashing constantly	Inductivity beyond permissible range	Adapt loop geometry / winding number
	Loop has an interruption or short circuit	Check loop and supply line