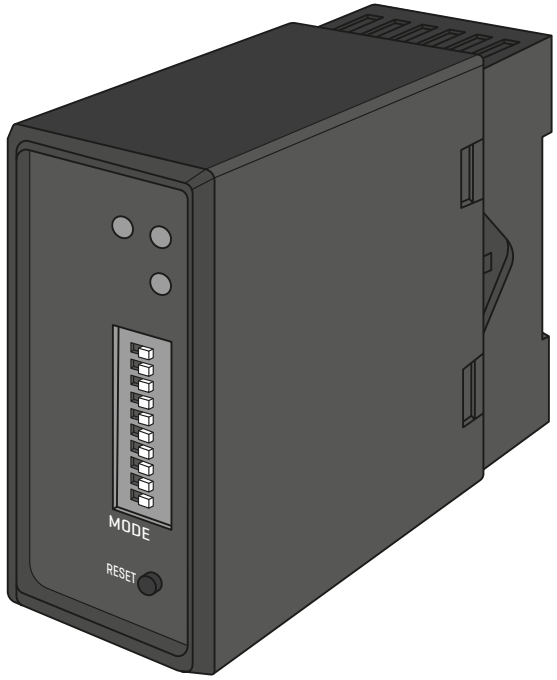
PORTUGAL

EN

MD150

INSTALLER AND USER'S MANUAL



Motorline® PROFESSIONAL

v1.0
REV. 04/2023

00. CONTENT

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01. SAFETY INSTRUCTIONS

ATTENTION:

CE	This product is certified in accordance with European Community (EC) safety standards.
RoHS	This product complies with Directive 2011/65/EU of the European Parliament and of the Council, of 8 June 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
 	(Applicable in countries with recycling systems). This marking on the product or literature indicates that the product and electronic accessories (eg. Charger, USB cable, electronic material, controls, etc.) should not be disposed of as other household waste at the end of its useful life. To avoid possible harm to the environment or human health resulting from the uncontrolled disposal of waste, separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Home users should contact the dealer where they purchased this product or the National Environment Agency for details on where and how they can take these items for environmentally safe recycling. Business users should contact their vendor and check the terms and conditions of the purchase agreement. This product and its electronic accessories should not be mixed with other commercial waste.
	This marking indicates that the product and electronic accessories (eg. charger, USB cable, electronic material, controls, etc.) are susceptible to electric shock by direct or indirect contact with electricity. Be cautious when handling the product and observe all safety procedures in this manual.

01. SAFETY INSTRUCTIONS

GENERAL WARNINGS

- This manual contains very important safety and usage information. very important. Read all instructions carefully before beginning the installation/usage procedures and keep this manual in a safe place that it can be consulted whenever necessary.
- This product is intended for use only as described in this manual. Any other enforcement or operation that is not mentioned is expressly prohibited, as it may damage the product and put people at risk causing serious injuries.
- This manual is intended firstly for specialized technicians, and does not invalidate the user's responsibility to read the "User Norms" section in order to ensure the correct functioning of the product.
- The installation and repair of this product may be done by qualified and specialized technicians, to assure every procedure are carried out in accordance with applicable rules and norms. Nonprofessional and inexperienced users are expressly prohibited of taking any action, unless explicitly requested by specialized technicians to do so.
- Installations must be frequently inspected for unbalance and the wear signals of the cables, springs, hinges, wheels, supports and other mechanical assembly parts.
- Do not use the product if it is necessary repair or adjustment is required.
- When performing maintenance, cleaning and replacement of parts, the product must be disconnected from power supply. Also including any operation that requires opening the product cover.
- The use, cleaning and maintenance of this product may be carried out by any persons aged eight years old and over and persons whose physical, sensorial or mental capacities are lower, or by persons without any knowledge of the product, provided that these are supervision and instructions given by persons with experienced in terms of usage of the product in a safe manner and who understands the risks and dangers involved.
- Children shouldn't play with the product or opening devices to avoid the motorized door or gate from being triggered involuntarily.

WARNINGS FOR TECHNICIANS

- Before beginning the installation procedures, make sure that you have all the devices and materials necessary to complete the installation of the product.
- You should note your Protection Index (IP) and operating temperature to ensure that is suitable for the installation site.
- Provide the manual of the product to the user and let them know how to handle it in an emergency.
- If the automatism is installed on a gate with a pedestrian door, a door locking mechanism must be installed while the gate is in motion.
- Do not install the product "upside down" or supported by elements do not support its weight. If necessary, add brackets at strategic points to ensure the safety of the automatism.
- Do not install the product in explosive site.
- Safety devices must protect the possible crushing, cutting, transport and danger areas of the motorized door or gate.
- Verify that the elements to be automated (gates, door, windows, blinds, etc.) are in perfect function, aligned and level. Also verify if the necessary mechanical stops are in the appropriate places.
- The central must be installed on a safe place of any fluid (rain, moisture, etc.), dust and pests.
- You must route the various electrical cables through protective tubes, to protect them against mechanical exertions, essentially on the power supply cable. Please note that all the cables must enter the central from the bottom.
- If the automatism is to be installed at a height of more than 2,5m from the ground or other level of access, the minimum safety and health requirements for the use of work equipment workers at the work of Directive 2009/104/CE of European Parliament and of the Council of 16

01. SAFETY INSTRUCTIONS

September 2009.

- Attach the permanent label for the manual release as close as possible to the release mechanism.
- Disconnect means, such as a switch or circuit breaker on the electrical panel, must be provided on the product's fixed power supply leads in accordance with the installation rules.
- If the product to be installed requires power supply of 230Vac or 110Vac, ensure that connection is to an electrical panel with ground connection.
- The product is only powered by low voltage satefy with central (only at 24V motors)

WARNINGS FOR USERS

- Keep this manual in a safe place to be consulted whenever necessary.
- If the product has contact with fluids without being prepared, it must immediately disconnect from the power supply to avoid short circuits, and consult a specialized technician.
- Ensure that technician has provided you the product manual and informed you how to handle the product in an emergency.
- If the system requires any repair or modification, unlock the automatism, turn off the power and do not use it until all safety conditions have been met.
- In the event of tripping of circuits breakers of fuse failure, locate the malfunction and solve it before resetting the circuit breaker or replacing the fuse. If the malfunction is not repairable by consult this manual, contact a technician.
- Keep the operation area of the motorized gate free while the gate in in motion, and do not create strength to the gate movement.
- Do not perform any operation on mechanical elements or hinges if the product is in motion.

RESPONSABILITY

- Supplier disclaims any liability if:
  - Product failure or deformation result from improper installation use or maintenance!
  - Safety norms are not followed in the installation, use and maintenance of the product.
  - Instructions in this manual are not followed.
  - Damaged is caused by unauthorized modifications
  - In these cases, the warranty is voided.

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SYMBOLS LEGEND:


- Important safety notices


- Useful information


- Programming information


- Dippers programming


- Buttons information

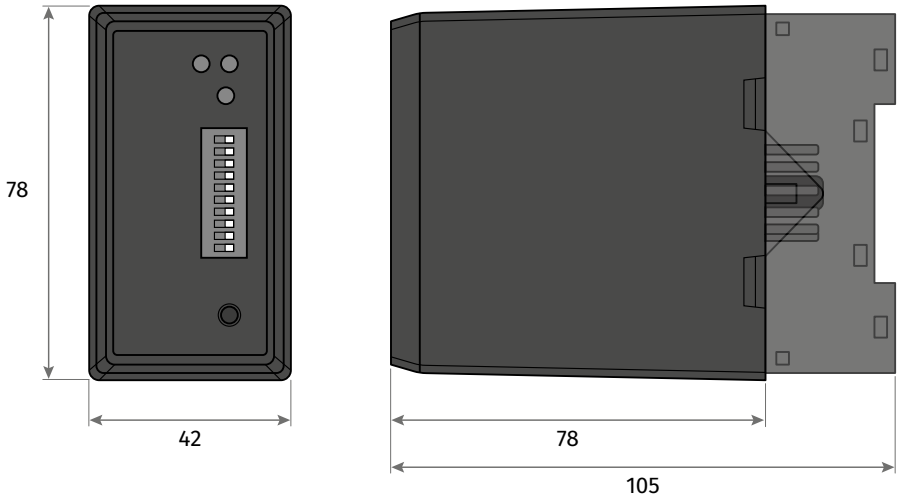
02. MAGNETIC DETECTOR

TECHNICAL CHARACTERISTICS

MD150 is a vehicle magnetic detector that detects the presence of large metal objects (cars, trucks, wagons) **even when the vehicle is not moving.**

	MD150
• Power supply	230Vac
• Maximum distance between Loop and MD150	10 meters
• Sensitivity adjustment	4 adjustable levels
• Presence mode	Limited presence / Permanent presence
• Indicator	Power Indicator: Red LED Status indicator: Green LED
• Internal protection	Transformer isolation, voltage regulation tube, voltage dependent resistance
• Working temperature	-20°C ~ +55°C
• Frequency	20 or 170 Mhz
• Outputs	2 NO outputs (contact max 5A 230Vac) *or* 1 NO output and 1 NC output

The dimensions of **MD150** are the following:



03. PRE INSTALLATION

PRECAUTIONS TO HAVE

Please pay attention to the supply voltage of the equipment.
Any wrong connection will damage the product.

• The circuit and power cable must be **isolated copper wire** with a **minimum cross section of 1.5mm.**

Wire splicing is not advised. In any case, any splices should be welded and waterproofed to prevent detector malfunction. Power cables subject to electrical interference must be shielded cable grounded at the detector.

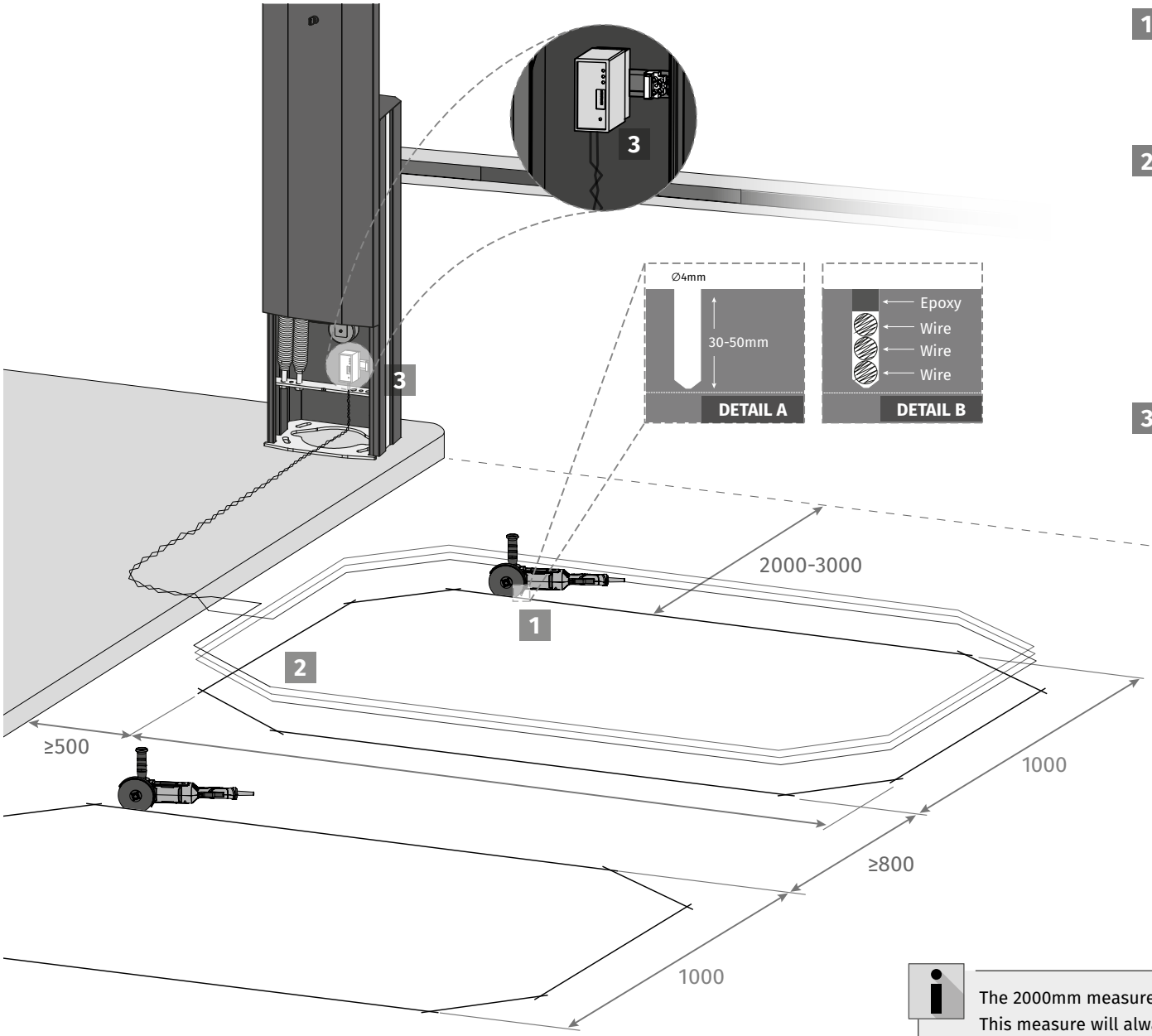
• The wires (rigid or flexible) must be **1.5mm**.
• The circuit must be square or rectangular with a **minimum distance of one meter between the two opposite sides.**
• Usually **three turns** of wire are used in the circuit, except in particular conditions of steel mesh in the ground, where **five turns** of wire must be made in the circuit.

Large circuits with a circumference of more than 8 meters should have two turns, while those with a circumference of less than 6 meters should have four turns. In the case of two circuits next to each other, to avoid interference, it is recommended to install one circuit with three turns and another with four turns.

• To avoid detector malfunction due to interference, **the circuits must be at least 1 meter apart and operating at different frequencies.**

04. INSTALLATION

DEVICE INSTALLATION



1 **DRILL THE FLOOR**
Punch the floor using a suitable tool.
(see detail A).
Then make 45 ° incisions to prevent damage to the wire.

2 **PUT THE WIRE**
Make the necessary turns of wire in the floor cutout.
Twist the wire segment that forms the power cable.
Fill the crack with epoxy resin or bitumen **(see detail B)**.

Ground type	Turns of wire
Normal	3
With steel mesh	5

3 **INSTALL MD150**
Detach the connector base from the MD150 and install on the desired surface.
Make the connections according to the diagram on the next page.
Put the MD150 back on the connector base.

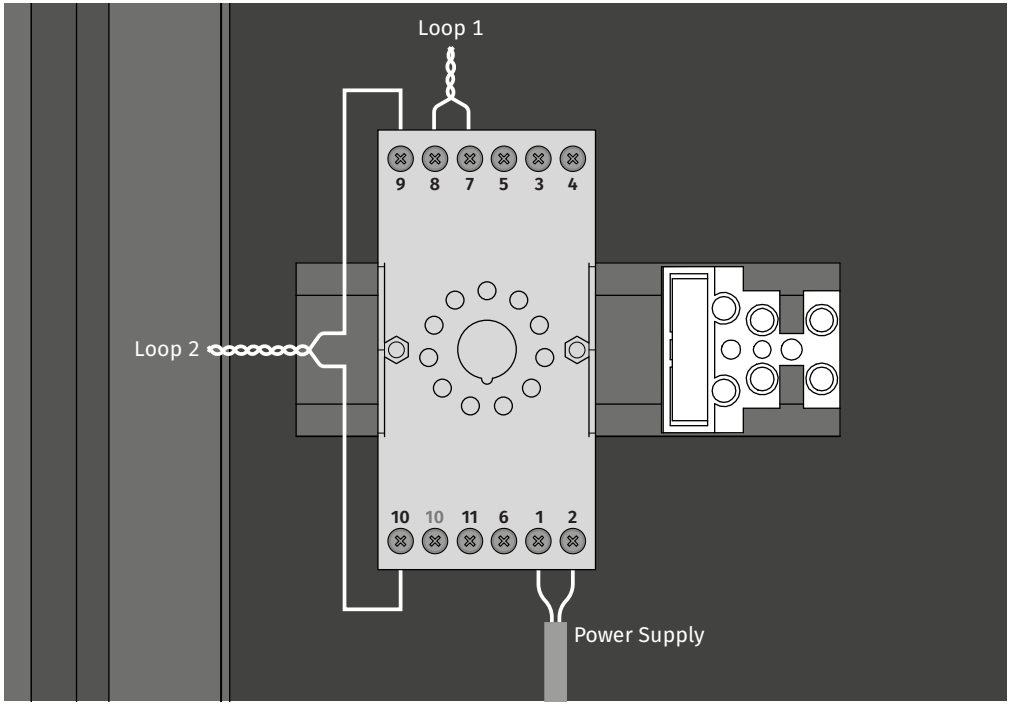
To avoid electromagnetic interference, pull the loop wires from the power wires.

The intertwined wires between the Loop and the MD150 must not exceed 10m in length.

The 2000mm measurement for the width of the floor cutout is just a reference.
This measure will always depend on the width of the passageway.

05. CONNECTION SCHEME

COMPONENT CONNECTIONS



Numbers	Description
1	Input 230Vac
2	
3	Channel 2 output (NO)
4	Channel 2 Output (Common)
5	Channel 1 output (NO)
6	Channel 2 Output (Common)
7	Loop Channel 1
8	
9	Loop Channel 2
10	
11	Channel 2 output (NC)

06. PROGRAMMING

OPERATION AND INDICATION OF STATUS

DEVICE CALIBRATION

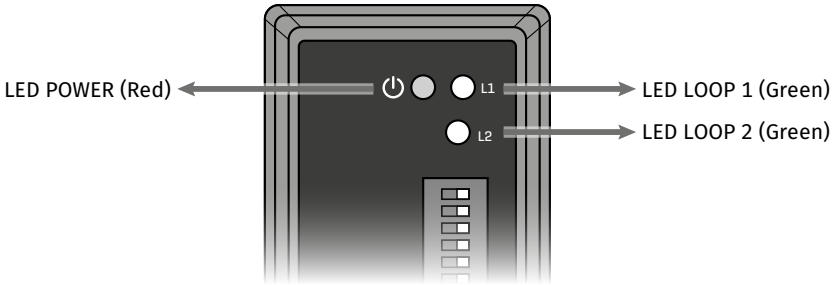
When connecting the device to power, the calibration will be done automatically.
The calibration process takes about 3 seconds.

During the calibration process, the two green LEDs on the panel remain ON.

No vehicle should pass through the loop zone during the calibration process.

Once the calibration process is complete the green LEDs will turn off.

BEHAVIOR OF THE LEDs



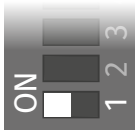
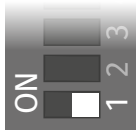
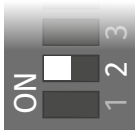
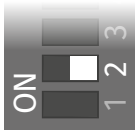
State	Behavior
Device connected	The LED POWER (red) stays on
Calibration process	Green LEDs stay on
Vehicle passage	The LED corresponding to the activated loop lights up during the passage

Mistakes	Behavior
Loop not detected in calibration	The green LEDs blink intermittently
The loop is not done according to the given range values	

06. PROGRAMMING

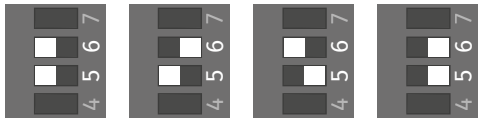
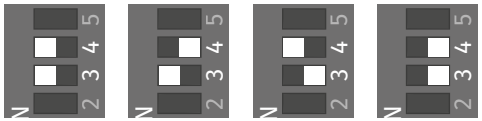
FREQUENCY ADJUSTMENT

The adjustment of the frequency of channels 1 and 2 is done on Dip switch #1 and Dip switch #2 respectively which are located on the front panel of Dippers.
This depends on the geometric shape, size and number of turns of the loop.

Frequency Channel 1		Frequency Channel 2	
Dip switch #1		Dip switch #2	
Low	High	Low	High
			
ON ⟷ OFF		ON ⟷ OFF	

SENSITIVITY ADJUSTMENT

The adjustment of the sensitivity of channel 1 is done using Dip switch #5 and #6. Dip switch #3 and #4 regulate the sensitivity of channel 2.
Several factors influence the sensitivity: length of the loop, number of turns in the loop, length of connection cable and the presence of metals under the loop.

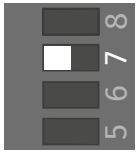
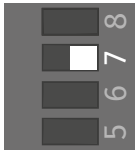
Sensitivity Channel 1				Sensitivity Channel 2			
Dip switch #5 and #6				Dip switch #3 and #4			
1	2	3	4	1	2	3	4
							
ON ⟷ OFF				ON ⟷ OFF			

To perform a test manoeuvre, you must set the Sensitivity to the lowest level. After carrying out the test, if the vehicle is not detected, increase the Sensitivity by one level.
Repeat the procedure until vehicle detection works correctly.

06. PROGRAMMING

AUTOMATIC INCREASE IN SENSITIVITY

The automatic increase in sensitivity increases the sensitivity level to the maximum value.
This level is maintained the entire time the car is on the loop. When the loop stops detecting the vehicle, the sensitivity level returns to the pre-selected value.

Automatic Sensitivity Increase	
Dip switch #7	
Active	Disable
	
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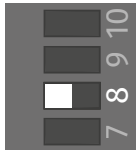
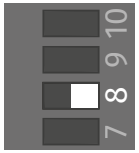
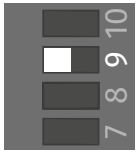
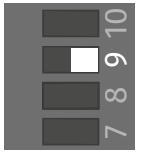
MODE OF OPERATION CHANNEL 1 AND CHANNEL 2 RELAY

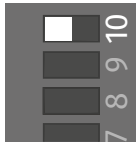
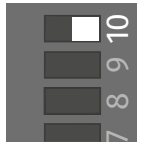
You can define if Channels 1 and 2 both work in the same direction of passage, or if they work independently with each channel corresponding to a direction of passage.
For this, configure Dippers #8 and #9

Input settings		Output settings	
Dip switch #8		Dip switch #9	
Limited Presence	Permanent Presence	Limited Output	Permanent Exit
The Channel 1 relay (outputs 5 and 6) has a pass timeout of 500ms.	The Channel 1 relay (outputs 5 and 6) and the Channel 2 relay (outputs 3 and 4) have a timeout of 500ms.	When the vehicle leaves, the Channel 2 relay (outputs 3 and 4) has an output timeout of 500ms.	There is no timer for exit mode.
			
ON ⟷ OFF		ON ⟷ OFF	

06. PROGRAMMING

DIRECTION OF THE CHANNELS

You can define whether the two channels work individually (Single) for each direction or whether they work simultaneously (Double) in the same direction.

Direction of the channels	
Dip switch #10	
Individual	Double
	
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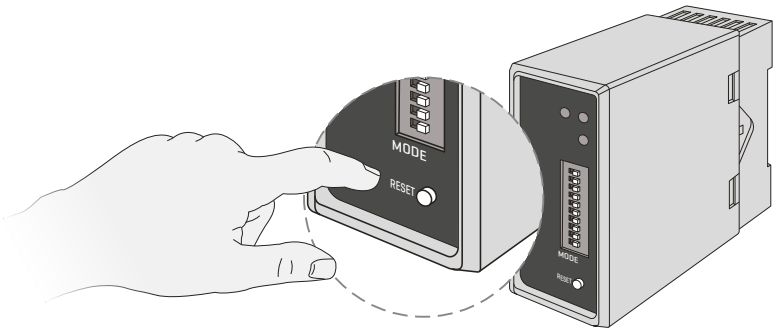
DEVICE RESET

By pressing the reset button, the device will automatically switch to a vehicle-free mode.



Make sure that no vehicles pass during the reset process.