

433 MHz Wireless Magnetic Field Vehicle Detector

Model – MD360 Wireless Detectors & MD360C CONTROLLER

The **MD360** series has been designed for parking and access control applications and is a cost-effective wireless solution for detecting vehicles to facilitate the automatic opening of security gates.

The **MD360 Series Wireless Vehicle Detectors** Combine magneto resistive sensor technology with a low power battery operated radio transceiver. This combination results in a self-contained wireless vehicle detector that does not require a loop or any cables to be run to it making installation times quicker.



The wireless detectors sensor detects changes in the earth's magnetic field due to the presence of a vehicle, which results in a detect signal being output to the MD360 Controller.

There are two Detector Types, The **MD360P** 'Puck' has been designed to be buried in the road surface underneath the vehicle path. It is suitable for installation in any stable surface (bitumen, concrete, compacted earth etc.) and can be easily installed into a 70mm core drilled hole. The **MD360D** 'Dome' is the rugged surface mount variant which simply bolts to the surface of the road using the supplied hardware.

The **MD360C (Controller)** is a wireless control unit which enables configuration and output of the **MD360 Series wireless vehicle detectors**. The controller features DIP switches for easy configuration and LED's for visual indication of the operation of the paired Wireless Detector. A relay output switches ON when a vehicle is detected.



PRODUCT IS NOT INTENDED TO BE USED AS A SAFETY DEVICE.

Features

Wireless connectivity. • Up to 50 meters range (**Line of Sight**).

- ETSI EN300-220 Compliant for use in Africa/Australia/Europe/NZ/UK

Battery Life (MD360 detectors only). Up to 5 years battery life @ 25°C (Calculated @ 1 detect per minute).

Reset Switch. • Reset the Wireless Detector from the Controller (Detector adjusts to the environment becoming ready for vehicle detection).

- Easily pair MD360 Detector to Controller (Note: Only one detector can be paired to a controller at one time).

Switch selectable Sensitivity. Two sensitivity settings are available on the switches to allow for flexibility in configuration.

Filter Option. Prevent false detection of small or fast-moving objects.

Relay Mode. Configure the relay to operate in presence or pulse mode.

Pulse Relay Selection. Configure relay to pulse on vehicle detect or undetect.

Motion Filter. Only trigger output once the vehicle has stopped moving for at least 1 second.

Presence settings. Wireless detector will reset after selected timeout: *5min, 30min, 2hr and no-timeout.*

Technical Specifications – MD360C (Controller)

Power supply	12 - 24VAC/DC 50/60Hz 45mA
Radio Specifications	Frequency: 433.92 MHz Power: 10 dBm Modulation: 2FSK Bandwidth: 250 kHz Antenna: 1.8 dB Dipole Antenna (Supplied with controller)
Presence/Pulse Relay	Change over contact 0.5A/220VAC
Response time	Approximately 1s after vehicle enters Puck area.
Indicators	LED indicators show: Power, Detect and Reset State.
Connector	5 Way Screw terminal block.
Dimensions	105mm X 90mm X 22mm
Operating Temperature	-20°C to +70°C
Storage Temperature	-40°C to +85°C

Indicators

Power Indicator. This LED Indicator illuminates when power is present, flashing indicates that the connected Puck has a low battery voltage.

Detect Indicator. This LED Indicator is illuminated when there is a vehicle present, flashing indicates the device is in pairing mode.

Reset Indicator. This LED Indicator flashes to indicate that the Puck is currently being reset.

Switch Settings – MD360C Controller

MD360C Switch Settings					
Switch No.	Function	ON		OFF	
		∞	2hr	30m	5m
10	Presence	On	On	Off	Off
9	Presence	On	Off	On	Off
8	Motion Filter	On		Off	
7	Relay Mode	Pulse		Presence	
6	Pulse Mode	Undetect		Detect	
5	Filter	2 Second		Off	
4	Sensitivity	Low		High	
3	N/A				
2	N/A				
1	N/A				

Wiring Connections – MD360C Controller

Screw Terminal	Description
1	Power Supply 0V
2	Power Supply +V
3	Relay Normally Closed N/C
4	Relay Common COM
5	Relay Normally Open N/O

Technical Specifications – MD360 Wireless Vehicle Detectors

Power	2x 3.6V 6800 mAh Li-SOCL2
Radio Specifications	Frequency: 433.92 MHz Power: 10 dBm Modulation: 2FSK Bandwidth: 250 kHz Antenna: PCB Trace
Battery Life	Up to 5 years at 1 detect per minute.
Response time	Approximately 1s after vehicle enters Puck area.
Sensing Distance	The Detector should be placed under the vehicle in its path of travel. Maximum Sensing distance is 1.0 m approximately.
Environmental tracking	Automatic Compensation
Dimensions	Puck : Ø 64mm X 38mm Dome: 140mm X 100mm X 38mm (L x W x H)
Weight	Puck: 160g Dome: 230g
IP Rating	IP68
Operating Temperature	-20°C to +70°C
Storage Temperature	-40°C to +85°C

Installation

The MD360 Detectors have a 1.0 m sensing range. Best detection results are obtained when the detector is mounted underneath and as close to the vehicles path as possible. The MD360 Detectors can be mounted as follows:

1. Buried in the road beneath the vehicle (MD360P - Figure 1).
2. Mounted to the surface of the road (MD360D - Figure 2).

It is important that the MD360 wireless Detector does not move during normal operation. Any movement will result in the detector giving a false detection output. When burying the PUCK, ensure that the fill material is concave so that it does not come into contact with the tyre of the vehicle (See figure 1).

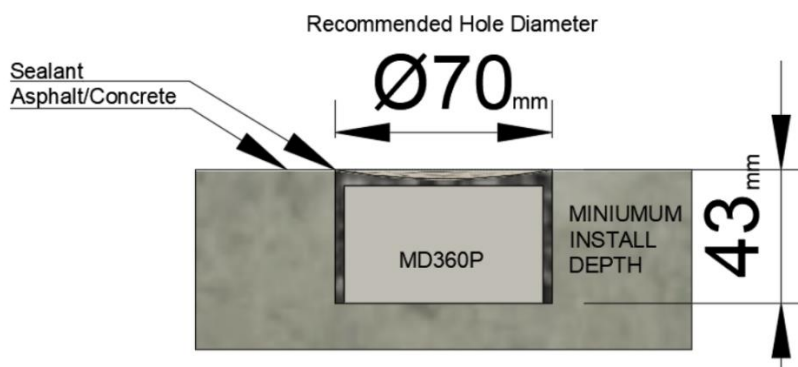


Figure 1: Installation of the Puck

Note: Battery should face downwards

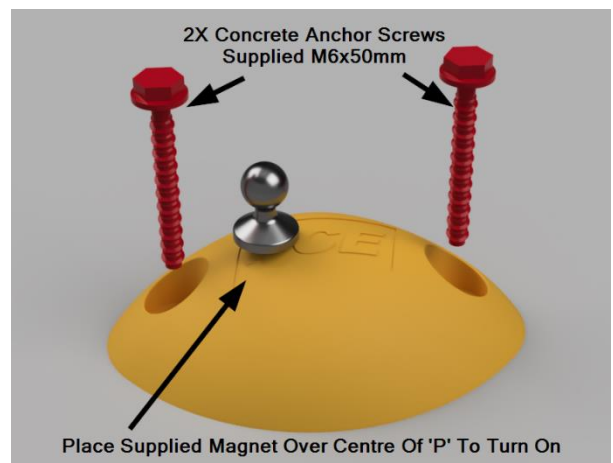
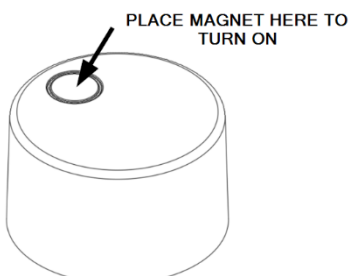


Figure 2: Installation of the Dome

Installation steps:

- Step 1:** Turn on the detector before installing: The MD360 detector is shipped in a low power mode, to wake up the detector place the supplied magnet over the magnet indentation on the top of the puck (center of the 'P' on the DOME), after 1s the magnet can be removed.
- Step 2:** Install the puck/dome: Ensure that the detector is installed within 1.0 m of the vehicles path to ensure correct operation. The puck can be installed into a Ø70mm hole, ensure that the hole is at least 43mm deep such that the puck is below the road surface. Secure the puck in place using a suitable sealant. The Dome can be mounted to the surface of the road with the supplied hardware.
- Step 3:** Installing the Controller: Mount the controller into a weatherproof enclosure. Connect wiring as per wiring connections table. The controller is supplied with a swivel stick antenna, the antenna can be connected directly to the controller, alternatively a chassis mount antenna could be installed (1.8dB Gain Max).
- Step 4:** Pairing the wireless detector to the Controller: Apply power to the controller and ensure that the power LED is on. To enter pairing mode, press and hold the reset switch until the detect LED starts flashing (approx. 10 seconds). When the controller receives a response from a MD360 detector whilst in pairing mode it will automatically pair that detector to the controller. The detect LED will stop flashing when paired, if the detect LED has stopped flashing but is on, then follow step 5 to reset the detector.
- Step 5:** Resetting the detector: pressing and holding the reset switch for 2 seconds will cause the detector to be manually reset, during this stage it is important to ensure that there is no ferrous objects within the sensing range of the detector. The reset LED will stop flashing once the detector has been reset. The MD360 detector is now ready for use.

Note: Only one wireless detector can be paired to a controller at one time, to change which detector is paired follow step 4 again. Pairing can take up to 2 minutes for the detector to respond to the controller.

Diagnostics

SYMPTOM	POSSIBLE CAUSE	SOLUTION
The POWER LED is not on.	No power supply voltage on the input.	Check that the power supply is correctly wired to the controller. (Terminals 1 and 2)
The POWER LED is flashing	The Detectors battery voltage is low and will need to be replaced.	Order replacement MD360 detector.
The DETECT LED stays on.	Local environmental change.	Re-calibrate the detector by pressing the reset button.
The DETECT and RESET LED's are alternately flashing	The Controller has lost comms with the detector. There is possible radio interference.	Try moving the Controller closer to the detector.
The signal range is too short	This could be due to attenuation of the signal if the controller is mounted in a metal enclosure.	Try changing the antenna direction or relocate the antenna to the outside of the cabinet using a relocation kit (not supplied with controller).