

## Loop detectors

# Sensors

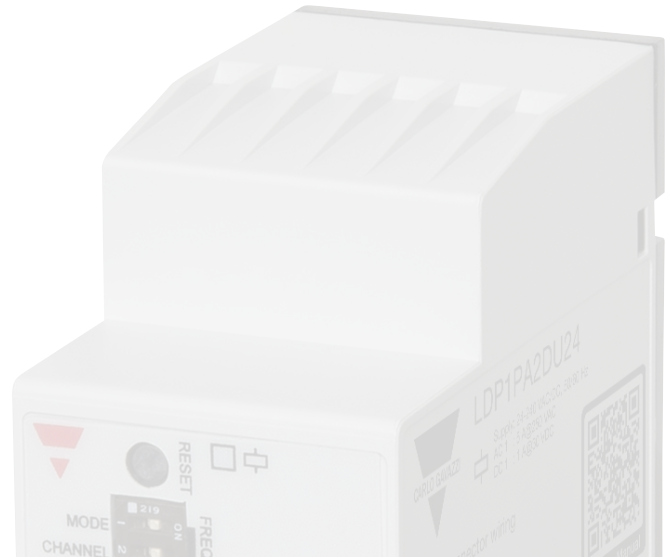
# LD series

## Loop detectors

LD series loop detectors are ideal to be used in car access applications to control barriers, gates, bollards and ticketing machines.

Loop detectors is the best solution in the market in detecting vehicles and can be found in carparks, toll gantries, traffic lights, on the streets, at the entrance/exit of any premises and in many other places.

LD series loop detectors come with many features that are designed specifically to simplify the installation process and also equipped with diagnostic capability to ease troubleshooting while providing a reliable and efficient way of vehicle detection.



## Vehicle detection solution

### Adjustable sensitivity

Loop input inductance: 20  $\mu$ H to 1000  $\mu$ H with adjustable sensitivity via 10 step potentiometer easily accessible from the front.

### Automatic frequency tuning

Loop frequency is automatically tuned to avoid crosstalk between adjacent loops. If manual tuning is preferred, 4 frequency channels are available and can be easily set via dip switches.

### Automatic sensitivity boost (ASB)

ASB function boosts the loop sensitivity to allow the detection of high bed vehicles such as trucks, buses and trailers.

### Fail secure and fail safe

In case of power loss or loop fault, the configuration of the output will change to indicate detection (FAIL SAFE) or not detection (FAIL SECURE) of a vehicle and hence open or close the gate or barrier.

### Wide power supply range

24-240 VAC/VDC rated operational voltage ensures full flexibility.

### Independently configurable outputs

The loop detectors come with 2 x SPDT outputs. Each output is configurable independently and can be configured in pulse or presence mode. The pulse length and presence duration can also be set as well as whether pulse during entrance or exit of the loop. Independently configuring the 2 outputs provide great flexibility to meet different installation requirements.

### Directional logic

Using the dual loop version, the direction of the vehicle can be ascertained via the directional logic function. Relay will activate accordingly to the vehicle direction.

### Multicolour LED for easy diagnostic

Multicolor LEDs will indicate different colors depending on the status of the loop detector and of the 2 relay outputs. The Loop LED will indicate the loop status such as inductance too low or too high, loop short circuit or open circuit and many others. This makes the troubleshooting process easy, and enables constant monitoring of the loop health.

# LD series

## Loop detectors

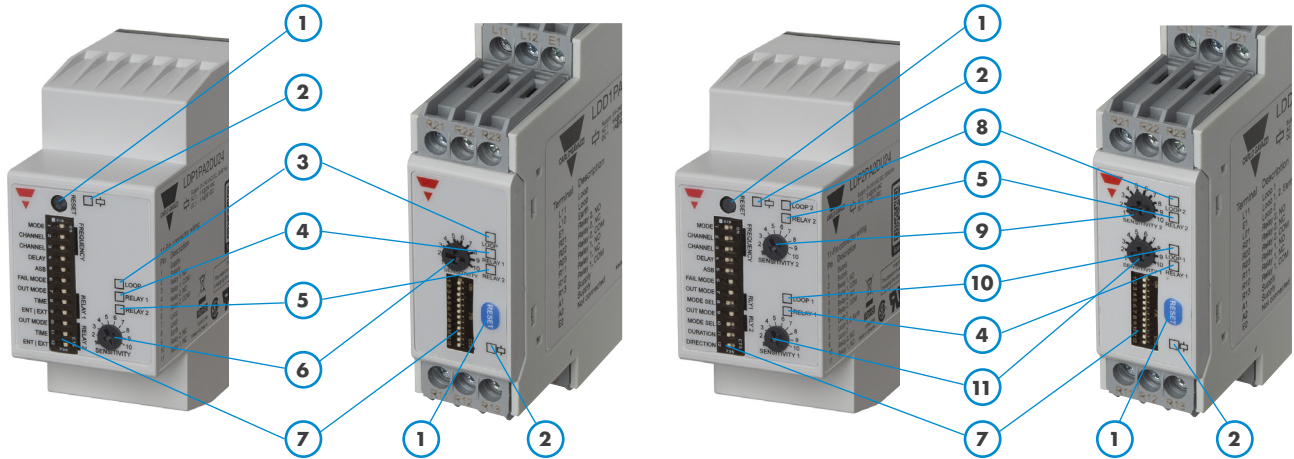
### Structure

LDP1PA2DU24

LDD1PA2DU24

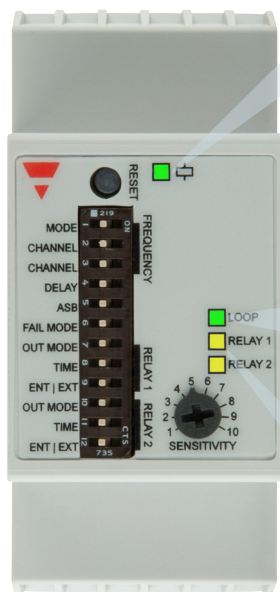
LDP2PA2DU24

LDD2PA2DU24



1	Reset button	7	Dip switches
2	Power / fault LED	8	Loop 2 LED
3	Loop LED	9	Potentiometer loop 2
4	Relay 1 LED	10	Loop 1 LED
5	Relay 2 LED	11	Potentiometer loop 1
6	Potentiometer		

### Multicolour LEDs for easy troubleshooting



#### Power / fault indicator

LED colour	LED constant	LED Flashing
● Green	All OK (ASB OFF)	DIP switch changed, but changes not in effect
● Blue	All OK (ASB ON)	-
● Yellow	Low signal indication	-
● Red	Channel crosstalk	-
○ White	-	Indication of the frequency channel

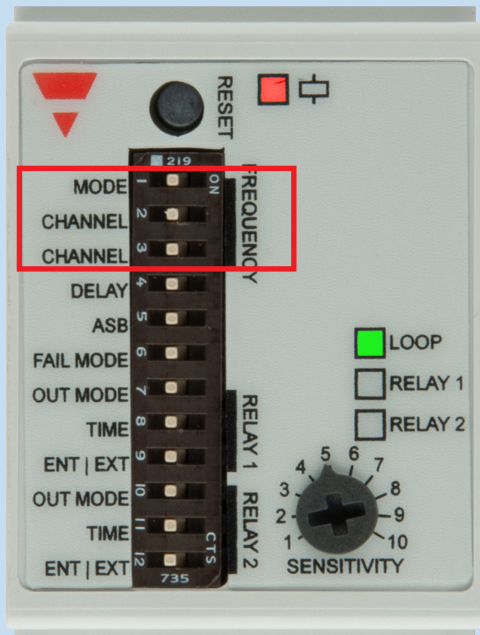
#### Loop state LED

LED colour	LED constant	LED Flashing
● Green	Inductance ok	-
● Yellow	Inductance too high	Inductance too low
● Red	Loop is open circuit	Loop is short circuit

#### Relay state LED

LED colour	Mode	Relay deactivated	Relay activated
● Yellow	Presence mode	LED OFF	LED ON
	Pulse mode, 0.1 s	LED OFF	LED ON for 0.5 s
	Pulse mode, 0.5 s	LED OFF	LED ON for 1.0 s

## Automatic frequency tuning

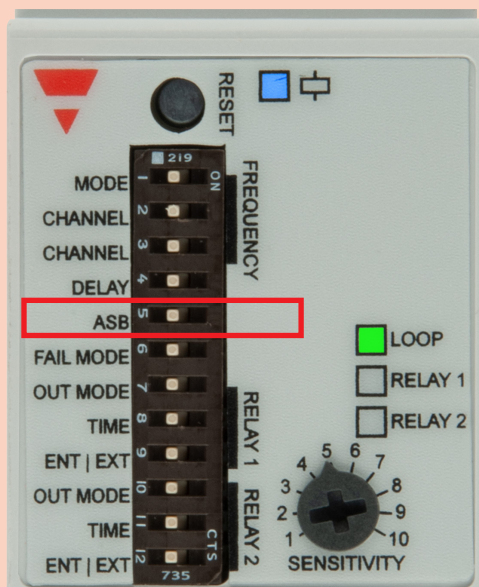


When two or more loops are installed in too close proximity, they may interfere with each other and cause false detections. In order to avoid cross talk issues there are two possibilities:

If the loop detector automatic frequency tuning mode is selected, the loop detector will automatically select the best frequency channel.

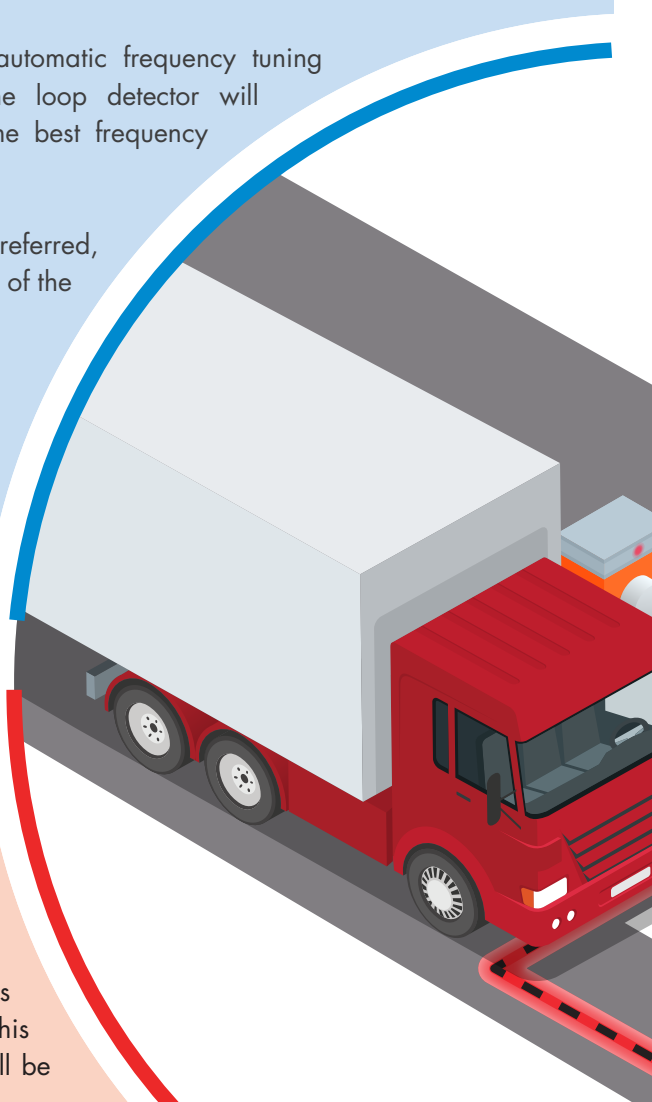
If manual tuning is preferred, the user can select one of the 4 channels available.

## Automatic sensitivity boost



When enabled, the Loop detector will boost the loop sensitivity to detect high bed vehicles such as trucks, buses and trailers. This ensures the vehicle will be detected correctly.

ASB function can be turned on manually using the dip switch. Blue color power LED will indicate that the ASB mode is ON.



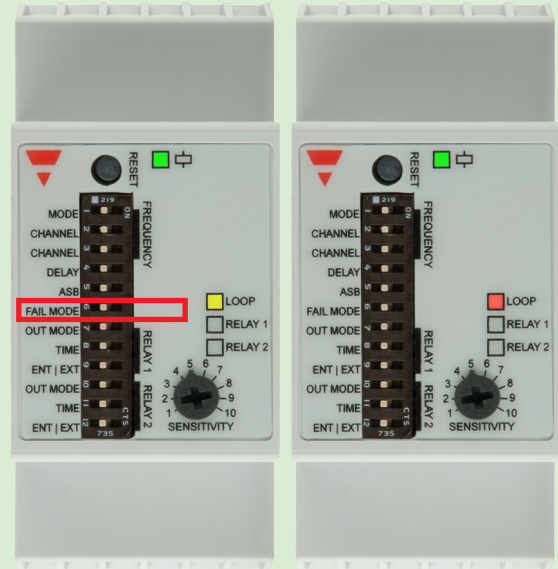
**LOOP 1**

## Diagnostic capability

Most of the time, it is indeed a hassle for installer to ascertain the health of the loop.

The multicolour loop LED diagnostic features will definitely reduce troubleshooting time and provide an effective monitoring of the loop status. Different colors will indicate cross talk, short circuit, open circuit, inductance too low or too high.

In case of power loss or loop fault, the Loop detector can be configured either to open (fail safe mode) or close (fail secure mode) the barrier.



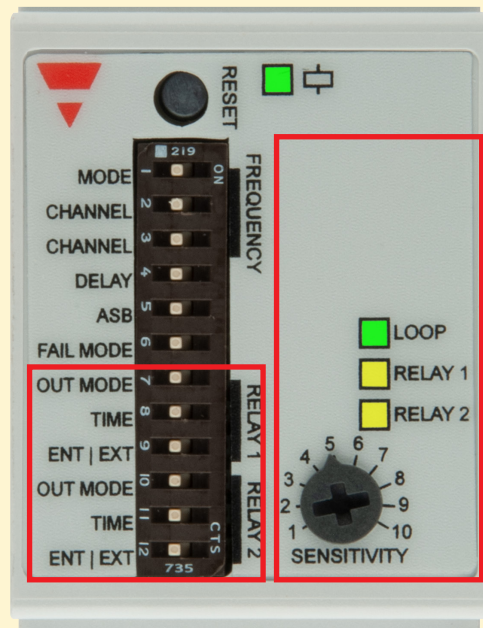
## Flexibility

The sensitivity of each loop can be independently and easily adjusted via the 10-step rotary switch on the front.

The 2 x SPDT outputs can be independently configured to operate in pulse or presence mode, with adjustable pulse and presence duration.

The dual loop version can also detect the vehicle direction.

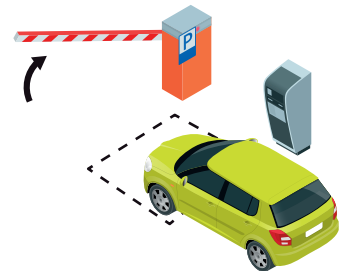
24-240 VAC/VDC universal power supply ensures full flexibility.



# Applications

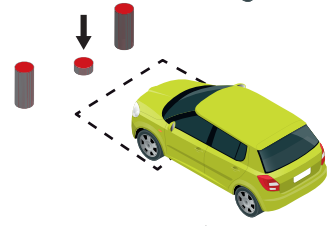
## Carpark barriers

Activation of carpark barriers.  
 Used in public car parks, apartments, shopping malls, hotels and others.  
 Used also to activate ticketing machine and for occupancy counting.



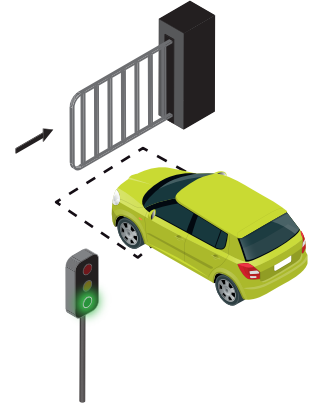
## Bollards

Activation of bollards.  
 Used in streets, single parking space, pedestrian areas, residential security installations.



## Gates and industrial doors

Activation of gates and industrial doors.  
 Used in factories, warehouses, premises gates, private residential.



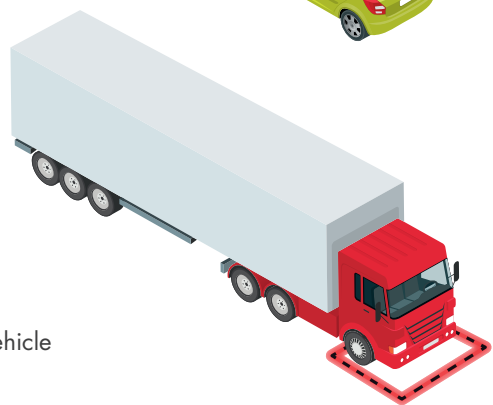
## Traffic lights

Used in conjunction with smart street traffic lights, gates traffic lights to optimize traffic flow.  
 Used on the streets, premises gates, up/down ramps, toll gantries.



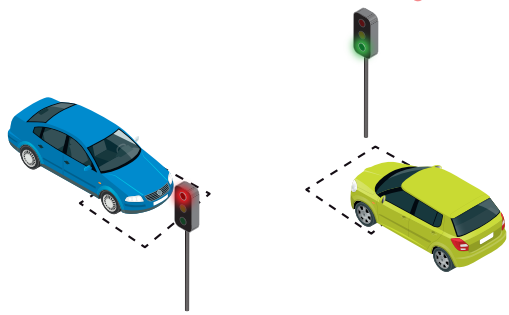
## High bed vehicles

Used to detect high bed vehicles.  
 Used in car parks, streets, factories, warehouses.  
 Automatic sensitivity boost (ASB) ensures a reliable detection of high bed vehicle such as buses and trucks.



## Traffic flow

Detect vehicles from both direction especially in single lane using the directional logic function for smooth traffic flow.



## Specifications

Code	LDP1PA2DU24	LDD1PA2DU24	LDP2PA2DU24	LDD2PA2DU24
Type	Single loop Plug IN	Single loop DIN rail	Dual loop Plug IN	Dual loop DIN rail
Loop input inductance	20 $\mu$ H ... 1000 $\mu$ H			
Adjustable sensitivity	0,01% ... 1,00%			
Number of adjustable steps	10			
Number of frequency channels	4			
Frequency range	10 ... 130 kHz			
Loop fault detection	Short circuit, open circuit, inductance out of range, frequency crosstalk			
Response time	130 ms			
Output type	Relay			
No of output	2 x SPDT			
Output mode	Pulse or presence; selectable via dip switch			
Output Assignment	2 x SPDT for loop 1		1 x SPDT for loop 1 and 1 x SPDT for loop 2	
Rated operational voltage (Output)	250 VAC/VDC			
Rated operational current (Ie)	AC1: 5 A @ 250 VAC DC1: 1 A @ 30 VDC			
Mechanical lifetime	15 x 10 <sup>6</sup>			
Electrical lifetime	>100 000 operations (@5A load)			
Protection	Reverse polarity and overvoltage			
Rated operational voltage (UB)	24 ... 240 VAC/VDC			
Power consumption	24 VAC/VDC < 2 W / 2.5 VA 115 VAC/VDC < 2 W / 3 VA 240 VAC/VDC < 2 W / 4 VA		24 VAC/VDC < 2.5 W / 3.5 VA 115 VAC/VDC < 2.5 W / 4 VA 240 VAC/VDC < 2.5 W / 5 VA	
Rated supply frequency	45 to 65 Hz			
Rated insulation voltage	800 V			
Rated impulse withstand voltage	4 kV (1.2/50 $\mu$ s)			
Power-ON delay (tv)	5 s for manual frequency tuning, 10 s for automatic frequency tuning			
Protection (output)	Reverse polarity, transients			
Ambient temperature	-40° ... +70°C (-40° ... +158°F) (operating) -40° ... +70°C (-40° ... +158°F) (storage)			
Ambient humidity range	0% ... 90%			
Overvoltage category	III (IEC)			
Degree of protection	IP30 (IEC)	IP20 (IEC)	IP30 (IEC)	IP20 (IEC)
Pollution degree	2 (IEC)			
Connection type	11 pin circular plug-in	Screw terminal	11 pin circular plug-in	Screw terminal
Connection at socket (ZPD1 1A)	Screw terminal	-	Screw terminal	-
Housing material	PPO PX9406-802, PPO Noryl SE1			
Colour	RAL 7035 (Grey)			
Dimensions	LDP: 81 mm (h) x 35.5 mm (w) x 60.2 mm (d) LDD: 84 mm (h) x 22 mm (w) x 99 mm (d)			
Weight	105 g	134 g	108 g	139 g
Approvals	CE, CSA, RU	CE, cULus	CE, CSA, RU	CE, cULus

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