

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 µH to 1000 µH 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.

Sensors

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.

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

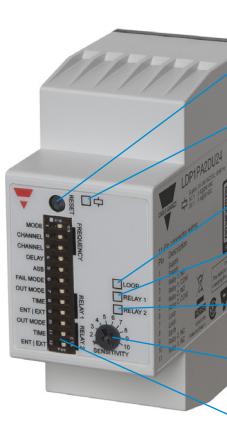
Multicolor LEDs will indicate different colors depending on the status of the loop detector and of the 2 relay outputs. The Loop LED will indicate the loop status such as inductance too low or too high, loop short circuit or open circuit and many others. This makes the troubleshooting process easy, and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

LD series

Loop detectors

Structure

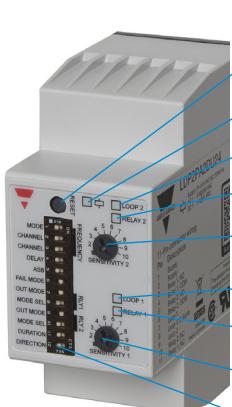
LDP1PA2DU24



LDD1PA2DU24



LDP2PA2DU24

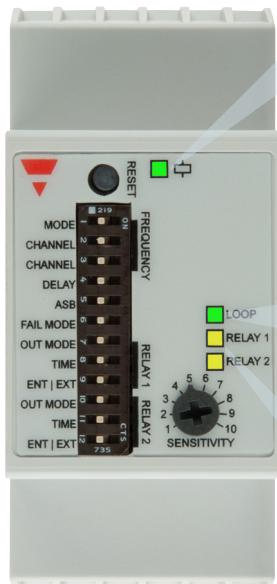


LDD2PA2DU24



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
●	All OK (ASB OFF)	DIP switch changed, but changes not in effect
●	All OK (ASB ON)	-
■	Low signal indication	-
●	Channel crosstalk	-
○		Indication of the frequency channel

Loop state LED

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

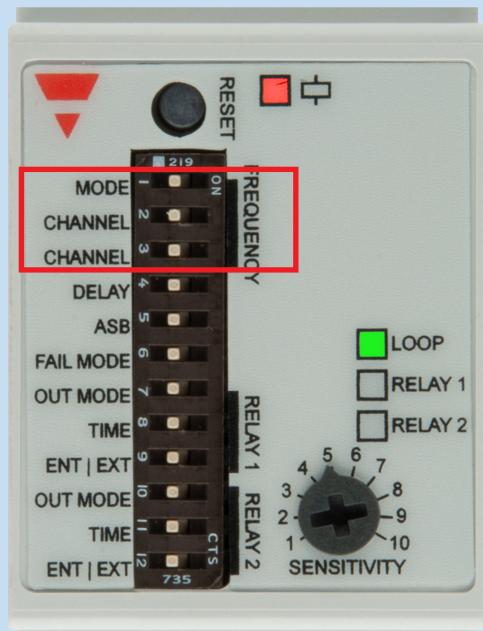
Relay state LED

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

Sensors

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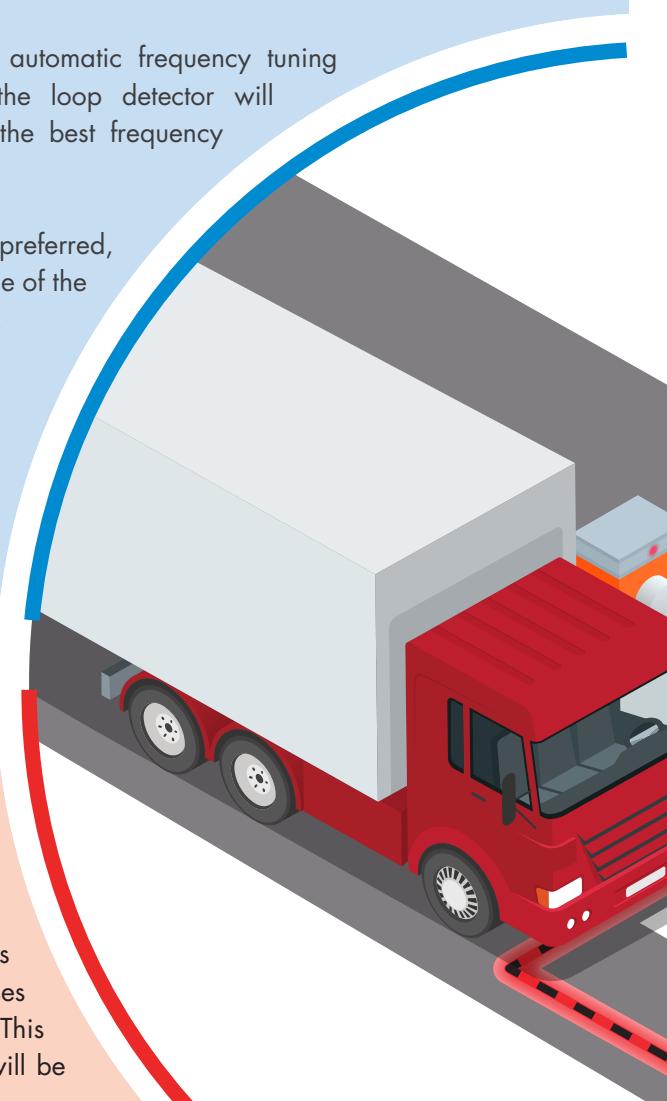
Automatic frequency tuning



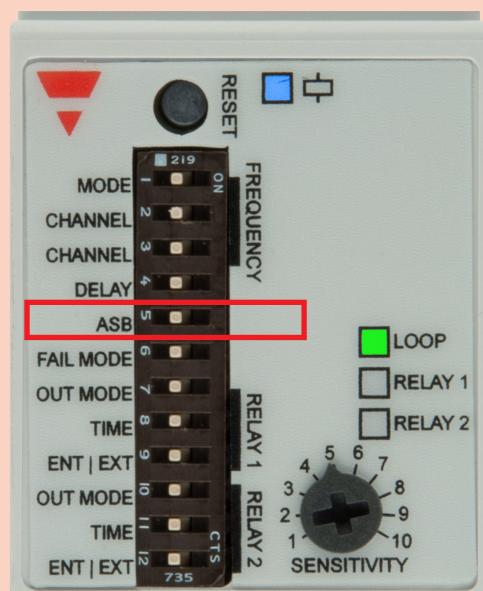
When two or more loops are installed in too close proximity, they may interfere with each other and cause false detections. In order to avoid cross talk issues there are two possibilities:

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 ensure the vehicle will be detected correctly.

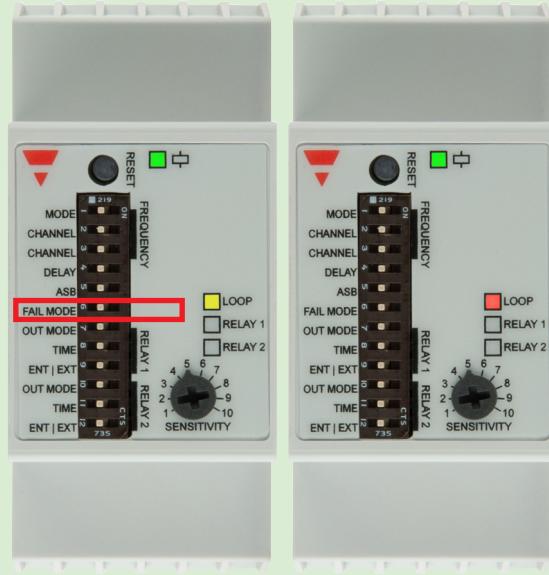
ASB function can be turned on manually using the dip switch. Blue color power LED will indicate that the ASB mode is ON.

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 to operate appropriately either to open (fail safe mode) or close (fail secure mode) the barrier.



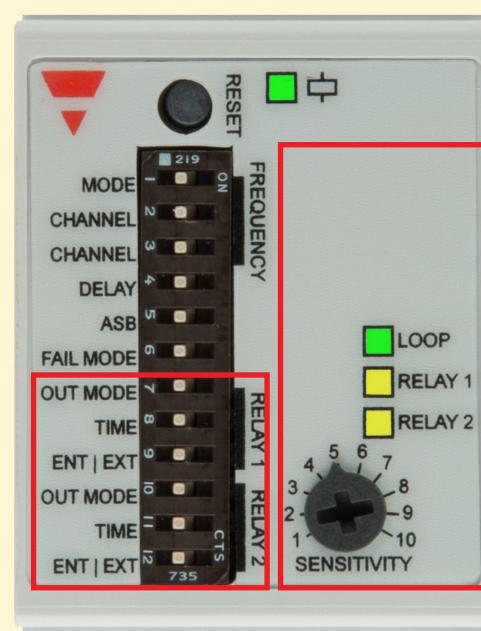
Flexibility

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.

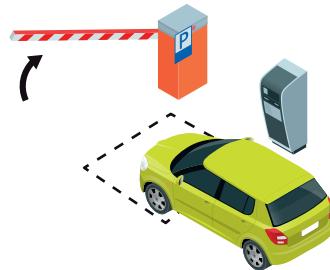
24-240 VAC/VDC universal power supply ensures full flexibility.



Applications

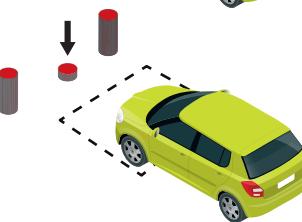
Carpark barriers

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



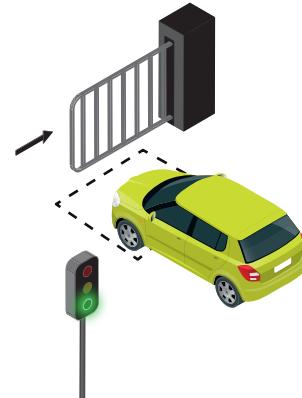
Bollards

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 residencies.



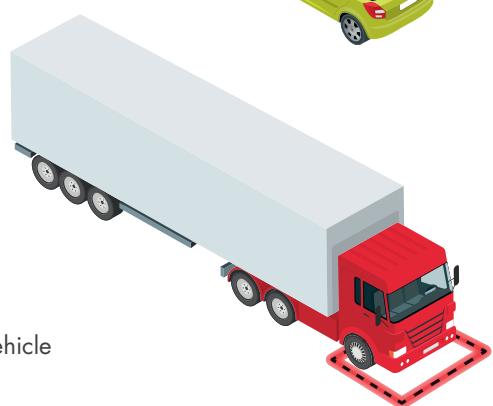
Traffic lights

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.



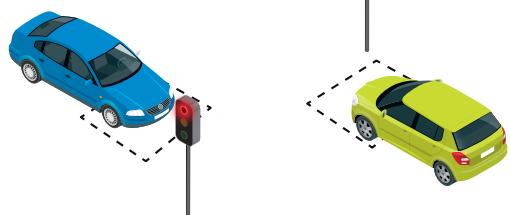
High bed vehicles

Used to detect high bed vehicles.
Used in carparks, 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	LDL1PA2DU24	LDP2PA2DU24	LDL2PA2DU24
Type	Single loop Plug IN	Single loop DIN rail	Dual loop Plug IN	Dual loop DIN rail
Loop input inductance		20 µH ... 1000 µH		
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 (le)		AC1: 5 A @ 250 VAC DC1: 1 A @ 30 VDC		
Mechanical lifetime		15 x 10 ⁶		
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 µs)		
Power-ON delay (t _v)		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 (ZPD11A)	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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