



## Sensor Line SL PUR-VD

High-reliability vehicle direction detection via redundant dual-core sensor architecture.

### Product Description

SL PUR-VD is designed for high-accuracy vehicle detection in road traffic, supporting applications such as axle direction detection, axle counting, vehicle classification, speed measurement, and headway monitoring.

The SL PUR-VD sensor operates on a fiber-optic pressure principle. When a tire passes over the sensor, the resulting pressure deforms the unit, causing a temporary decrease in optical transmittance. These variations are captured by high-precision opto-electronic interfaces and converted into digital signals for traffic data processing.

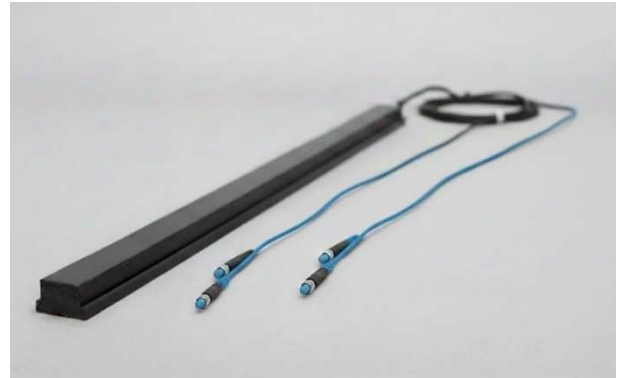
Equipped with independent dual fiber-optic sensor cores, the SL PUR-VD provides high-reliability performance:

**Directional Intelligence:** The specific trigger sequence between the two internal cores enables precise detection of axle movement direction.

**Fault Tolerance (Redundancy):** In the event of a single-core failure or performance degradation over time, the secondary core continues to provide uninterrupted axle counting data. This ensures system uptime and data integrity for classification systems until maintenance can be performed.

### Advantages

- Vehicle direction detection
- Redundant sensor core
- Excellent service life
- 99.99+% vehicle detection rate
- Speed independent
- Highly reliable and maintenance free



SL PUR-VD sensor

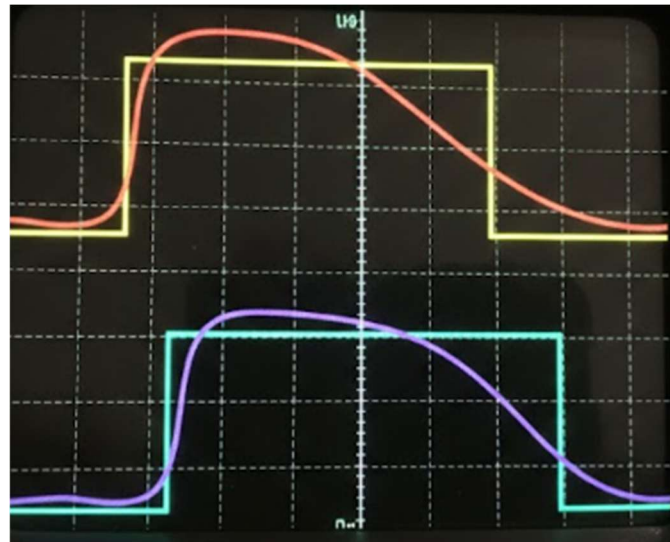
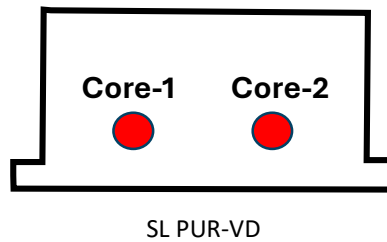
# Fiber-optic sensor for axle counting and axle direction detection

## Characteristics

- SL PUR-VD sensors detect vehicles such as cars, trucks, buses and motorbikes.
- Typical applications are axle counting, axle direction detection, vehicle classification, speed and headway measurement.
- A ready to install SL PUR-VD sensor comprises the sensor element itself, two fiber optic feeder cables spliced directly to it and terminated with fiber optic connectors.
- To operate the SL PUR VD sensor, it is connected to a Sensor Line opto-electronic interface. Furthermore, the MX210 analyzer board features an integrated, ready-to-use vehicle direction function.
- The SL VD-210 is an electronic board that provides axle-counting and vehicle-direction signals, eliminating the need for additional high-speed signal capture and data-processing mechanisms within the lane controller.

## Benefits

- Axle direction detection
- Redundant axle counting
- 99,99+% detection rate - all vehicles are detected independent of poor visibility caused by smoke, rain, fog or snow
- Excellent service life - no material fatigue and no mechanical parts.
- Speed-independent, works with stop-and-go traffic
- No maintenance or calibration needed at or after installation.
- Customized sensor length possible - up to 4.5 m (15 ft) and cable length up to 250 m (820 ft).



Typical signal output of SL PUR-VD interfaces and SL sensors

# SL PUR-VD Technical Data

## Dimensions

<b>Sensor element</b>	Length	up to 4.5m (15 ft)
	Insensitive zones	tip 60 mm (2.7 in) feeder joint 130 mm (5.1 in)
	Width	Top 35 mm (1.38 in) Bottom 47 mm (1.85 in)
	Height	21 mm (0.83 in)
<b>PE enforced feeder cable</b>	Outer dimension	4 x 6.6 mm (0.16 in x 0.26 in)
	Length	up to 250 m (820 ft)
	Weight	25 g/m (0.81 oz/yd)
	Maximum short term pull tension	60 N
	Minimum bending radius	25 mm (0.98 in)
<b>Fiber connectors (plastic / metal)</b>	Length	34 mm (1.34 in)
	Max. diameter	8.5 mm (0.33 in)

## Performance

Average Life (MTTF)	5+ years or 10+ million axles
Maximum speed	up to 250 km/h (155 mph)
Operating / storage temperature	-30 °C to 85 °C (-22 °F to 185 °F)
Humidity	No limitation
Warranty	24 months

## Accompanying Products

<b>Electronic Boards</b>	SL MA-110: Analog Electronic Interface with 1 channel
	SL MA-210: Analog Electronic Interface with 2 channels
	SL MA-310: Analog Electronic Interface with 3 channels
	SL MD-220: Digital Electronic Interface with 2 channels
	SL VD-210: Vehicle Direction Detection Board with 2 channels
	SL PUR SLOT FILLER: grout for installation
	Hanger Bars for PUR-VD sensors

## Ordering Information

SL PUR-VD XXX-Y-ZZ  
(PE)

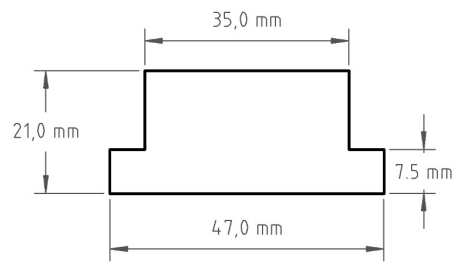
XXX: Sensor length (cm)

Y: Connector type (1: Plastic FSMA, 2: Metal FSMA reusable)

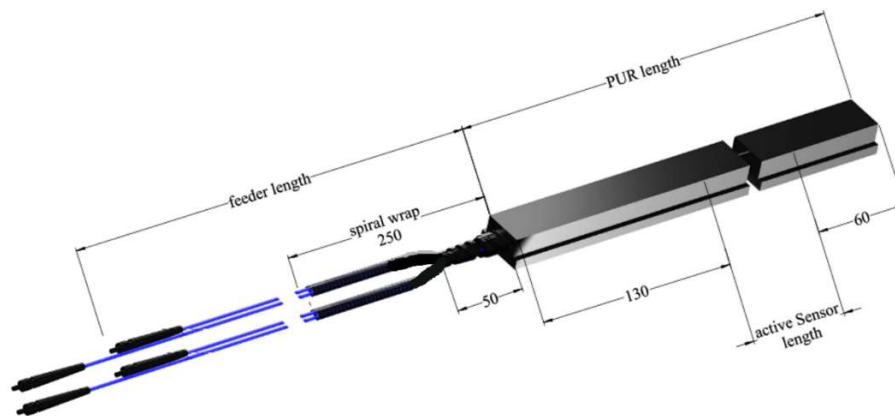
ZZ: Cable length (m)

PE: Blue sensor cable with reinforced PE sheath

## SL PUR-VD Drawings



Profile SL PUR-VD (\*)



3D Drawing SL PUR-VD

(\*) The width of PUR-VD sensors is wider than that of standard PUR sensors. Please use proper hanger bars for installation.