Vehicle detector

Laser and photocells

LSR2001 AXLES

LASER SCANNER FOR PROFILE DETECTION + PHOTO-CELLS FOR AXLES DETECTION

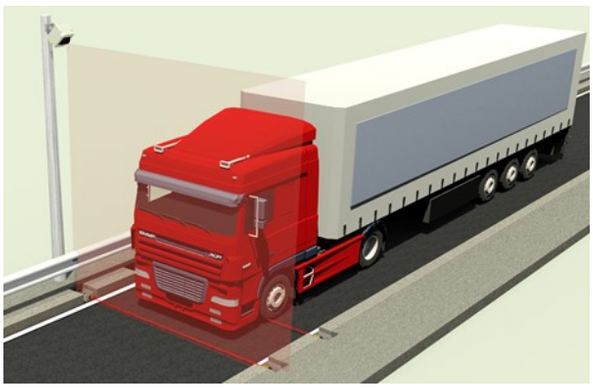
The LSR-2001-AXLES sensor uses laser technology to detect vehicles and infrared photocells to detect axles. The emitted laser beam is used to scan on 1 plane on a 96° angle. Along the plane the sensor detects 274 points and is able to precisely identify the profile of the vehicle. The maximum sensing distance is 30 m and the emitted beam is on the infrared field so it is not visible.

The photocells couple consist of an emitter and a receiver and work on the infrared range. They are able to accurately detect the presence of axles thanks to the interruption of the emitted beam.

LSR2001-AXLES-2 with double photocell

LSR-2001T-AXLES-2 is able to provide the speed and the length of the vehicle. Thanks to its laser scanner, the detector can measure the vehicles profiles and their presence. For this reason, it is very accurate in classifying and counting vehicles even in “heavy” traffic conditions, stop & go and in queue situations.

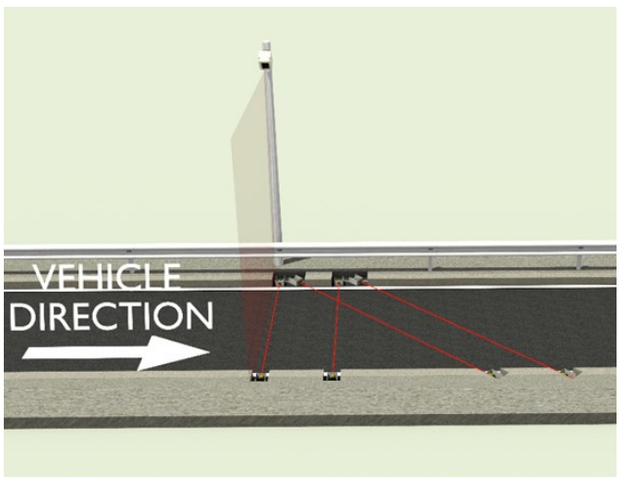
In order to create a complete set of data about the transit, the CPU collects the information both from the laser sensor and from the photocells.



Picture 1: LSR2001-AXLES-2 with double photocell

LSR-2001-AXLES should be installed at toll stations or in places where there is a physical separation between adjacent lanes to install the photocells on the ground. The detector has been designed both from the mechanical and firmware point of view to work outdoor with bad weather conditions. The firmware has specific rain and the snow filters.

The scanner optics are designed in a different way than other producers do, and are made of two different areas for sending and receiving the laser beam making it resistant to dust, water and other elements. The photocells have been designed to cover



Picture 2: LSR2001-AXLES-4 with 4 photocells

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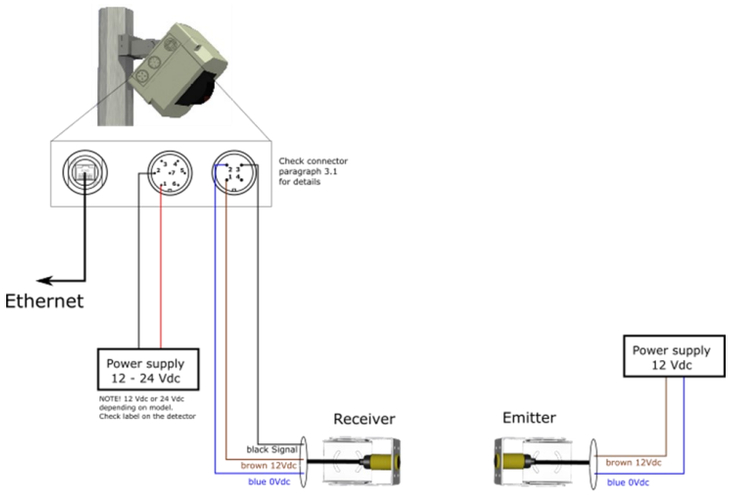
much greater distances than the width of the lane so they have a good immunity to water and dirt.

LSR2001-AXLES-4 with 4 photocells

LSR2001-AXLES-4 is the last version realeased. This system is equipped with a laser scanner sensor and 4 infrared photocells .

Thanks to the addition of 2 photocells, LSR2001-AXLES-4 is very accurate and can provide counting, speed and also double wheel detection.



In both versions, the photocells have to be installed on the ground at a height of about 5 cm from the ground. The receiver shall be placed on the same side of the laser sensor whereas the transmitter shall be placed on the opposite side, perpendicular to the lane.

As regards the laser sensor installation, it must be placed on a pole on the side of the lane at about 5 meter height.

The communication with the sensors can be done through an Ethernet line and the sensors configuration is easily performed through web pages.

Data provided by the system:

- Counting / vehicle presence
- Classification in 8+1 classes
- Number of axles
- Height and width of the vehicle
- Speed
- Length
- Double wheel detection (only with the 4-photocell version)

TECHNICAL SPECIFICATIONS

Technology	Laser scanner, time of flight measurement
Emitted light	905 nm – not visible
Laser class	Class 1
Max. detection range	30 m
Scan angle	96°
Scan period	16 ms (60 Hz)
Transmission power	16 dB
Communication line	Ethernet
Temperature range	-45°C +60°C
Power supply	12 or 24 Vdc
Photocells	Infrared
Protection	IP65 laser and IP69 photocells
Photocells response time	LSR2001: -20°C : +50°C LSR2001T: -40°C : +60°C
Power consumption	< 5W

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