



The HeArt of Traffic Detection

SMART CITY CATALOGUE



# Company Profile

Founded in 1994, Comark is a company specialized in the field of traffic monitoring and parking systems. We take care of the design, development and manufacturing of products for the road traffic, parking areas and cycling lanes market.

To meet the highest standards of quality, Comark is certified ISO9001.

# Smart City

Bicycle, e-scooter & Pedestrian data collection  
Bike counter Totem  
People Counter



# LSR2001BC

Laser Bike, e-scooter & pedestrian counter

 **comark**

The LSR2001BC detector uses the laser technology to detect bicycles, e-scooters and pedestrians. The emitted laser beam is used to scan on 4 parallel planes at an angle of 96 °. For each plane the sensor detects 274 points and is able to accurately identify the profile of the bicycle, e-scooter or person.

The laser detector is able to:

- Count bicycles, e-scooters, pedestrians
- Discriminate between Bicycles, e-scooter and pedestrians
- Detect the transit direction

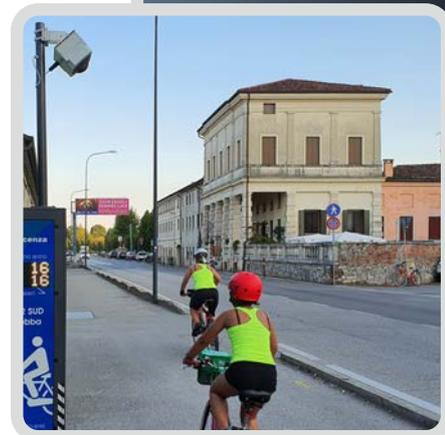
Opposed to other simpler counting systems, the sensor LSR2001BC is very accurate in detecting bicycles, e-scooters and pedestrians; even in case of groups. The sensor performs continuous scans across the width of the cycle path and is able to discriminate individual bicycle even if very close to each other.

Another important feature is the ability to distinguish between pedestrians, e-scooters and cyclists analyzing the profile.

The sensor must be installed on a pole at the side of the cycle path at a height between 2 to 5 meters. The sensor is equipped with an adjustable bracket which allows the precise orientation.

The detector has been designed by both the mechanical and the firmware point of view to work outdoors even with adverse weather conditions. The firmware implements filters for rain and snow.

The sensor is equipped with a CPU that processes the signals received from the scanner to obtain all the data related to transit. The communication with the sensor can be done through Ethernet line. The configuration through the Ethernet line can be carried through the use of simple and intuitive web pages.



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# LSR2001 BC

Laser Bike, e-scooter & pedestrian counter

**comark**

Technology	Laser scanner
Number of planes	4
Points per plane	274
Emitted Light	905 nm not visible
Laser class	Class 1
Range	30 mt
Scan angle	96°
Scan frequency	16 m sec
Power supply	12 ÷ 28 Vdc
Protection	IP65
Temperature range	LSR2001: -20°C ÷ +50°C LSR2001T: -40°C ÷ +60°C



Counting	✓
Classification bicycle/e-scooter/pedestrian	✓
Multiple lanes detection	✓
Detection of groups	✓
Transit direction	✓
Occupancy time	✓



## ACCESSORIES

- Mounting Brackets
- Environmental Protections
- Stainless Steel Casing
- Router
- CO1010 Control Unit

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# BIKECOUNT200

Totem

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The BIKECOUNT200 totem displays the data collected by the LSR2001BC detector.

The totem consists of a structure in powder-coated extruded aluminum and polycarbonate surfaces on which the reflective film with screen printing is applied.

The standard version of the totem includes a variable message area with white LED technology capable of displaying two lines of data (for example, annual transits and daily transits).

The electronic parts for managing the display, the CPU for communicating with the sensor and the control center, are placed inside the totem.

At the control center it will be possible to check the statistical data on the transits and the diagnostics of the various totems installed.

The installation of the totem takes place through the creation of an underground plinth with approximate dimensions of 100 x 120 x 40 cm. on which the supplied log bolts are drowned. The totem is placed on the plinth and fixed by bolts to the log bolts of the plinth.

On the upper part of the totem, a pole of about 1.5 meters can be installed on which it is possible to mount the counter sensor.

## Customizable layout

It is possible to customize the layout of the totem both on the screen printing part, with specific writings and images, and on the the display part. It is in fact possible to add additional variable message areas where to write, for example, information to users.

Furthermore, the totem can be produced in both single-sided and double-sided versions, that is, with screen printing and variable message area visible from both directions.



## ACCESSORIES

- Additional 2 LED data lines
- Router
- Double-sided display

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# LSRPEOPLE

## Counter



LSR-PEOPLE is a highly precise laser-based people counter. Independent of light variations and weather conditions, its laser time-of-light technology guarantees an accurate counting system, whatever the environment or size of the audience.

### High precision & reliability

It generates high resolution detection field with more than 11250 laser beams per second. Our people counter offers a reliable counting solution that accurately classifies adults and children. The algorithm inside LSR-PEOPLE is able to efficiently filter a vast amount of objects like manual and automatic doors, shopping carts and strollers.

Day or night, light or dark, thanks to its laser time-of-flight technology, the counting is totally independent of light variations and weather conditions. You can now also count with high accuracy in dark or bright places.

### Counting, anonymously

Its laser time of flight counting technology is 100% anonymous. It analyses scatterplots of laser beams to identify the unique pattern of a person while filtering objects. The built-in validation camera can be masked for sensitive applications without affecting the counting performances.



Technology	Laser scanner, time-of-light
Emitted Light	905 nm not visible
Laser class	Class 1
Detection area width	1,6 mt (at 2mt height) 7,5 mt (at 5,5mt height)
Dimensions	200x142x61 mm
Data transfer	3G/2G, Ethernet (cable cat. 5/6)
Power consumption	6W (max 12W/peak)
Power supply	PoE or 24 Vdc
Protection	IP53
Installation height	2mt or 5,5 mt
Temperature range	-25°C ÷ +55°C

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# MAXPEOPLE

## Control Unit for LSRPEOPLE Counter



**comark**

The MAXPEOPLE control unit allows to manage several LSRPEOPLE detectors.

It collects the data about people counting from every sensor, aggregates the data, stores them locally and send them to the server.

It is thus possible to know the total people who entered and exited from different doors.

The data collected can be sent to the Control center by using an Ethernet or wireless (4G) connection.

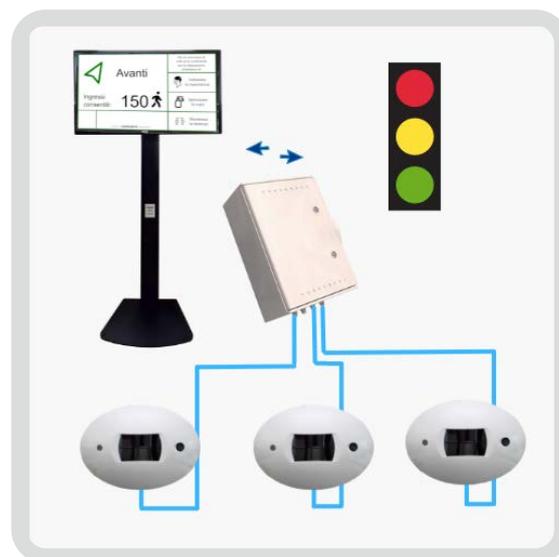
It is also possible to configure the MAXPEOPLE to control the number of people inside public or private places such as shops, supermarkets, gyms, etc.

Once the maximum number of people, who can access the place has been set, the system will automatically count the entrances and exits of people and allow the entry of people until reaching the maximum capacity. A display with customizable graphics can show the number of people inside or write text such as "Go - Wait" (supplied as an optional).

MAXPEOPLE is composed by:

- Electrical cabinet
- Power supply
- CPU
- Switch / router (optional)

The MAXPEOPLE control unit can be configured by using a web browser.



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# Software

Data Analytics  
Diagnostics  
Reports



# OMNIVIEW

## Software



The Omniview software allows to manage and configure the control units and sensors in the field.

### FUNCTIONS

- Configuration of sensors and control units
- Data acquisition from devices in the field
- Storing data on the database
- Device diagnostics
- Processing and aggregation of data
- Creation of reports with graphics and tables
- Map with location of the stations
- Users management

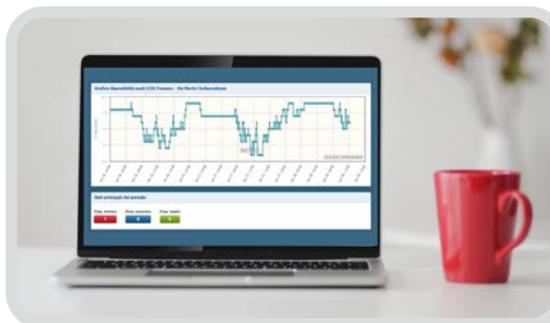
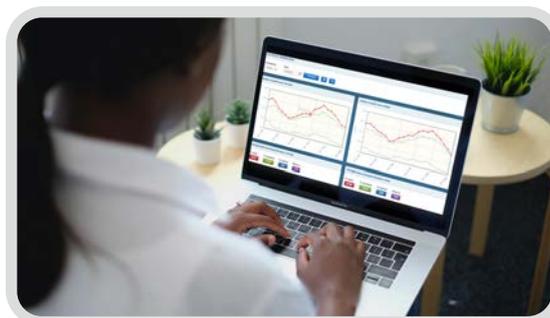
### REPORT (\*)

The software offers an extensive list of reports for displaying data in various forms. For each of them it is possible to filter the data according to the location, the period and the lanes of interest.

Some of the reports available are:

- Display aggregated data
- Display individual transit
- Average daily traffic
- Speed/flow report

(\*): Report possibilities will depend of each sensor's capability of data collection. Comark suggest to check always with the Customer Service the feasibility of reporting.



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# OMNIVIEW

## Software



### DIAGNOSTICS

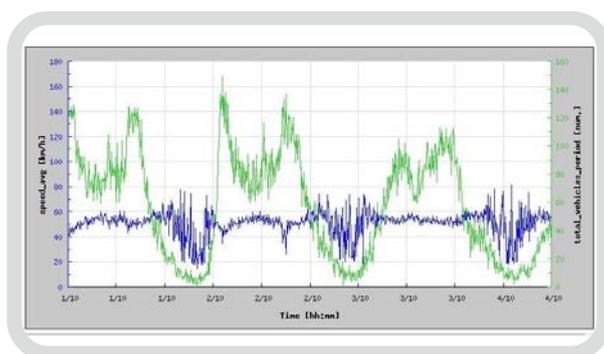
TrafficView allows a real-time monitoring of the system status through the pages that show all devices with anomalies. In particular, it displays the status of the control units, sensors and communication.

### MAP

TrafficView also offers an interactive map view that allows to see the location of devices and monitor their status.

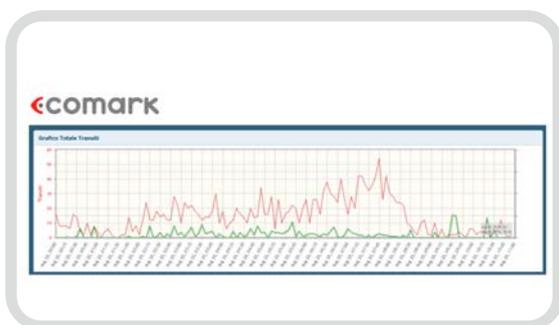
Depending of the application, Omniview software is composed by the following licenses:

- **Omniview Traffic**
- **Omniview Bluetooth**
- **Omniview Parking**
- **Omniview People**



**Node settings**

ID (Pos)	Status	Serial	Thr (Hys)	Time on/off [s]	Sensitivity (X/Y/Z)
1 (1)	●	A77	85 (15)	30/30	100/100/100
2 (2)	●	AB3	85 (15)	30/30	100/100/100
3 (3)	●	BAD	85 (15)	30/30	100/100/100
4 (4)	●	A43	85 (15)	30/30	100/100/100
5 (5)	●	BB5	85 (15)	30/30	100/100/100
6 (6)	●	BBD	85 (15)	30/30	100/100/100
7 (7)	●	B99	85 (15)	30/30	100/100/100
8 (8)	●	BCC	85 (15)	30/30	100/100/100
9 (9)	●	BB4	85 (15)	30/30	100/100/100
10 (10)	●	B6F	85 (15)	30/30	100/100/100
11 (11)	●	BD9	85 (15)	30/30	100/100/100
12 (12)	●	B5A	85 (15)	30/30	100/100/100
13 (13)	●	AB4	85 (15)	30/30	100/100/100



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