cross®

ALL-PURPOSE
TRAFFIC DATA

VEHICLE COUNTING & CLASSIFICATION
DATA COLLECTION

1 +1 min.

BLUETOOTH / WI-FI

2 MAC E0:DA:45:3D:37:94

1 MAC 3D:D6:1A:CF:97:FF

2 +15 min.

2 MAC E0:DA:45:3D:37:94

2116 CARS / 1 HOUR

15 min.

1 MAC 3D:D6:1A:CF:97:FF

15 min.

358 CARS / 5 MIN.

CROSSCOUNT
CONTROL UNIT

CROSSCOUNT
CONTROL UNIT

CROSSCOUNT
SOFTWARE

1205 CARS
1 DAY

BLUETOOTH / WI-FI / LPR

LOOP-BASED COUNTING
& CLASSIFICATION

BLUETOOTH / WI-FI /
LPR

RADAR-BASED COUNTING
& CLASSIFICATION
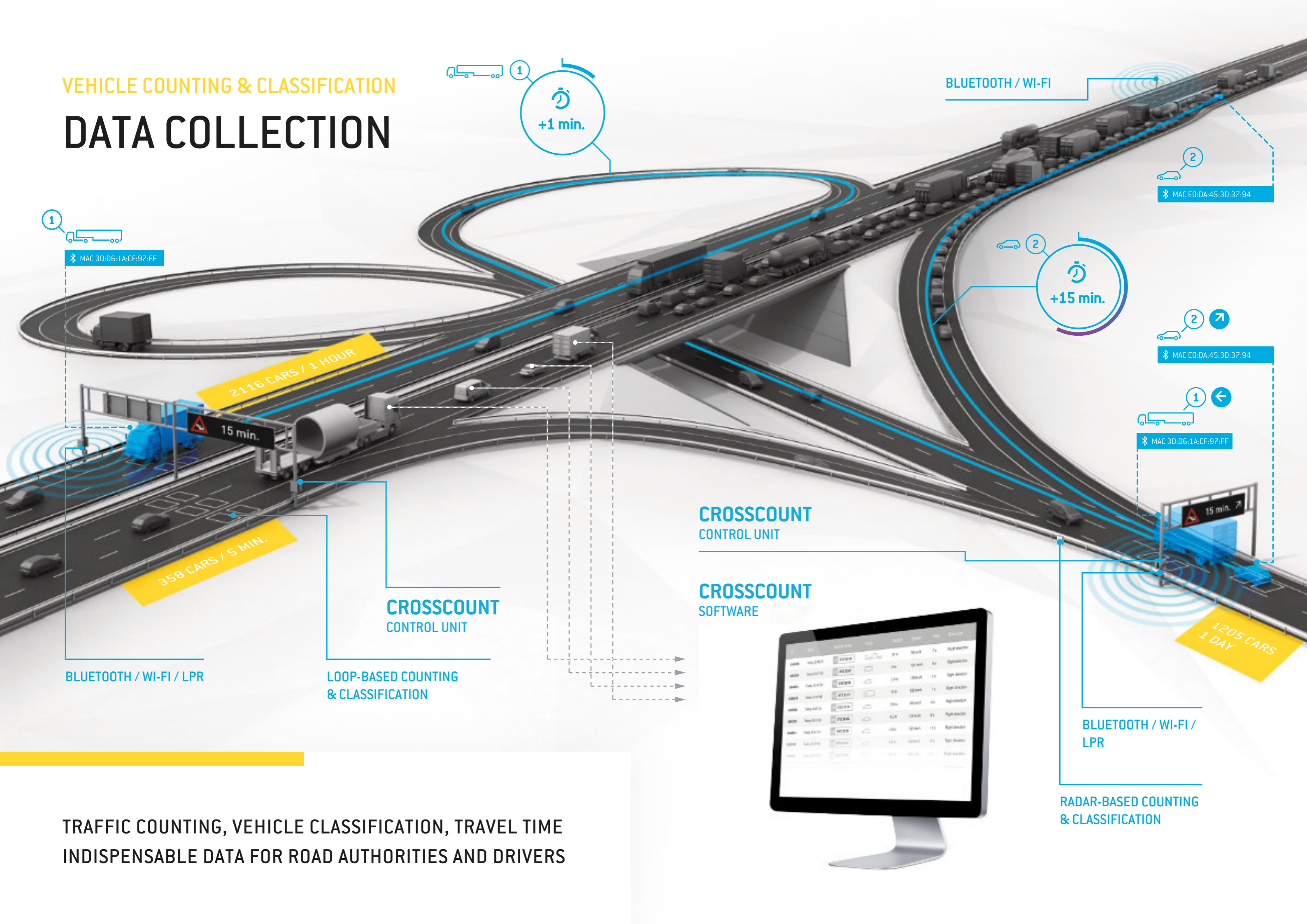
TRAFFIC COUNTING, VEHICLE CLASSIFICATION, TRAVEL TIME
INDISPENSABLE DATA FOR ROAD AUTHORITIES AND DRIVERS

DATA COLLECTION

Keep drivers informed of their expected time of arrival or road hazards. Gather accurate data on rush hour, the volume of traffic and heavily used routes.

Detailed overview of road utilization

Obtain accurate, up-to-date information on the quantity and types of vehicles passing along a road, when peak times occur and the most frequently used routes. Learn which spots experience congestion, where capacity is inadequate and identify potential sites for new roads. CROSS systems facilitate effective administration and oversight of road networks.

15 min

Early warnings and display of travel times

Gather data, use and share it. Administrators of road networks can apply the data our systems collect on traffic to help regulate its flow, for example, by digital signage. Drivers will be informed as to restrictions, hold-ups and how long it takes to get to specific locations.

Make transport plans in accordance with specific data.

Reap the rewards of a focused traffic management solution for cities. Such road networks present particular challenges as they are often constrained and difficult to extend. CROSS excels at implementing effective systems based on precise analysis of traffic flow in city streets.

CrossCount

A reliable and flexible tool for classifying and counting traffic, our CrossCount unit utilizes inductive loop technology and is highly accurate at covering one or more lanes. Employing sophisticated algorithms with the CrossCount device adds extra functionality, while it can also be configured to suit the purposes of any traffic situation.
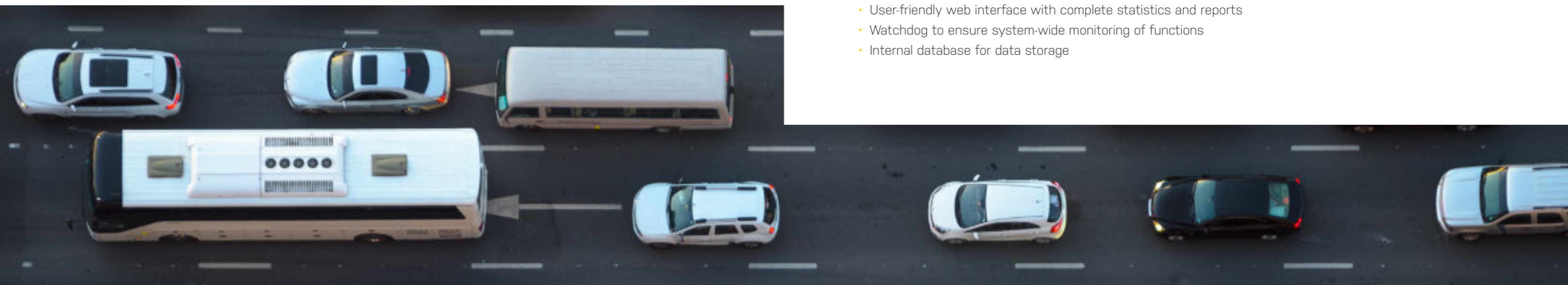
Accurate data   **Precise overview**   **Available as OEM**

Low energy concept

KEY FEATURES

- Internal battery for short-term backup
- High accuracy based on compensation for unusual activity, thereby eliminating external effects
- One module covers up to 12 lanes
- Adjustable to match various dispositions of loops and sensor placement
- Sophisticated classification based on the magnetic signatures of vehicles
- Communication via GSM/GPRS, 3G, TCP/IP, emergency/SOS system data line, Wi-Fi or radio
- Option to export data to other IT systems
- User-friendly web interface with complete statistics and reports
- Watchdog to ensure system-wide monitoring of functions
- Internal database for data storage

TRAFFIC COUNTING & CLASSIFICATION

CLASSIFICATION BY MAGNETIC SIGNATURE	PRECISE CLASSIFICATION BY PIEZO SENSOR	ABSOLUTE CLASSIFICATION BY THREE PIEZO SENSORS
• Based on inductive loops only • Classification by the magnetic signature and length of a vehicle	• Based on inductive loops and a Piezo sensor • Classification by the magnetic signature and length of vehicle, the number of axles, wheelbase, overhang and approximate weight	• Inductive loops combined with three Piezo sensors • This version allows for clear extension of vehicle categories by detecting dual sets of tyres
BASIC CLASSIFICATION EN 8 + 1	**CUSTOMER DEFINED CLASSIFICATION ***	**CUSTOMER DEFINED CLASSIFICATION ***

* Advanced classification enables precise determination of the class of vehicles if requested by users. This is typically based on the standards and conventions of the given country.
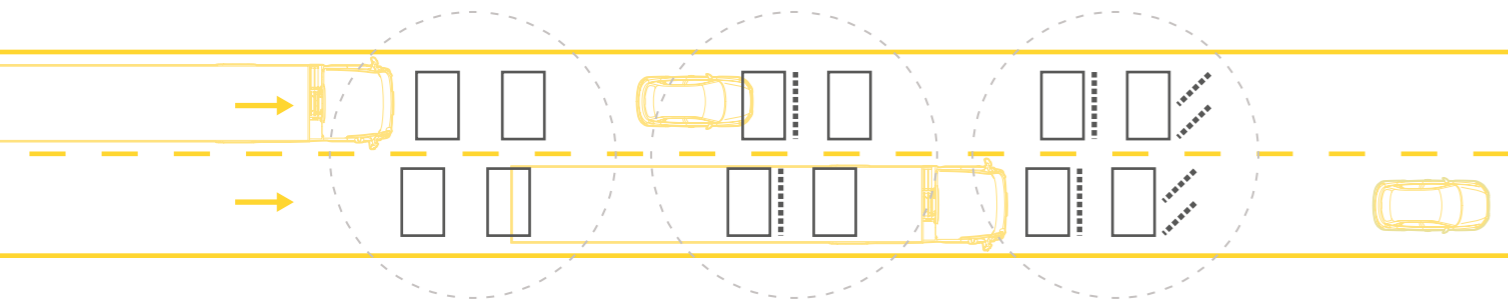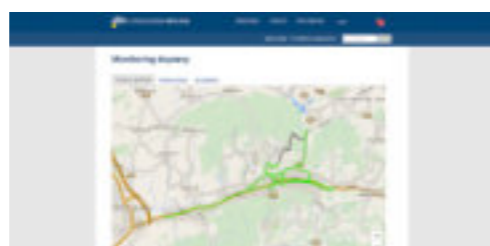
LOOP-BASED CLASSIFICATION EN 8 + 1

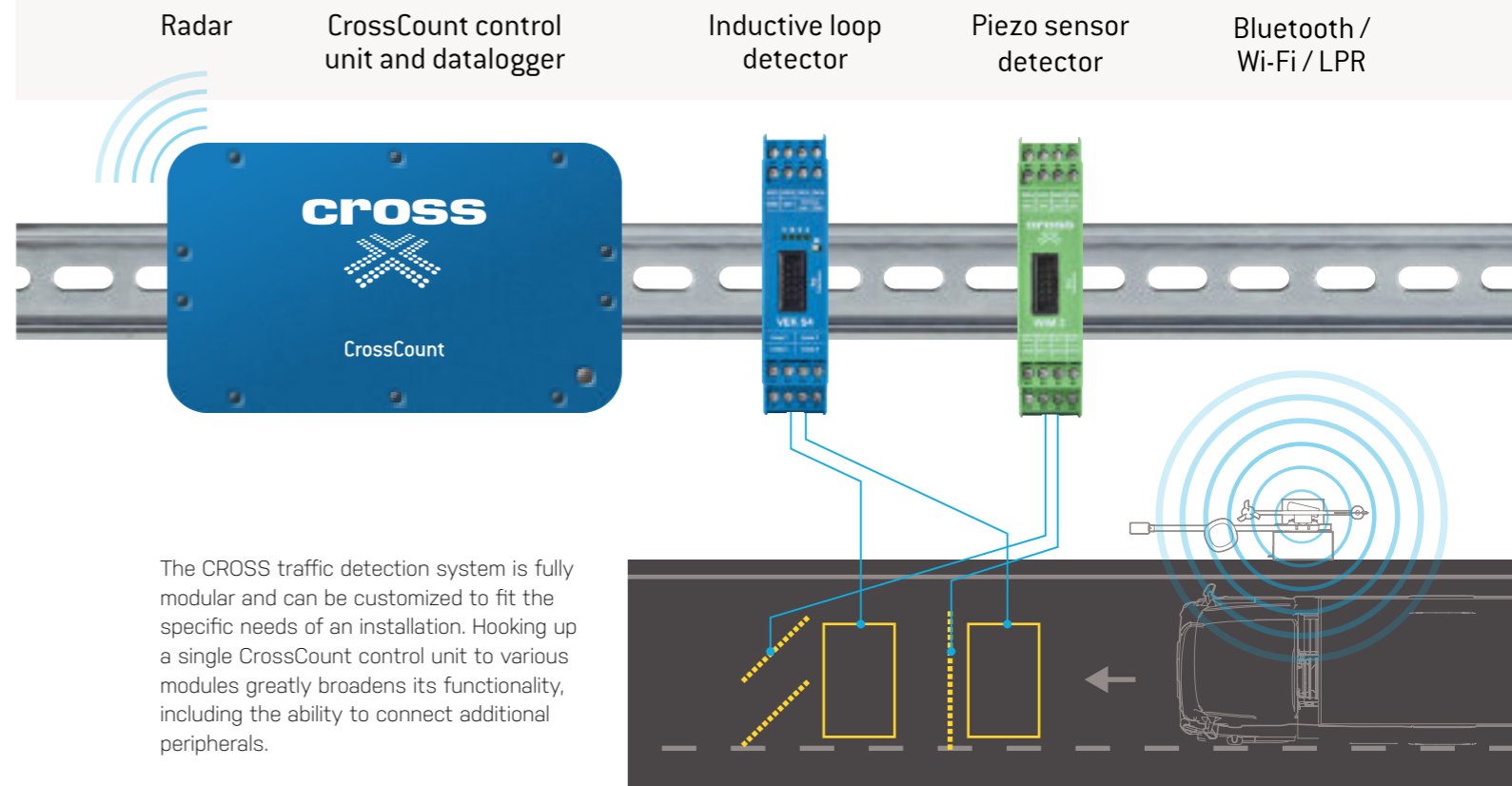| Motorbike	Passenger car	Passenger car with trailer	Van	Bus	Truck	Truck with trailer	HGV	Other

TRAFFIC FUNCTIONS

• Classification of vehicles into defined classes
• Total vehicle count for a user-defined cycle / interval (available per class of vehicle)

• Measures average speed for a user-defined cycle / interval (available per class of vehicle)
• Measures time gaps between vehicles
• Identifies the direction of traffic

TRAFFIC LEVEL

The Traffic Level module measures traffic around urban areas or road networks and provides general information based on the current burden.

MODULAR SYSTEM

Radar CrossCount control unit and datalogger Inductive loop detector Piezo sensor detector Bluetooth / Wi-Fi / LPR

cross
CrossCount

The CROSS traffic detection system is fully modular and can be customized to fit the specific needs of an installation. Hooking up a single CrossCount control unit to various modules greatly broadens its functionality, including the ability to connect additional peripherals.

Configuration of CROSS traffic detection system

|	modules				features										optional	
	control unit & datalogger	induction loop module	piezo sensor module	Bluetooth / WiFi module	traffic counting	classification EN 8+1 standard	classification COST 323	classification EUR 13	customer-defined classification	traffic intensity	multi lane free-flow (1)	travel time	queue detection	traffic-flow monitoring	LPR system	dimension-measuring system (2)
CrossCount Loop-based	•	•			•	•			*	•	•			•		• •
CrossCount Precise	•	•	•		•	•	•	•	*	•	•			•		• •
CrossCount Radar	•				•	•			*	•	•					
BTTT / WiFi / LPR	•			•									•	•	•	•
CrossCount & Travel Time	•	•			•	•	•		*	•	•	•	•	•	•	•
CrossCount Precise & Travel Time	•	•	•		•	•	•	•	*	•	•	•	•	•	•	•

* consultation with a CROSS representative needed
(1) including detection of vehicles changing lanes, or driving between lanes
(2) measurement of vehicle length, width and height

Good Journey Innovations cross

TRAFFIC FLOW DETECTION

Our Traffic Detection system anonymously monitors and collects the unique MAC* addresses of Bluetooth or Wi-Fi devices inside vehicles that pass through a monitored section. It is also tasked with evaluating exceptional circumstances, such as when traffic builds up or cars come to a halt on a road. Additionally, it provides information on expected travel times and the overall volume of vehicles in real time, as well as accurate data for analysis of traffic flow and surveying the origins and destinations of automobiles.
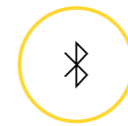
Bluetooth   **Wi-Fi**   **Recognition of licence plates**

**Note: The same anonymity setting can be applied to sections or road networks if these are equipped with devices for recognizing vehicle registration plates.

TRAVEL TIME

Are we there yet? The Travel Time module has an answer to this age old question, gauging the time it currently takes to reach a point. It assesses the present situation on the roads, gives feedback as to any delays en route and recommends alternative routes to avoid traffic jams.

- Live and exact times for travel to selected points
- Calculates average speed
- Recommends alternative routes
- Utilizes past data to predict travel times

TRAFFIC FLOW & ORIGIN-DESTINATION SURVEYS

Find out which roads are continuously overloaded, where to expect traffic congestion during the day and which are the most frequented and busiest transit routes. Such traffic-flow data promote the efficient operation of networks and prove invaluable in the planning and construction of new roads.

- Monitors time-dependent traffic flow and its direction
- Accurate and valuable data for traffic engineers
- Statistics, reports and analyses
- Dynamic or adaptive control of traffic

CROSSCOUNT SOFTWARE

The CrossCount package, either independently or in combination with our Travel Time module, collects and processes traffic data from a single measuring station, storing the information in an SQLite database. This can be utilized and presented in the form of graphs or reports, or imported into other analytical programs for in-depth data analysis.

Web API for data integration

Embedded APP   **WEB Services**

SQL database   **Fully customizable**

CASE STUDY

REFERENCES

Other references

The aim of this project is to keep the general public informed of delays occurring as a result of overhauling a 200-km stretch of the D1 – the most important motorway in the Czech Republic. Commencing in 2013, this immense task has been carried out in stages.

Our Travel Time module monitors travel times in and around the parts under repair. The data gathered is presented on the Internet, detailing

where congestion has occurred at specific locations. It has proven possible to gather information from about 35,000 vehicles each day by leveraging Bluetooth technology.
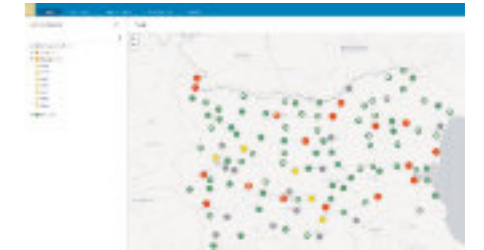

Bulgaria, motorway network

Motorway and superior road network 6 + 1 Vehicle classification
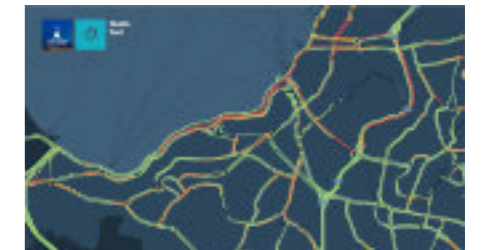

Hungary, motorway network

Classification of vehicles in line with local regulations

Izmir, Turkey

Travel time, traffic level

Czech Republic, motorway & superior road network

Monitoring of traffic levels and travel time, data connection with web portal

Zlín, Czech Republic

Monitoring travel times in the city via Bluetooth technology

www.cross-traffic.com