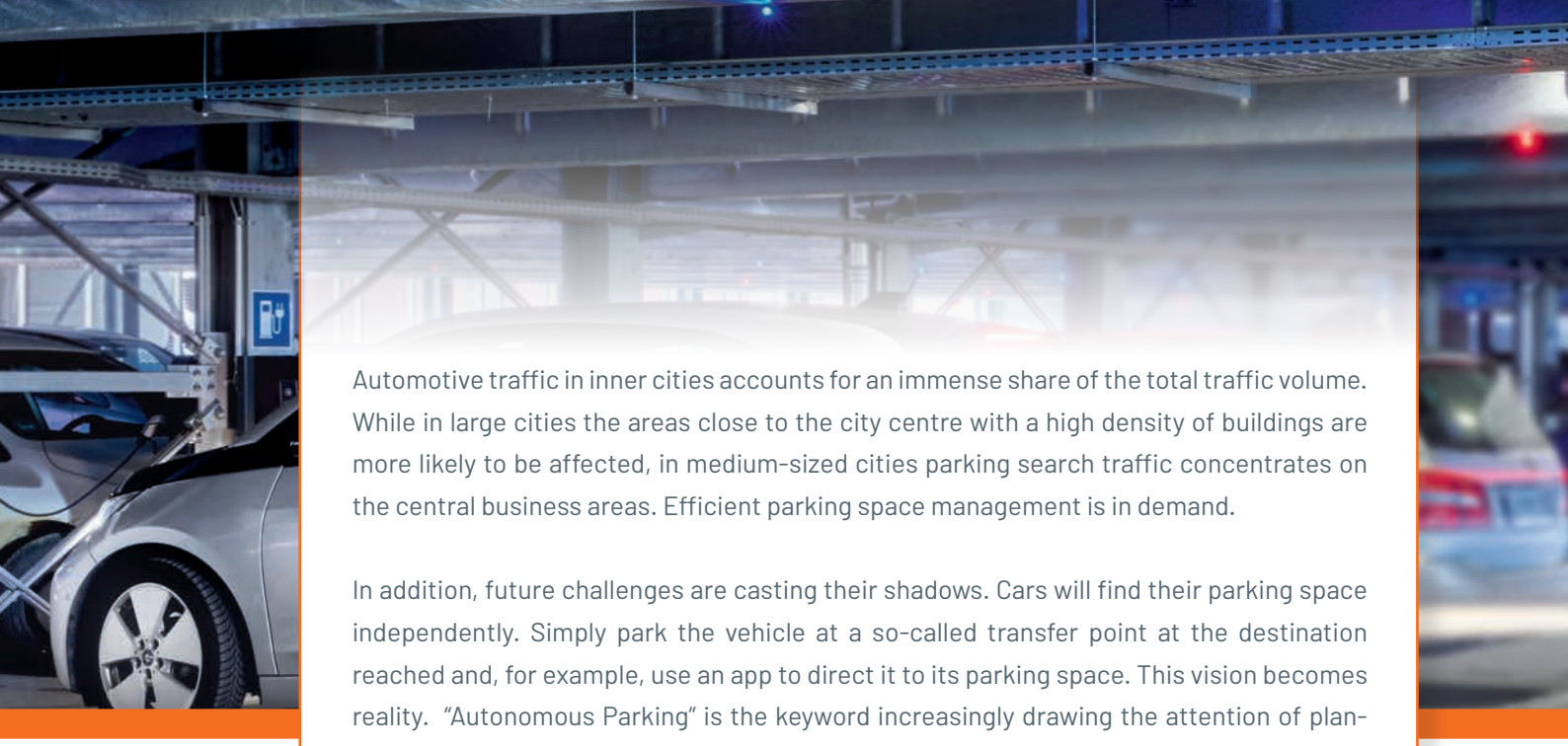
LOBO

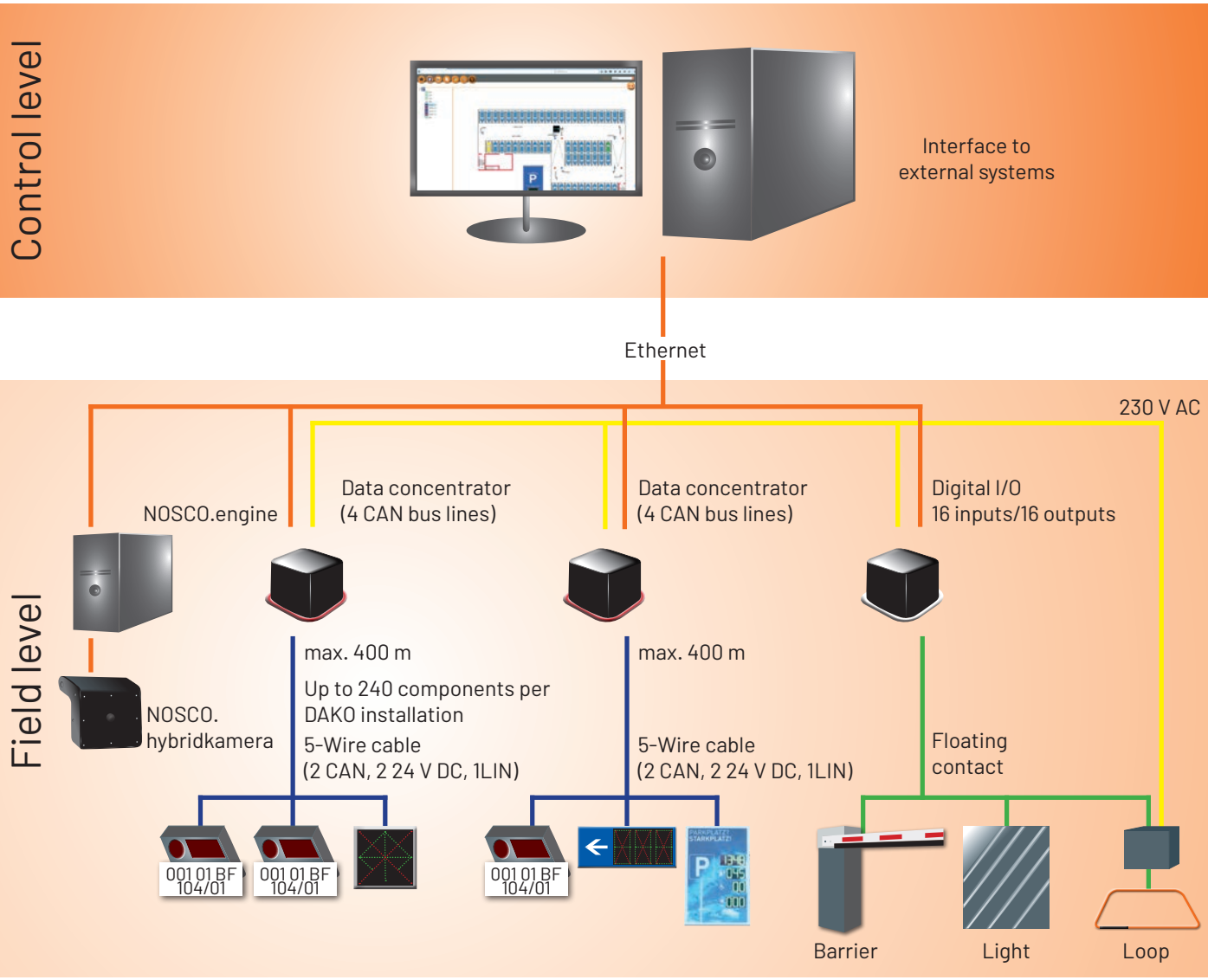
Dynamic parking guidance system

RTB



Automotive traffic in inner cities accounts for an immense share of the total traffic volume. While in large cities the areas close to the city centre with a high density of buildings are more likely to be affected, in medium-sized cities parking search traffic concentrates on the central business areas. Efficient parking space management is in demand.

In addition, future challenges are casting their shadows. Cars will find their parking space independently. Simply park the vehicle at a so-called transfer point at the destination reached and, for example, use an app to direct it to its parking space. This vision becomes reality. "Autonomous Parking" is the keyword increasingly drawing the attention of planners responsible for parking and traffic, because this makes it possible to better utilize existing capacity than was previously the case.



LOBO

With the LOBO parking guidance system, RTB is equipped to meet future requirements.
The system comprises the following components:

- Infrared parking sensor for each parking space
- Multicolored LED for each parking space, alternatively one multicolored LED for two parking spaces
- Data concentrators
- Entrance display
- Zone displays
- Numerical displays of remaining parking spaces (optional)
- Parking guidance system server with LOBO.control software
- Optional integration of further RTB systems (NOSCO Hybridcamera or KORMO charging system)

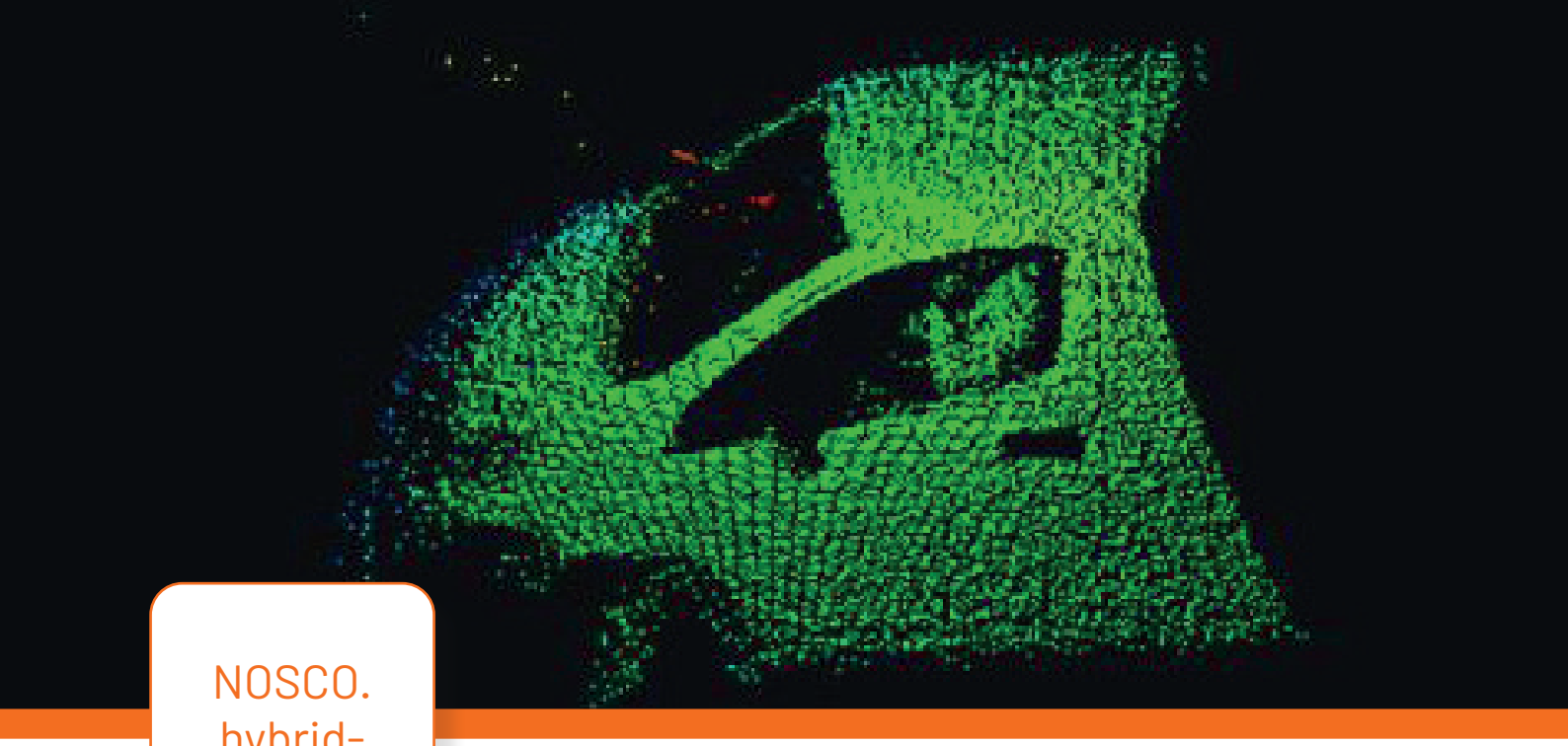
The LOBO.control system is hierarchically structured. At the top, there is the parking guidance system server with the central LOBO.control software from RTB (control level). The basis is formed by the components of the parking guidance system, including sensors, counting units and route guidance signs. This field level also includes the components, such as induction loops or barriers, which can be controlled by the digital I/Os (DIO). The data concentrators and DIOs act as a link between the server and the components, which relay the information provided via Ethernet. A data concentrator can be assigned to up to 240 field devices.

LOBO.sensor

The infrared sensor detects from an angled position at the front, whether a parking space is occupied or not and signals the availability status via the external LED. From the same position, it even detects reflections caused, for example, by inclined surfaces. Thus, occupied parking spaces are reliably detected.

Further advantages are:

- Usage as a prepayment counter possible, to avoid backed-up car congestion
- Integration into the existing building infrastructure with electrical cable conduits and rail systems
- No interference from adjacent sensors
- Unique CAN address
- Interface: CAN bus and LIN bus for data transfer



NOSCO. hybrid-camera

Innovative technologies are available to make optimum use of the available space in parking lots, such as the system NOSCO, which processes the collected data based on a neural network and deep learning. The NOSCO.hybrid camera merges the data of two sensors (camera and radar) collected in the entrance and exit areas of parking lots. The signal processing unit NOSCO.engine uses a balancing counting procedure to determine the current occupancy situation and transmits this information to the parking guidance server, which in turn controls the displays in the parking lot.

- Optimum utilization of existing parking areas
- Depiction of the occupancy situation for noncovered parking lots
- Combination of radar and 3D sensor data possible
- Very high detection rate

Displays

The first impression is what counts! A free choice in the design of the displays makes almost everything possible. Installation is possible on the mast or on the parking lot facade. The display has a series of green and red LEDs to display numerical information about the parking lot occupancy.

Numerical displays are deployed primarily at strategic points where information about the exact number of available parking spaces is necessary. They are installed at entrances and exits or at intersections to other levels.

If there are no parking places available, this can be shown with a green zero, three green zeros or three red crosses. In addition, numeric displays can be integrated into larger signs in order to show the assignment status of individual levels or different parking lots.

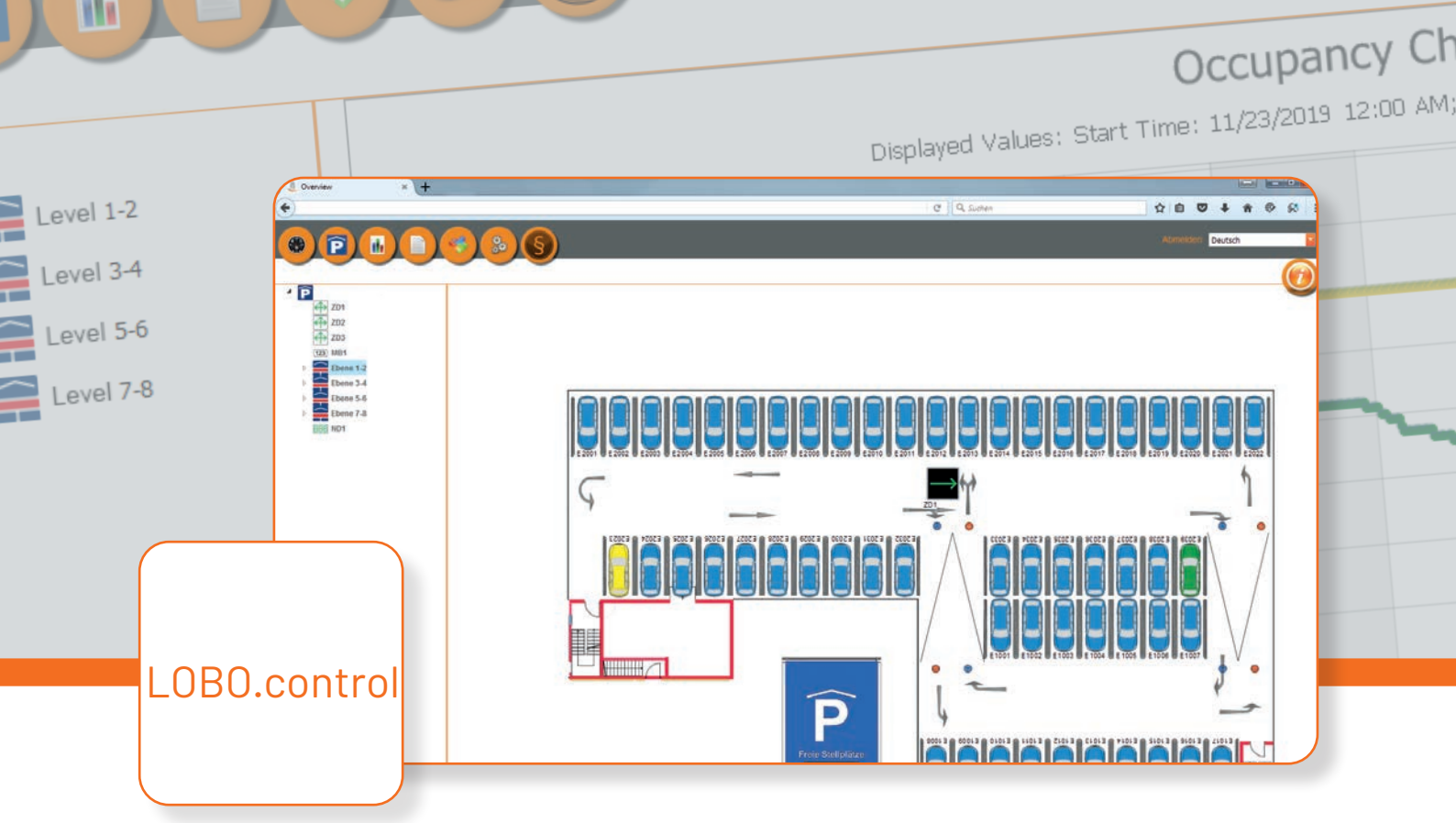
- Ceiling and wall mounting possible
- Connection via CAN bus
- Variable number of LED modules and digits
- Background lighting can be switched on or off by brightness-control (entrance and outdoor displays)
- Suitable for indoors and outdoors
- Receipt printing according to customer
- Display of remaining parking spaces for the entire parking lot or a specific level

Displays

Zone indicators are positioned at decision points. Here, it is not necessary to show the exact number of free parking spaces. They inform drivers about the availability status with a single display facing in all three directions of travel. The displays are equipped with three green arrows (left, straight ahead, right) and a red cross. The red cross is normally used only for "Occupied" or for a locked parking area. Additionally, the display can be used to block lanes or steer the traffic, which is particularly important at the parking lot entrance.

Dynamic zone displays are used especially as an individual control system. Animations on the display can be used, for example, to guide electric cars specifically to the next free charging station. Especially large or small vehicles or cars for disabled persons or VIPs can be quickly and individually guided to their designated parking spaces, thanks to license plate recognition.

- LED technology
- Full-matrix display
- Free choice of text and colors for full-matrix displays
- Individual configuration
- Control via a prepayment counter possible, to avoid backed-up car congestion



LOBO.control

LOBO.control is a web application for managing parking lots that are equipped with single parking space sensors or the balancing system NOSCO. It offers the following benefits:

- Overview of the occupancy rate of all connected parking lots and levels
- User-friendly tree structure with a schematic layout of all levels
- Overview of all parking places, sensors, counting points or cameras
- Clear statistical evaluations and user-friendly control of all sensors, displays, counting points and cameras
- Easy navigation thanks to clear button icons

LOBO.control shows the occupancy states of the individual levels, differentiated in color depending on the status, in the respective schematic layouts. Configuration according to specific user groups is also possible. For example, parking for VIPs, disabled persons, families with children, electric vehicles, etc., can be assigned and correspondingly visually monitored by the color of the LED.

Numerous evaluation options are available, both for individual levels and for the entire parking lot:

- Message: Compiling of all the feedback signals from the sensors
- Parking: Visualization of all parking operations
- Time monitoring: Display of all parking operations in the specified time period for which the parking time period was exceeded
- Alarm: Error messages of the individual sensors are displayed

In addition, it is possible to implement customer-specific functions in the “Extras” menu which ar not coverd by the functionalities of the standard application.

Dynamic parking guidance system LOBO

Interface with the KORMO charging system

The networking of the RTB systems LOBO, NOSCO and KORMO offers a complete solution from a single source.

More KORMO advantages are

- Individual billing of all recharging points via secure interfaces
- Support for all payment systems: whether cash or card payment systems, employee payment systems, settling charges against salary or via prepaid card provider (e.g., plug surfing)
- Billing via GLS bank paying system Giro-e possible
- Interconnection of parking guidance system, parking area monitoring, cash machines and charging points to create an integrated system
- Pre-reservation of parking and charging bays as well as the required energy
- Conform to calibration law
- Service-flexible and customer-oriented
- Experience in the area of billing through our parking ticket machine division

COMBINATIONS

Charging system KORMO

By combining the two systems, parking will be even faster, easier and more comfortable in the future. Thus, for example, the LOBO dynamic parking guidance system already shows parking spaces and charging stations reserved through KORMO as "yellow." Furthermore, the dynamic displays very quickly guide the corresponding vehicle to the reserved parking space, thanks to license plate recognition.

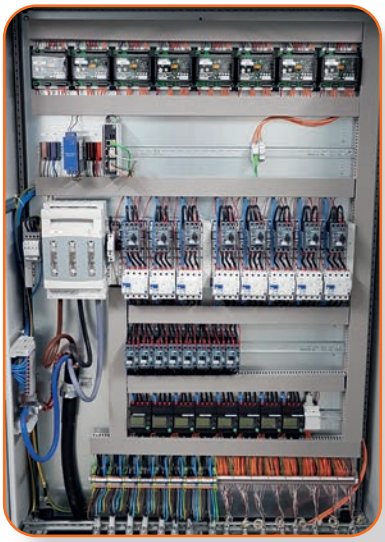
The advantages are obvious!

For drivers:

- Complete and immediate information about parking availability
- Finding the fastest route to an available parking space
- No traffic jams when searching for a parking space
- Reservation of specific parking spaces

For operators:

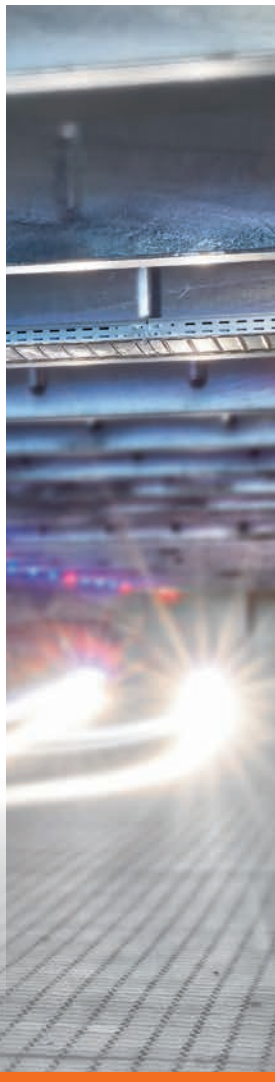
- Better utilization
- Usage of difficult-to-find parking spaces through directed guidance
- Guidance of special customers (VIPs, disabled persons, etc.)
- Time monitoring
- Reduction of traffic searching for a parking space/CO2 emissions
- Usage statistics, information and security



DIFFERENT than the OTHERS!

This is the premise we work on. We want to attract your attention with innovative strength, the highest quality and an excellent service. User-friendliness of our products and customer orientation are most important for us. We are doing everything for a reliable, partner-like cooperation.

Drawing on many years of experience, RTB develops, produces and sells innovative solutions for road traffic. In addition to supplemental equipment for traffic light signal systems, radar and laser systems for speed reduction and certified traffic data recording systems, our product range also includes parking ticket machines, innovative systems for electromobility and effective parking lot management.



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