

GPP PGS2

PARKING
GUIDANCE SYSTEM

GPP PGS2 – INFORMATION AND GUIDANCE PARKING SYSTEM

BASIC INFORMATION

Information and guidance system is designed for the monitoring and provision of information on the occupancy of individual parking spaces in the car park. The system represents a solution to the current problem of a high proportion of traffic generated by drivers seeking vacant parking spaces. The guidance system is able to provide drivers with the latest and dynamically changing information on the availability status of monitored parking spaces. Using clear guidance signs, vehicles are guided directly to identified vacant parking spaces that are the closest to vehicles' current positions.

With the help of the parking guidance system, drivers are able to find a vacant parking space quickly and easily. The resulting benefits are the reduction of stop-start traffic, pleasant experience of parking, elimination of stressful situations and positive attitude towards the car park operator. The reduction of traffic minimizes the occurrence of traffic accidents. The positive mental state of drivers is important for all commercial subjects that need to stimulate required shopping behaviour, repeated visits and the increase of customers' loyalty. In highly competitive environment, the parking guidance system may become a competitive advantage and generate additional profits for operators.

FEATURES

each parking space being equipped with an ultrasound sensor and a signalling light / monitoring of the parking spaces occupancy / providing drivers with information on the car park current occupancy / guiding vehicles to the nearest vacant parking spaces / PLC serial communication (PowerLine Communication) / modular structure of the system / a possibility to install the system on a steel C-profiles construction (pendant rails) or on the ceiling (including the mounting into the ceiling)

MAIN ADVANTAGES

fast orientation of drivers when seeking vacant parking spaces / minimizing the time needed for finding a vacant parking space / improvement of safety, the increase of the traffic effectiveness and efficiency / decrease of exhaust fumes as well as of the negative impact of traffic on the environment / maximum use of the entire car park capacity / easy to assemble

USE

The parking guidance systems are suitable for internal space of buildings mainly with a high number of parking spaces, complicated interior layout or high traffic load. The parking guidance system is suitable for the following areas: high-capacity garages and indoor car parks / car parks of private companies / business and shopping centres / hospitals and other healthcare institutes / airport car parks / office and congress centres / universities and other institutes of education.

PARKING GUIDANCE SYSTEM TYPES

basic type

entirely autonomous system of independent sensors and lights designed for the signalling of the occupancy of parking spaces, without information displays and communication with the server

autonomous type

parking guidance system without the server, entirely independent operation (the autonomous solution is limited by the use of one control unit to which more than 2000 ultrasound sensors can be connected)

standard type

the version of parking guidance system including the server and client control software designed for the full control of the car park, with an option to extend the system by illustrative 3D visualization of the car park occupancy (there can be used more control units in the standard solution)

full equipment type

the version extending the standard type of the parking guidance system by a database with an option to create analytical reports

BASIC COMPONENTS

GPP PGS2 Cu - a node unit that organizes communication with displays and sensors and transfers data on these devices to the server / GPP PGS2 Switch - an active unit that divides communication to several independent lines and brings power supply to them / GPP PGS2 Li - a two - or three-coloured signalling light / GPP PGS2 Sen - an ultrasound sensor for the detection of a vehicle in the parking space / GPP PGS2 DiPLC - a display consisting of different types of imaging modules

GPP PGS2 CU UNIT

In order to achieve more effective management of the area, the car park is often divided into parking zones. One distribution box equipped with a control unit is allocated to each zone while vehicle detecting ultrasound sensors are connected to the control unit. In the real time, the unit controls individual sensors and accepts operating data. The data collected from the sensors is provided to the unit of the parking guidance system higher hierarchical level – the server – via the Ethernet technology. The data is used for transferring commands to connected guiding displays imaging information on vacant parking spaces. The gathered data may be further used as entry data for generating operational statistics and reports.

Technical parameters

- Number of connected components: 128 components at max. connected directly (4 branches with up to 32 devices), more than 2 000 components (sensors, displays) connected using switches in the tree structure
- Material: plastic
- Dimensions: 388 × 120 × 308 mm
- Weight: approx. 6 – 7 kg (depending on the distribution box equipment)
- Power supply: 230 V AC / 50 Hz:

GPP PGS2 SWITCH DISTRIBUTION BOX

In order to connect more devices, the parking guidance system uses the tree structure. The distribution boxes equipped with switches that divide the PLC communication into several lines play an irreplaceable role in the tree structure. The distribution boxes where switches are placed are further used to provide power supply to sensors and displays placed on individual tree branches.

Technical parameters

- Number of connected components: 160 at max. (5 branches with up to 32 devices)
- Material: plastic
- Dimensions: 388 × 120 × 308 mm
- Weight: approx. 6 – 7 kg (depending on the distribution box equipment)
- Power supply: 230 V AC / 50 Hz:

GPP PGS2 LI LIGHT

The variable signalling light is used for the visual indication of a specific parking space occupancy. Lights are placed above parking spaces close to the lane so they are clearly visible for passing drivers. With the help of colour light signals, drivers are able to find vacant parking spaces quickly and easily.

Signalling units are equipped with diodes of high luminous intensity. Quality large-area LED lighting together with the use of light diffusing plastic ensure a high level of visibility even when used with strong artificial light. Electroluminescent diodes are multi-coloured and, therefore, they can be used to identify different types of a parking space status.

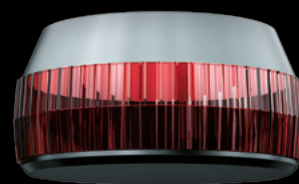
The device can be equipped with up to three colours designed for the signalling of the change of a parking space occupancy. The GPP PGS2 Li R/G two-coloured signalling light is equipped with green and red colour, the GPP PGS2 Li R/G+B three-coloured version of signalling light allows the blue diode to be used independently of the two other colours.

Standard meaning of coloured lights

• **red** – an occupied parking space • **blue** – a parking space reserved for a certain purpose (reserved spaces, prepaid spaces, spaces for families or disabled people, etc.) • **green** – a vacant parking space

Technical parameters of GPP PGS2 Li R/G

- Technology: LED
- Material: PMMA (Polymethylmethacrylate)+ ABS (Acrylonitrile butadiene styrene)
- Number of colours: 2
- Dimensions: Ø 36 × 17.5 mm
- Weight: <0.1 kg



Technical parameters of GPP PGS2 Li R/G+B

- Technology: LED
- Material: PMMA (Polymethylmethacrylate)+ ABS (Acrylonitrile butadiene styrene)
- Number of colours: 3
- Dimensions: Ø 36 × 29 mm
- Weight: <0.1 kg



GPP PGS2 SEN SENSOR

Parking sensors are used as detection devices monitoring the presence of vehicles in individual parking spaces. Each sensor is connected to the related signalling light to which it transfers data on the occupancy of an analysed parking space.

The light signalling can therefore be used to notify the drivers immediately of the present availability status of a certain parking space. Detection sensors operate on the ultrasound signal principle. Both the ultrasound receiver and transmitter are integrated within one compact unit. The sensor measures the time between sending a pulse and receiving its reflection. The distance from an obstacle may be derived from the measured time. Subsequently, the sensor assesses whether the reflection was formed before or after the marginal distance. The marginal distance is adjustable which allows sensors to be placed in buildings with different heights of ceilings. In order to ensure correct functionality, the sensitivity of sensors is adjustable. The installation of sensors is very easy, they can be installed either directly on the ceiling, or on a console above the monitored space.

Technical parameters

- Material: ABS (Acrylonitrile butadiene styrene)
- Dimensions: Ø 125 × 49 mm
- Weight: <0.1 kg
- Ultrasound frequency: 40 kHz
- Radiation angle: 30° from the vertical axis
- Measured distance: 0.5 – 5 m
- Standard location: 2 – 3 m above the floor level



GPP PGS2 DIPLC DISPLAY

Within the system, displays are used as guiding traffic signs and information elements. Dynamic displays automatically show data gathered from ultrasound sensors. Navigation boards present to car park users current information on the number of vacant parking spaces in the car park or in selected zones.

This information is presented in the real time. To achieve smooth traffic flow and to guide drivers to vacant parking spaces, simple and clear symbols are used. Displays are modular and they can be compiled from a required number of segments with alphanumeric characters or graphic symbols. Direction signs, displayed texts and the number of available spaces can be combined in such a way to comply with specific needs. Displays are equipped with LED diodes of high luminous intensity to make the shown information easier to read. The LED diodes enable trouble-free visibility also in the bright sunlight.

Technical parameters

- Technology: LED
- Number of modules: 5 at max. without external power supply, 20 at max. with external power supply
- Material: Al elox (electrolytically oxidised aluminium) + (PMMA Polymethylmethacrylate)
- Line-height: 176 mm
- Dimensions: dependent on the number of segments
- Weight: dependent on the number of segments

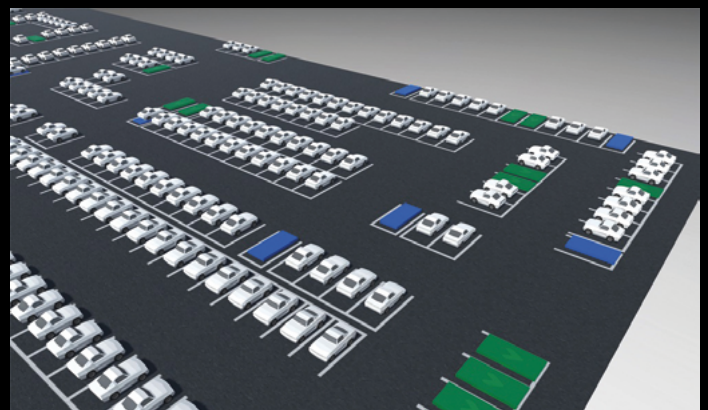
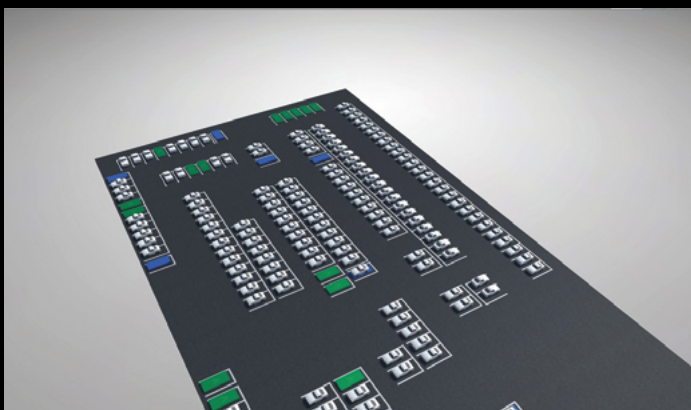


GPSW VISUALIZATION CONTROL SOFTWARE

The parking guidance system standard version includes, among other components, also a server with the relevant control and monitoring software. The software provides the car park operator with a possibility to supervise the car park and to administer the whole system remotely. Via the software, the system setting can be manually administered, displays can be controlled, parking spaces can be reserved, traffic can be managed, car park zones can be closed, etc.

The software gathers all data on parking spaces occupancy ascertained from all connected detection units. On the basis of this data, the software is able to display ground plan or three dimensional visualization of individual parking spaces together with information on their occupancy. A digital map of parking spaces dynamically changes in the real time and, therefore, it always shows the car park present situation.

Data on the car park occupancy is recorded and provide information both on the past and present use of the car park. The analysis of gathered data can be used to learn about current trends, to predict probable future situations and to generate statistical analyses regarding the use of the car park capacity. Obtained information can be significantly helpful in a decision making process for possible optimising the parking areas. Data on the use of parking capacity can also be made accessible to the public via the internet.





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