Fig. 3 - Example of Connection
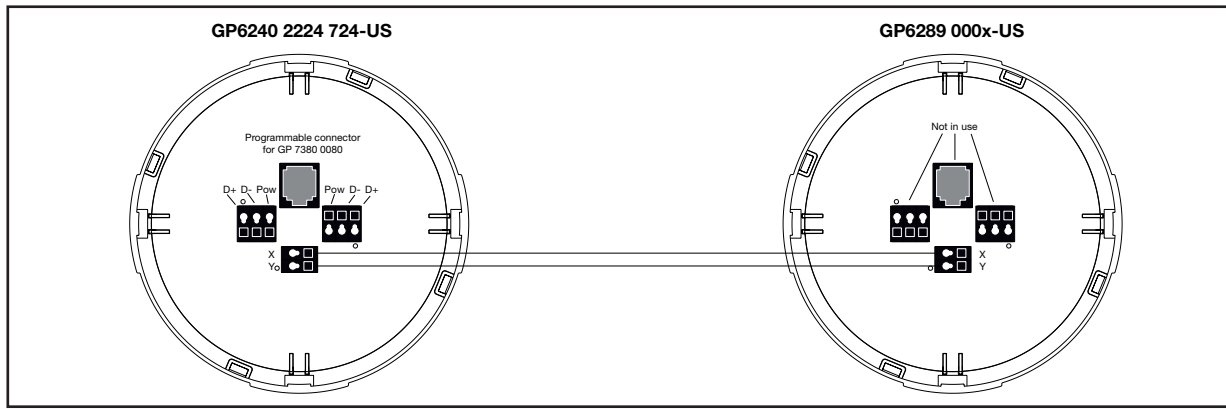
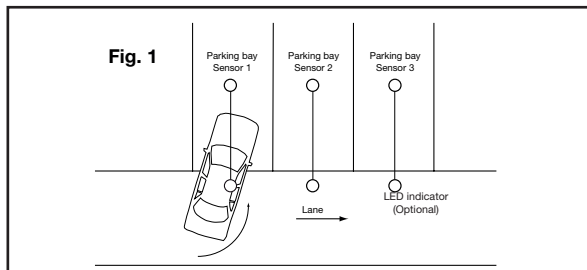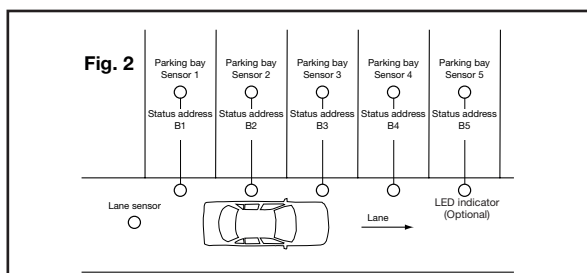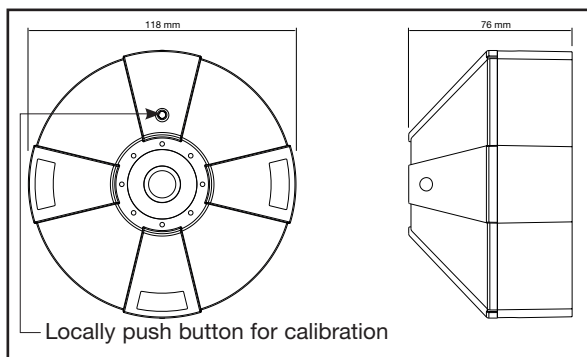**GP6240 2224 724-US**

Programmable connector
for GP 7380 0080

D+ D- Pow   Pow D- D+

X
Yo

GP6289 000x-US

Not in use

X
Y

Fig. 1

Fig. 1

Parking bay Sensor 1   Parking bay Sensor 2   Parking bay Sensor 3

LED indicator (Optional)

Lane

Fig. 2

Fig. 2

Parking bay Sensor 1   Parking bay Sensor 2   Parking bay Sensor 3   Parking bay Sensor 4   Parking bay Sensor 5

Status address B1   Status address B2   Status address B3   Status address B4   Status address B5

Lane sensor

LED indicator (Optional)

Lane

Dimensions

118 mm   76 mm

Locally push button for calibration
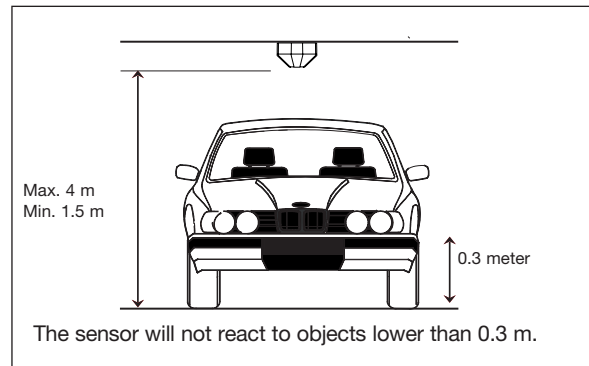
Bottom Part: Ceiling Mounting
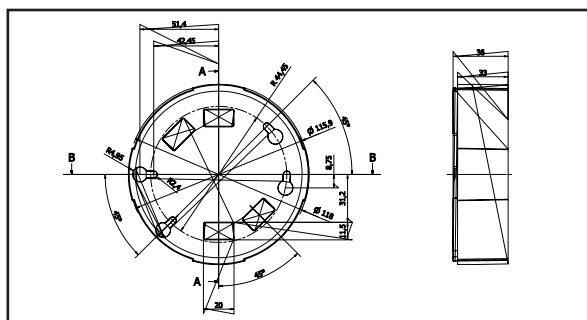
Sensor Placing

The sensor is designed to work in an area which is:

Max. 4 m
Min. 1.5 m

0.3 meter

The sensor will not react to objects lower than 0.3 m.

The sensor should be placed freely, e.g. in the following way:

Sensor

Ceiling beam

A

B

A = Min. 20 cm between ceiling beams
B = Max. 65 cm high ceiling beams

MAX ±5°
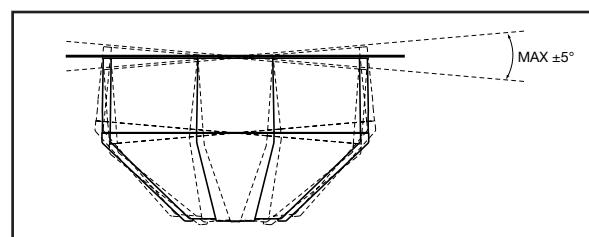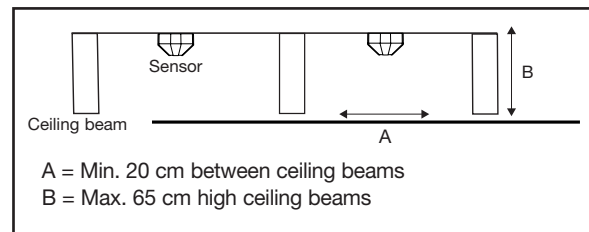
To receive the best signal, the sensor must be installed with an angle on the ceiling of maximum ±5°.

2.0 m   Parkingplaces

4 m

The sensor can operate in a 4 m long and 2.0 m wide parking bay
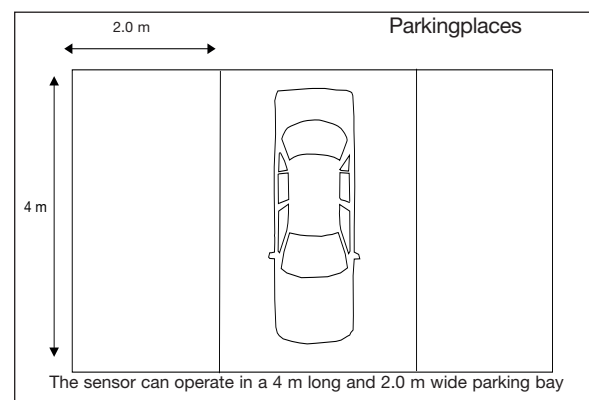
Dupline® Car Park System
Ultrasonic Sensor

Type GP62xxxxxx724-US

c (UL) US

User Manual

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Type Selection

GP6220 2201 724-US **Sensor with green/red LED**
GP6220 2202 724-US **Sensor with blue/red LED**
GP6240 2224 724-US **Sensor without LED**

Input/Output Specifications

RJ12 connector	for address programming with Carpark Configurator GP7380 0080
2x3-pin connector	• Printed dot on the sensor is Dupline® + • D- or Gnd • POW (power from DMM or Coupler). See "Systemdiagram"
1x2-pin connector	Not in use for Carpark sensors GP6220 220X 724-US. Only in use for GP6240 2224 724-US and GP6289
the passive LED indicator 000x-US. See "Example of connection"	

NOTE: The sensor connectors are using the "push-wire connection" methode. Use 1.5 mm² single core wire for the sensor installation.

General Specifications

Ultrasonic frequency	40 kHz
Max. distance between ceiling and floor	4.0 m
Min. distance between ceiling and floor	1.5 m
Min. calibration distance	1.5 m
Hysterese	±30 cm
Sensor in "Normal" mode	
Sensor activations time	3 sec. See fig. 1 (Default)
Sensor in "Lane" mode	
Sensor activations time	0.4 sec. with a max car speed on 20 km/hour. See fig. 2
LED indication:	
GP6220 2201 724-US	
Occupied:	Red LED continuously lit
Bay available:	Green LED continuously lit
GP6220 2202 724-US	
Occupied:	Red LED continuously lit
Bay available:	Blue LED continuously lit
GP6240 2224 724-US	No LED
The sensor uses 2 Dupline® addresses	
• Status address	Indicates the status of the sensor. Default Dupline® address is A2
• Calibration address	For common sensor calibration. Default Dupline® address is P1
Programming unit	GP7380 0080
Approval	cULus (UL60950)
MTBF	70,000 hours

Supply Specifications

Power supply:	21 VDC min.; 30 VDC max. (Overvoltage category III (IEC60664))
Consumption on the Dupline® bus	0.03 mA
Max. supply current	
GP6220 220x 724-US	20 mA
GP6240 2224 724-US	15 mA
Nominel Supply	28 VDC / 19 mA 0,53 W

Environment

- **Protection: IP 34**
- **Operating temperature: -40°C to 70°C (-40°F to 158°F)**
- **Storage temperature: -40°C to 85°C (-40°F to 185°F)**
- **Pollution Degree: 3 (IEC 60664)**
- **Dimensions: Ø118 x 76 mm**
- **Material: The case is made of polypropylene. The sensor lid is made of clear Polycarbonate.**

Mode of Operation

The ceramic sensor emits an acoustic signal at a frequency of 40 kHz which is reflected when it hits the floor and returned to the sensor. The reflected signal indicates whether the parking bay is available or occupied.

Sensor addresses
• Status Dupline® address
The Dupline® bus address used by the sensor to transmit the status of the parking bay. The same address can be used to force the red LED ON** for booking of free parking bays (this feature requires management by central PC software). Please refer to the Dupline® Carpark system manual for further information about the Dupline® addressing scheme and the rules that apply for the assignment.
• Calibration Dupline® address
This address is used to trigger the sensor to perform a self calibration. Several sensors can be given the same calibration address, thereby making it possible to calibrate multiple sensors at once by sending a single trigger signal on that address. The programming unit GP73800080 is used to send out the trigger signal.

Modes
The sensor has two modes. Normal mode or Lane mode.

In **Normal mode**, the sensor detects the presence of a car in the parking bay and lights the red LED**. See fig. 1. At the same time the sensor sends a signal out on the Dupline® 3-wire bus. When the parking bay is empty the LED will change to green** and also send a signal out on the Dupline® 3-wire bus.
The sensor will not react to objects lower than 0,3 m.
To avoid a weak signal, the sensor must be installed pointing directly at a hard surface, as for instance concrete. A soft or uneven surface will reduce the signal.

In **Lane mode**, the sensor is designed to be mounted in the ceiling above the lane. The sensor is able to detect moving cars with a maximum speed of 20 km/hour. See fig. 2.
When the sensor detects a moving car it sends a signal to the Carpark system that count down the total amount of free places, and show the reduced amount on the local display but also on the display that show the total amount of free places.
This is to prevent to many moving cars in a specific carpark area. The sensor does not show the actual status on the LED's. The LED's** only works as feedback during calbration, startup and show the fail status.

** GP6240 2224 uses the passive LED indicator GP6289 000x

Programming the sensor

The programming of the GP62xxxxxx724-US is described in the "Carpark Design and Installation Guide".
The manual is available on the CG Products Online homepage together with the data sheets etc.

Calibration

Note:
The calibration procedure is equal on all sensor types.
The GP6240 2224 does not have built-in LED indication but uses a passive LED indicator.
This explanation describe a standard calibration procedure.

The sensor is self-callibrating. It is important to perform the calibration when the parking bay is empty.

There are two ways of calibrating a sensor.

**Manual calibration** is a local calibration of the single sensor.

- Push the button on the out side of the sensor.
- The LED flashes green for 30 seconds with 1 Hz. (The electrician has time to get clear of the sensor before the calibration starts).
- The calibration starts when the LED flashes green for 6 seconds with 4 Hz.
- If the calibration is OK, the LED will respond with a constant green light.

Automatic calibration with the Carpark Configurator GP 7380 0080 is a global calibration of all connected sensors. The parking bay must be empty during the calibration process.

Error messages:
- If the calibration fails, the LED will respond with a constant flashing red light. If the LED flashes red, the sensor could be out of range or the sensor is not aligned correctly.
- Adjust the sensor into thesensing area and recalibrate the sensor.
- If Dupline® is not connected/defect the LED will flash red.
- If Dupline® is short circuit the LED will flash red.
- Sensor first time start up. The sensor LED will flash red because it's needs calibration.

System Diagram
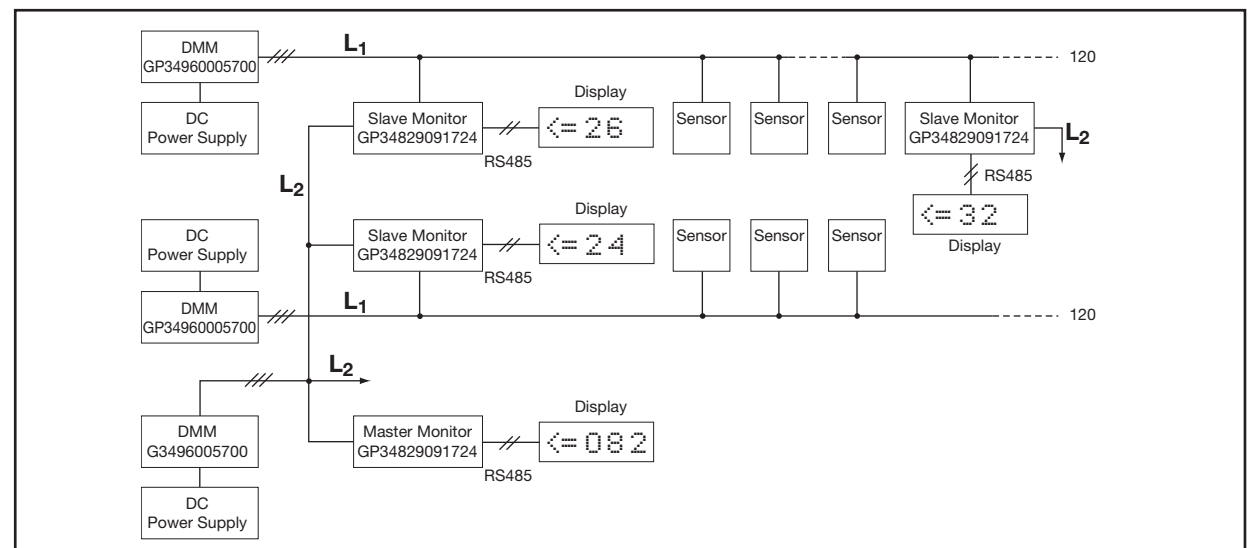
NOTE: The DMM on L₁ must be the type GP3496 0005 700. The DMM on L₂ must be another type. We recommend the G3496 0005 700 because of the modbus RTU protocol.