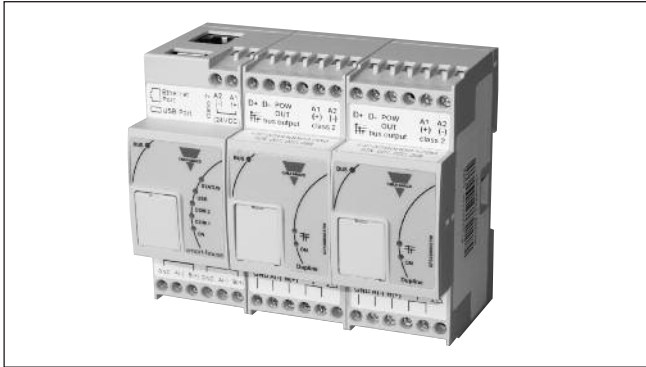


Dupline® Carpark Master Zone Counter (MZC) Type GPMZC-SET (complete)

CARLO GAVAZZI



- Controller in the Dupline® zone counting system
- Micro Linux PC with Ethernet port and Web-server
- Connects up to 120 count sensors via Dupline® L₁ 3-wire bus
- Dupline® ultrasonic carpark sensors can be used directly on the L₁ bus
- Loop detectors or Photoelectric sensors can be used when connected to Dupline® L₁ input module
- Manages up to 3840 parking spaces in multiple zones
- Each zone can have multiple entry and exit points
- Easy configuration, monitoring and count adjustment via web-server
- Mixed systems with zone counting and single space detection possible
- Option to detect the split between handicap and standard spaces occupancy
- Optional PC software for real-time monitoring and historical occupancy data analysis

Product Description

The GPMZC-SET is a programmable integrated unit specially designed for Carpark applications. The GPMZC-SET is a combination of 3 modules, one controller and two channel generators for the L₁ and L₂ bus. The controller includes dedicated functions for counting based on the count sensors connected to the L₁ bus. A web-server in the controller gives the user unique opportunity to modify or monitor

the zone count system using a Smartphone or other Ethernet based equipment. The two galvanic separated channels generators supply the two busses L₁ and L₂ with power and Dupline®. The GPMZC-SET can easily be combined with the single spot Detection system. The data from the systems can be monitored and controlled from the Dupline® Carpark Software.

Ordering Key

GPMZC-SET

Type Selection

| | | |
|----------------|-----------------|-----------------------------|
| Housing | Mounting | Supply: 24 VDC ± 20% |
| 2 DIN | DIN-rail | GPMZC-SET |

Count Module: GP32950030700

Supply Specifications

| | | | |
|--------------------------------|-------------------------------------------------|------------------------------------|-------------------|
| Power supply | Overvoltage cat. II (IEC 60664-1, par. 4.3.3.2) | Reverse polarity protection | Yes |
| Rated operational voltage | 15 to 24 VDC ± 20% | Connection | A1 (+) and A2 (-) |
| Rated impulse voltage | 500V (1,2/50µs) (IEC 60664-1, tab. F.1) | Power off delay | 1 s |
| Rated operational power | 5 W | | |

Main Hardware Characteristics

| | | | |
|----------------------------|-------------------------------------|----------------------|-------------------------------|
| Memory | Micro SD not in use | Auxiliary bus | HS BUS |
| Communication ports | | Right side | Compatible with GP32900003700 |
| RS485 | 2 ports | USB ports | |
| Ethernet | 1 port, for Internet/LAN connection | Mini USB | Only for internal use |
| | | Host function | Not in use |



RS485 Communications Ports

| | | | |
|------------------------|------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of ports | 2 | Data format | Selectable: 1 start bit, 7/8 data bit, no/odd/even/ parity, 1/2 stop bit 9600 bits/s See the table "Insulation between inputs and outputs" |
| Purpose | COM1: Modbus slave COM2: Modbus slave | Baud-rate | |
| Type | Multidrop, bidirectional | Insulation | |
| Connections | 2-wire. Max. distance 1000m | | |
| Protocol | MODBUS RTU | | |

Ethernet Port

| Rated inputs | HTTP | Connections | RJ45 10/100 BaseTX Max. distance: 100m See "Insulation between inputs and outputs" table. | | | |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------|-------------------|----|----|
| IP configuration | Static IP / Netmask / Default gateway | Insulation | | | | |
| DNS | Primary and secondary DNS as a static or dynamic management (using DHCP server if configured) | | | | | |
| WEB server | <table border="1"> <thead> <tr> <th>Port</th> <th>N. of connections</th> </tr> </thead> <tbody> <tr> <td>80</td> <td>20</td> </tr> </tbody> </table> | Port | | N. of connections | 80 | 20 |
| Port | N. of connections | | | | | |
| 80 | 20 | | | | | |

HS Bus Specs (right side)

| | | | |
|-------------------|-------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------|
| Bus type | RS485 high speed bus | Note: | The two GP32900003700 modules which drive the L1 and L2 buses must be connected on the right side of the GP32950030700 |
| Function | Connection to master channel generator module GP32900003700 | | |
| Connection | By local bus on the right side | | |

LEDs Indication

| | | | |
|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Green LED: ON ON: power ON OFF: power OFF | Flashing: 200ms ON 200ms OFF, communications OK | BUS OFF: no communication is present on the HS BUS ON: communication error on HS BUS Flashing: communication OK on HS BUS | Blue LED: USB Not in use |
| Yellow LEDs: COM 1 OFF: no communications on RS485 A Flashing: 200ms ON 600ms OFF, no answer from the slave | COM 2 OFF: no communications on RS485 B Flashing: 200ms ON 600ms OFF, no answer from the slave Flashing: 200ms ON 200ms OFF, communications OK | | Red LED: STATUS Not in use |

GP32950030700 Based Insulation between Inputs and Outputs

| Type of input/output | DC Power supply | RS485 - COM 1 | RS485 - COM 2 | Ethernet | USB port "H" |
|-------------------------|-----------------|---------------|---------------|----------|--------------|
| DC Power supply | - | 2kV | 2kV | 0.5kV | 0kV |
| RS485 - COM 1 | 2kV | - | 0.5kV | 2kV | 2kV |
| RS485 - COM 2 | 2kV | 0.5kV | - | 2kV | 2kV |
| Ethernet (LAN/Internet) | 0.5kV | 2kV | 2kV | - | 0.5kV |
| USB port "H" (Host) | 0kV | 2kV | 2kV | 0.5kV | - |

| | |
|----------|---------------------------------------------------------------------------------------------------------------------------------|
| 0kV | Inputs / outputs are not insulated |
| 2kVrms | EN61010-1, IEC60664-1 - over-voltage category III, pollution degree 2, double insulation on systems with max. 300Vrms to ground |
| 0.5kVrms | The insulation is functional type |

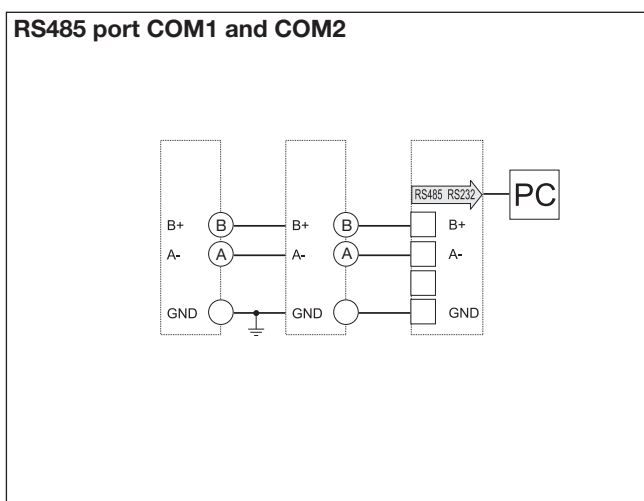
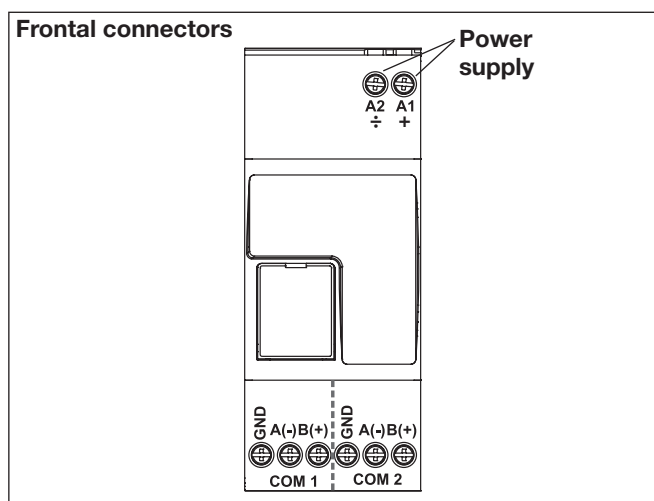
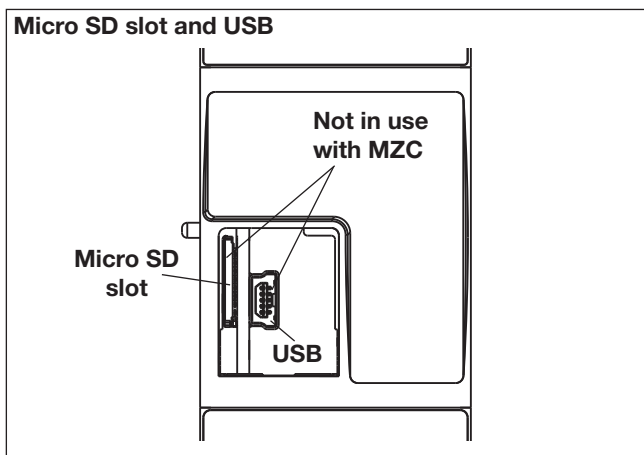
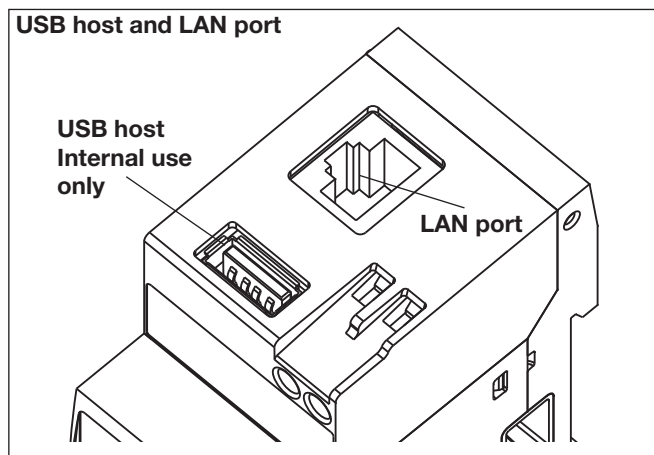
General Specifications

| | | | |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating temperature | -20 to +50°C (-4°F to 122°F) (R.H. < 90% non-condensing @ 40°C) | Weight | Approx. 150 g (packing included) |
| Storage temperature | -30 to +70°C (-22°F to 158°F) (R.H. < 90% non-condensing @ 40°C) | Mounting | DIN-rail |
| Over voltage category | Cat. III (IEC 60664, EN60664) For inputs from string: equivalent to Cat. I, reinforced insulation. | Approvals | cULus, according to UL60950 UL notes: Max room temperature: 40°C Equipment must be supplied by a separately certified NEC class 2 (LPS) power unit. |
| Dielectric strength | 4000 VAC RMS for 1 minute | CE Marking | Yes |
| Noise rejection CMRR | 65 dB, 45 to 65 Hz | EMC | Immunity - Electrostatic discharge - Radiated radiofrequency - Burst immunity - Surge - Conducted radio frequency - Power frequency magnetic fields - Voltage dips, variations, interruptions Emission - Conducted and radiated emissions - Conducted emissions - Radiated emissions |
| Standard compliance Safety | IEC60664, IEC61010-1 EN60664, EN61010-1 | | EN 61000-6-2 EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-8 EN 61000-4-11 EN 61000-6-3 |
| Protection degree Front Screw terminals | IP40 IP20 | | CISPR 22 (EN55022), cl. B CISPR 16-2-1 (EN55016-2-1) CISPR 16-2-3 (EN55016-2-3) |
| Housing Dimensions (WxHxD) Material | 35 x 90 x 63.5 mm (2-DIN module) Noryl, self-extinguishing: UL 94 V-0 | | |

Connections

| | | | |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------|
| Ethernet | RJ-45 connector (10/100Base-T) | Power supply | 2 screw terminals 1.5 mm ² max Min. 0.4 Nm, Max. 0.8 Nm |
| USB | High speed USB 2.0 | Cable cross-section area Screws tightening torque | |
| RS485 Cable cross-section area Screws tightening torque | 3 screw terminals per port 1.5 mm ² max Min. 0.4 Nm, Max. 0.8 Nm | | |

Connections



Channel Generator for Dupline® bus L₁ and L₂: GP32900003700

Supply Specifications

| | |
|----------------------------------------|-----------------------------------------------------------------------|
| Power supply | Overvoltage cat. II (IEC 60664-1, par. 4.3.3.2) 24 VDC ± 20% |
| Rated operational voltage | 24 VDC ± 20% |
| Rated impulse voltage | 500V (1,2/50µs) (IEC 60664-1, tab. F.1) |
| Rated operational power | 6.5 W |
| Protection for reverse polarity | Yes |
| Connection | A1 (+) and A2 (-) |
| Power on delay | Typ. 20 s |
| Power off delay | 1 s |

| | |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Voltage | 8.2 V |
| Maximum Dupline® voltage | 10 V |
| Minimum Dupline® voltage | 4.5 V |
| Maximum Dupline® current | 450 mA |
| Maximum current on pow | < 3.0 A |
| Terminal | D+, D- and pow out |
| Note: The Dupline® bus is located on the upper connector and also on the local bus connector on the right side of the module. | |

General Specifications

| | | | |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------|
| Installation category | Cat. II | Housing | |
| Dielectric strength Power supply to Dupline® and Dupline® to Output | 500 V AC for 1 min. 500 V impulse 1.2/50µs (IEC60664-1, TAB. A.1) | Dimensions (WxHxD) | 35 x 90 x 63.5 mm (2-DIN module) |
| Fail-safe condition | If the GP32900003700 loses the communication with the GP32950030700, the Dupline® output will be switched off. In this situation all the modules connected to the bus will go into the fail-safe output status. | Material | Noryl |
| Environment | | Weight | 150 g |
| Degree of protection | | Approvals | cULus, according to UL60950 |
| Front | IP 50 | UL notes: | Max ambient temperature: 40°C |
| Screw terminal | IP 20 | | Equipment must be supplied by a separately certified NEC class 2 (LPS) power unit |
| Pollution degree | 2 (IEC 60664-1, par. 4.6.2) | CE Marking | Yes |
| Operating temperature | -20° to +50°C (-4° to 122°F) | EMC | |
| Storage temperature | -50° to +85°C (-58° to 185°F) | Immunity | EN 61000-6-2 |
| Humidity (non-condensing) | 20 to 80% RH | - Electrostatic discharge | EN 61000-4-2 |
| LED's indication | | - Radiated radiofrequency | EN 61000-4-3 |
| BUS | 1 yellow LED | - Burst immunity | EN 61000-4-4 |
| Power | 1 green LED | - Surge | EN 61000-4-5 |
| Dupline® | 1 yellow LED | - Conducted radio frequency | EN 61000-4-6 |
| Connection | | - Power frequency magnetic fields | EN 61000-4-8 |
| Terminal | 12 screw-type | - Voltage dips, variations, interruptions | EN 61000-4-11 |
| Cable cross-section area | Max. 1.5 mm ² | Emission | EN 61000-6-3 |
| Tightening torque | 0.4 Nm / 0.8 Nm | - Conducted and radiated emissions | CISPR 22 (EN55022), cl. B |
| | | - Conducted emissions | CISPR 16-2-1 (EN55016-2-1) |
| | | - Radiated emissions | CISPR 16-2-3 (EN55016-2-3) |

HS Bus Specifications

| | |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bus type | RS485 high speed bus |
| Protocol | Internal proprietary protocol |
| Connection | By local bus (left and right connectors) or terminals GND, A(-), B(+). T1, T2: termination inputs. They have to be short-circuited on the last module of the network. See wiring diagrams. |

LEDs Indication

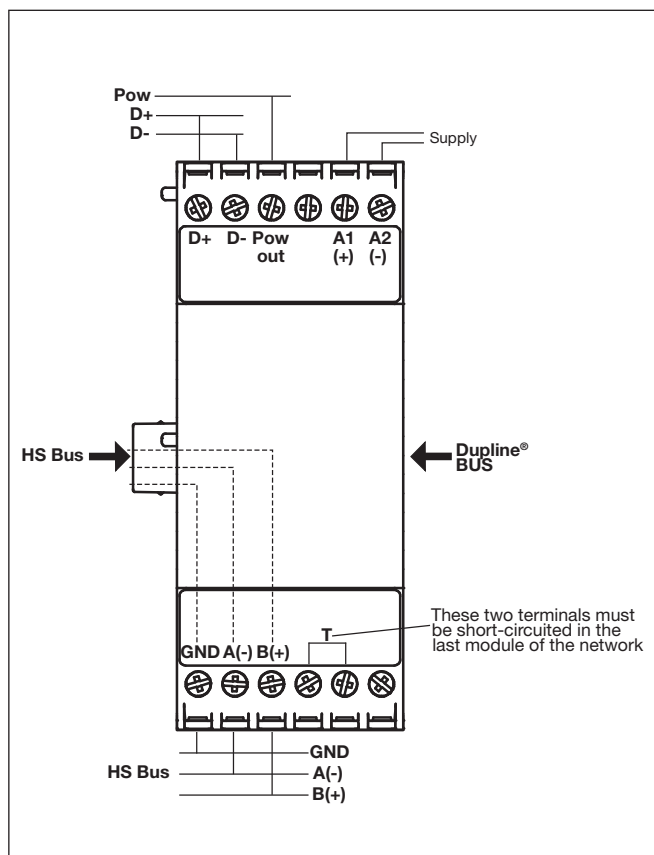
Green LED: ON.
ON: Supply ON
OFF: Supply OFF

Yellow LED Dupline® bus
ON: the Dupline® bus is working properly
Flashing: there is a fault on the Dupline® bus
OFF: the Dupline® bus is OFF or not connected.

Yellow LEDs Bus

OFF: no communication is present on the HS bus
ON: communication error on HS bus
Flashing: communication OK on HS bus

Wiring Diagrams



For both GP32900003700 and GP32950030700

Mode of Operation

The GPMZC-SET is a dedicated unit for Dupline® Zone Counting.

The unit consists of 3 modules

- 1 x GP3295 0030 700 - Carpark counter
- 1 x GP3295 0003 700 - Carpark master channel generator (CMCG) for L₁
- 1 x GP3295 0003 700 - Carpark master channel generator (CMCG) for L₂

The counter is the intelligent part where all the programming takes place. The two Master channel generators supply the L₁ and L₂ bus respectively with Dupline® and 24VDC power. The Master channel Generators are not galvanically separated so it is essential to use individual supplies to power the modules. See MZC installation manual for further information on this topic.

The counter module can be programmed by any kind of PC connected to LAN or WAN by using a standard browser like Explorer or Mozilla Firefox. Refer to the MZC installation manual for further information on accessing and programming the Counter module.

The GPMZC-SET can be used as a stand-alone counting system. The Stand-alone solution can count up

to 3,840 places and is able to use any counting sensor e.g. ultrasonic, optical and loop detectors. The master-zone countersystem (MZC) combined with the Dupline® Spot detection system can monitor and control more than 50,000 places using the Dupline® Carpark Software. Refer to the Carpark Installation Manual for more information on this subject.

Dimensions

