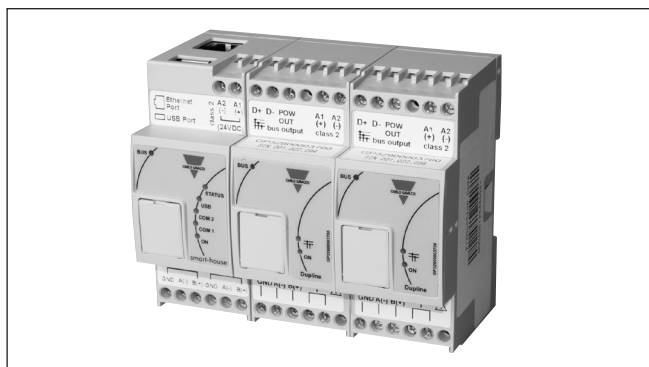


# Dupline® Carpark Master Zone Counter (MZC) Type GPMZC-SET (complete)

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® L<sub>1</sub> 3-wire bus
- Dupline® ultrasonic carpark sensors can be used directly on the L<sub>1</sub> bus
- Loop detectors or Photoelectric sensors can be used when connected to Dupline® L<sub>1</sub> 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 L<sub>1</sub> and L<sub>2</sub> bus. The controller includes dedicated functions for counting based on the count sensors connected to the L<sub>1</sub> bus. A web-server in the controller gives the user unique opportunity to modify or mon-

itor the zone count system using a Smartphone or other Ethernet based equipment. The two galvanic separated channels generators supply the two busses L<sub>1</sub> and L<sub>2</sub> 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

2 DIN

### Mounting

DIN-rail

Supply: 24 VDC ± 20%

**GPMZC-SET**

## Count Module: GP32950030700

## Supply Specifications

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

## Main Hardware Characteristics

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



## RS485 Communications Ports

<b>Number of ports</b>	2	<b>Data format</b>	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"
<b>Purpose</b>	COM1: Modbus slave COM2: Modbus slave	<b>Baud-rate</b>	
<b>Type</b>	Multidrop, bidirectional	<b>Insulation</b>	
<b>Connections</b>	2-wire. Max. distance 1000m		
<b>Protocol</b>	MODBUS RTU		

## Ethernet Port

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

## HS Bus Specs (right side)

<b>Bus type</b>	RS485 high speed bus	modules which drive the L1 and L2 buses must be connected on the right side of the GP3295003700
<b>Function</b>	Connection to master channel generator module GP32900003700	
<b>Connection</b>	By local bus on the right side	
<b>Note:</b>	The two GP32900003700	

## LEDs Indication

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

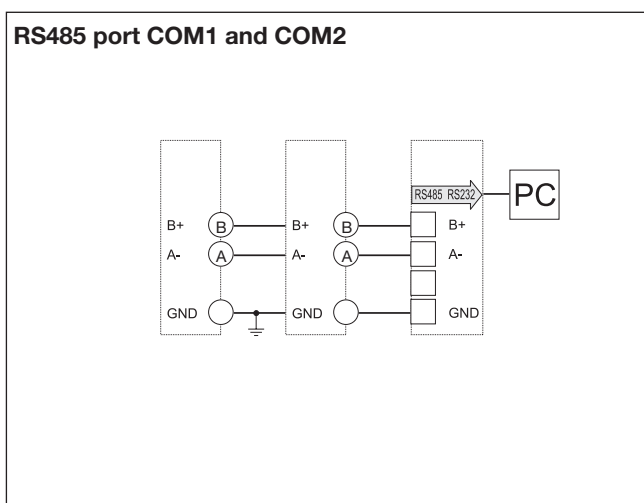
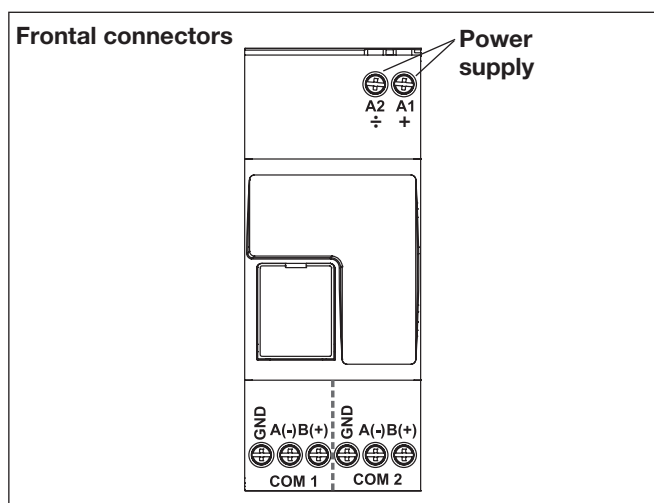
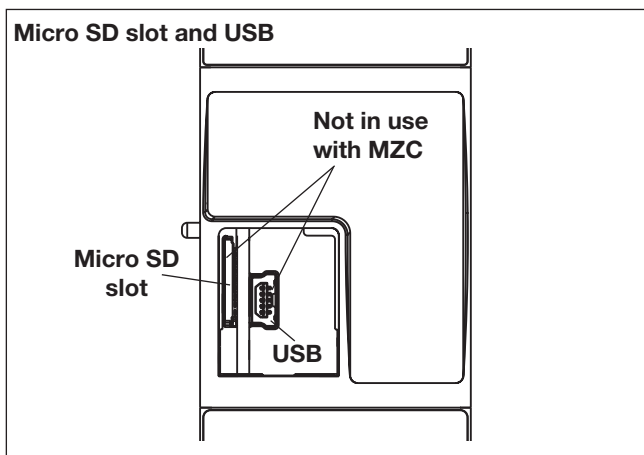
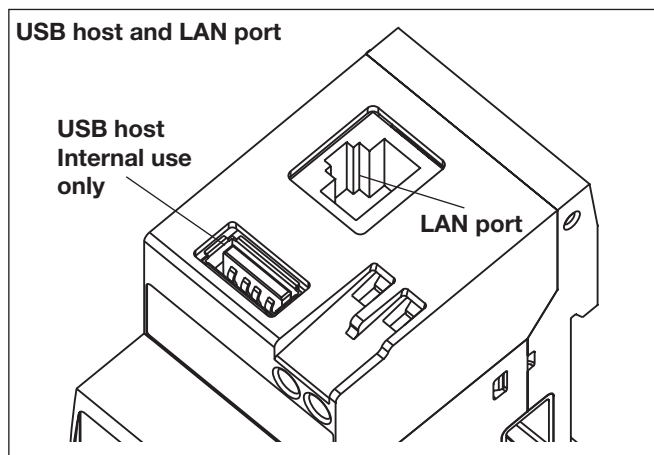
## General Specifications

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

## Connections

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

## Connections



## Channel Generator for Dupline® bus L<sub>1</sub> and L<sub>2</sub>: GP32900003700

### Supply Specifications

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

<b>Voltage</b>	8.2 V
<b>Maximum Dupline® voltage</b>	10 V
<b>Minimum Dupline® voltage</b>	4.5 V
<b>Maximum Dupline® current</b>	450 mA
<b>Maximum current on pow</b>	< 3.0 A
<b>Terminal</b>	D+, D- and pow out
<b>Note:</b> 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

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

## HS Bus Specifications

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

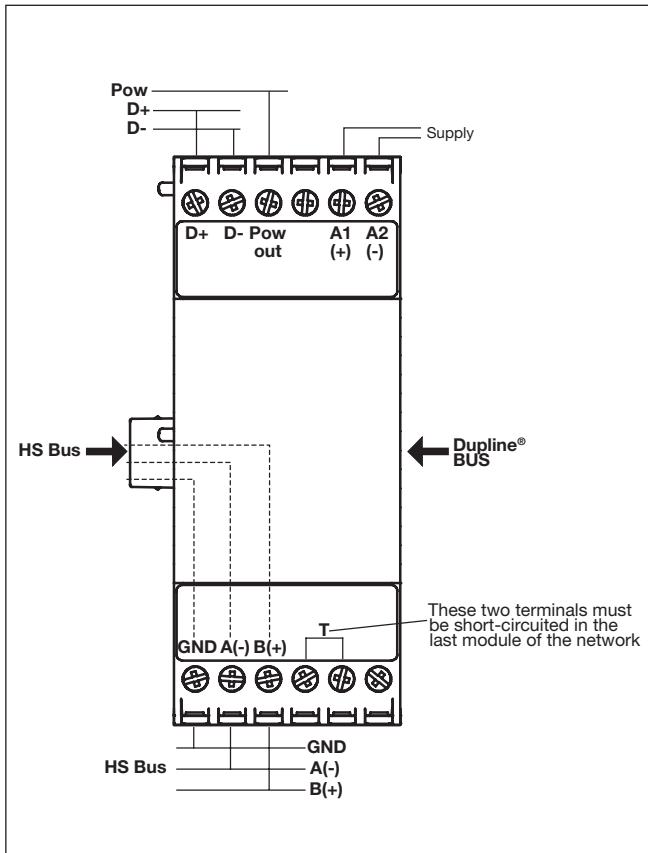
## LEDs Indication

**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 GP3290 0003 700 - Carpark master channel generator (CMCG) for L<sub>1</sub>
- 1 x GP3290 0003 700 - Carpark master channel generator (CMCG) for L<sub>2</sub>

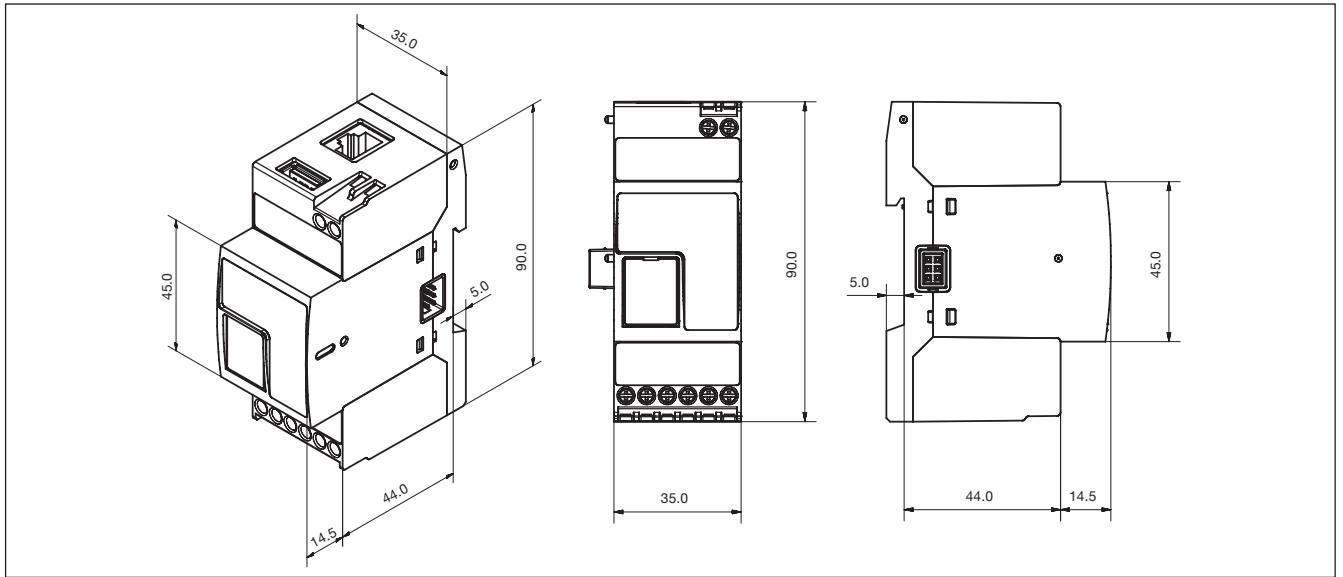
The counter is the intelligent part where all the programming takes place. The two Master channel generators supply the L<sub>1</sub> and L<sub>2</sub> bus respectively with Dupline® and 24VDC power. The Master channel Generators are not galvanically separated so it is essential to use individual supplies 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



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