JOINT VENTURES
Electronic Services [Pty] Ltd
Your Partners for Development, Production & Automatic Testing

No. 775 Old Pretoria Rd Wynberg
South Africa
P.O.B 1502 highlands north 2037
Phone +27 11 887-7222
Email: info@jves.co.za

Diamond Parking Guidance System – ZoneBuffer

1. General

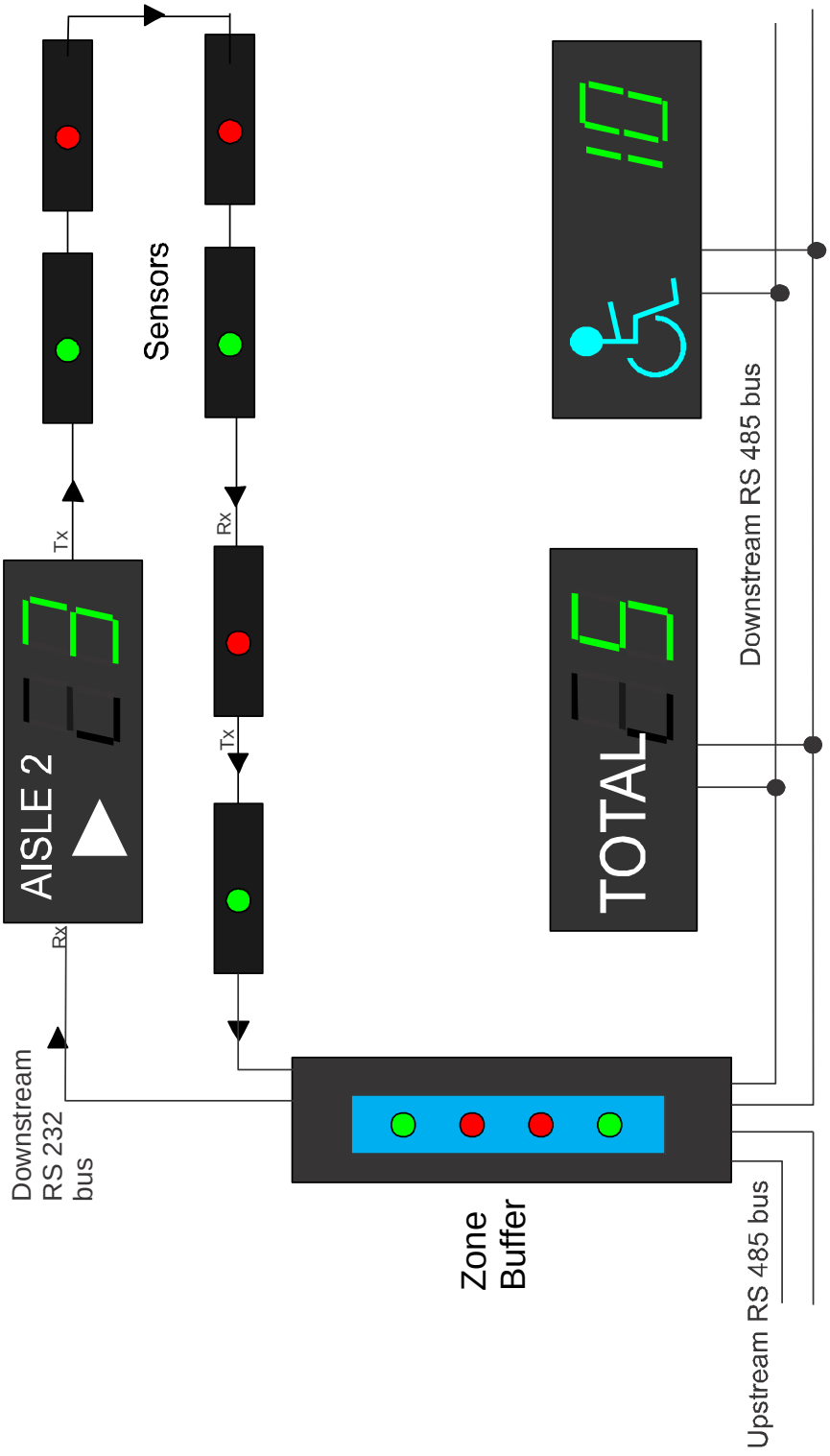
The Diamond PGS ZoneBuffer is the first line data communication hub of the system. It communicates via three communication ports:

- Downstream RS232 port
- Downstream RS485 port
- Upstream RS485 port

The ZoneBuffer main functions are:

- Collect data from the sensor array.
- Calculate the availability figures of each section, allocation and the total.
- Send data to downstream numeric displays.
- Compress the information and relay it upstream on request.
- Reduce commissioning effort to next to nil using its auto map feature.

This document must be read in conjunction with the "PGS Terminology.Pdf" available on our website (www.jves.zo.za).



Typical application of ZoneBuffer

1.1 Main features of the ZoneBuffe

Each ZoneBuffer is capable of:

- Collecting data from up to 250 PGS Sensors.
- Each sensor may belong to:
    - One of 16 sections.
    - One of 6 allocations.
- Calculating the available parking of each section and of each allocation.
- Controlling up to 16 numeric displays connected to its RS232 port.
- Controlling up to 16 numeric displays connected to its downstream RS485 port.
- Each display may belong to:
    - One of 16 sections.
    - One of 6 allocations.
    - Total count

Other features of the ZoneBuffer

- Lightning protection on all inputs and outputs.
- Clips into our dedicated trunking system for easy installation.
- Hot swappable.
- Low cost.

1.2 Operation

The ZoneBuffer operation can be divided to three main categories:

- Zone mapping.
- Zone controlling
- Zone data concentrator

Zone mapping

Block mapping operation can be invoked in to ways:

- On the parking floor, by inserting the MAP jumper.
- Remotely over the communication line.

During Zone mapping, the ZoneBuffer scans both downstream ports for connected devices. The configuration of each detected device is then used to build a database of all sensors, numeric displays, sections and allocations.

The database is stored in a non-volatile memory and is fixed until another mapping command is received.

Zone controlling

The Zone controlling is done in three steps every 2 seconds as follows:

- Collect the status of all sensors
- Calculate the availability per each section, each allocation and the total.
- Update all relevant displays

Zone data concentrator

The ZoneBuffer also acts as a data concentrator in respect of any device connected to its upstream RS485 port.

As a data concentrator it:

- Compresses the sensor array status
- Relays it upstream on request.
- Accepts commands to be relayed to its downstream devices.

Communication Status LED

The PGS ZoneBuffer is equipped with three bi-colour communication status LED.

- Downstream RS232 array communication status LED.
- Downstream RS485 communication status LED.
- Upstream RS485 communication status LED.

All communication status LEDs blink red on transmit and green on receive.

In addition to the communication status LEDs the ZoneBuffer indicates the general status of the devices connected to its downstream ports using two blinks:

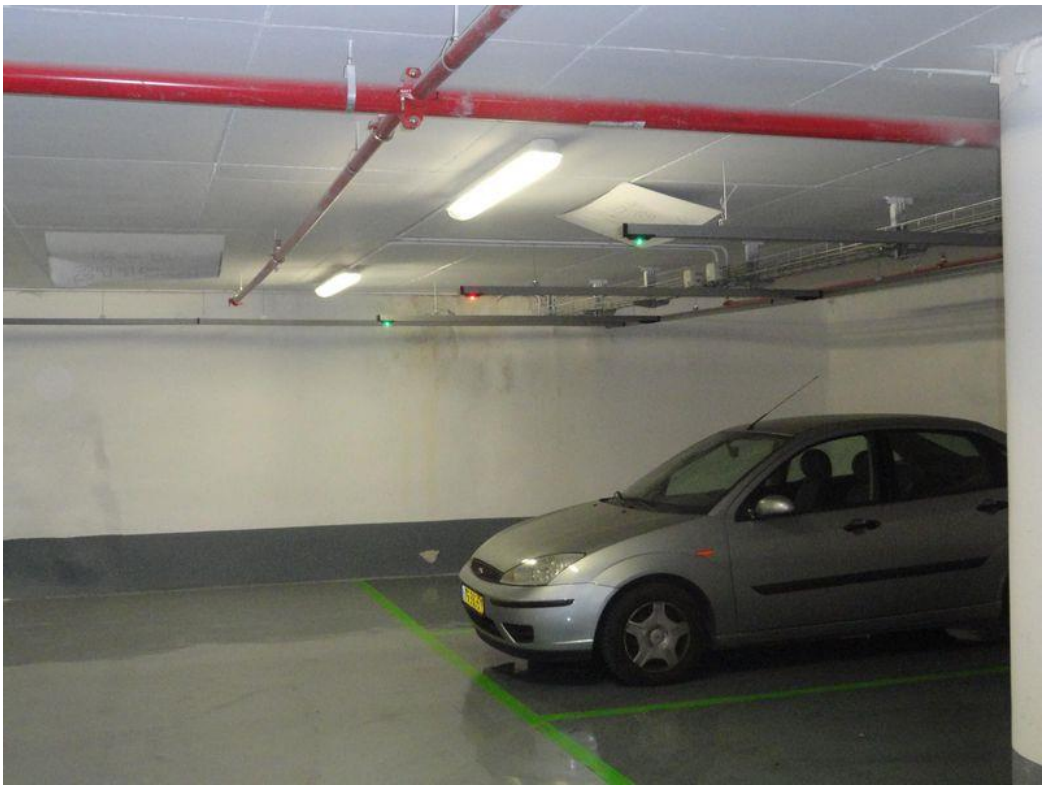
First blink:

- Green - Downstream RS232 devices report OK.
- Red – At least one Downstream RS232 devices reports a fault.

Second blink:

- Green - Downstream RS485 devices report OK.
- Red – At least one Downstream RS485 devices reports a fault.

3. Application examples



Total availability is calculated and displayed by the ZoneBuffer

4. ZoneBuffer detailed specifications

Power supply	15V-30V
Power consumption	Less than 300mW
Downstream Array Communication protocol	Daizzy chain RS232
Downstream Communication protocol	Multi-drop addressed RS485
Upstream Communication protocol	Multi-drop addressed RS485
Material	Polycarbonate
Housing	IP56
Mounting	**C**lip into trunking system
Operating temperature	-20^{O} to $+60^{O}$
Storage temperature	-40^{O} to $+85^{O}$
Safety Standard	IEC 60950-1
RFI/EMI Standard	IEC 61000

5. Ordering information

PGS-ZoneBuffer