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Diamond Parking Guidance System – BlockBuffer

1. General

The Diamond PGS BlockBuffer is the Second line data communication hub of the system. It communicates via two communication ports:

- Downstream RS485 port
- Upstream RS485 port

The BlockBuffer main functions are:

- Collect data from up to 16 BlockBuffers connected to its downstream RS485 port.
- Calculate the availability figures of each allocation and the total of the entire system.
- 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.co.za).

1.1 Main features of the BlockBuffer

Each BlockBuffer is capable of:

- Collect data from an array of up to 16 ZoneBuffers connected to its downstream RS485 port.
- Calculate the availability of parking of each allocation and the total of the entire array.
- Control up to 16 numeric displays connected directly to its downstream RS485 port.
- Control up to 16 numeric displays per ZoneBuffer via the ZoneBuffers downstream RS485 ports.
- Control up to 16 numeric displays per ZoneBuffer via the ZoneBuffers downstream RS232 port.
- Each display may be allocated to:
    - One of 6 allocations.
    - Total count

Other features of the BlockBuffer

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

1.2 Operation

The BlockBuffer operation can be divided to three main categories:

- Block mapping.
- Block controlling
- Block data concentrator

Block mapping

Block mapping operation can be invoked in to ways:

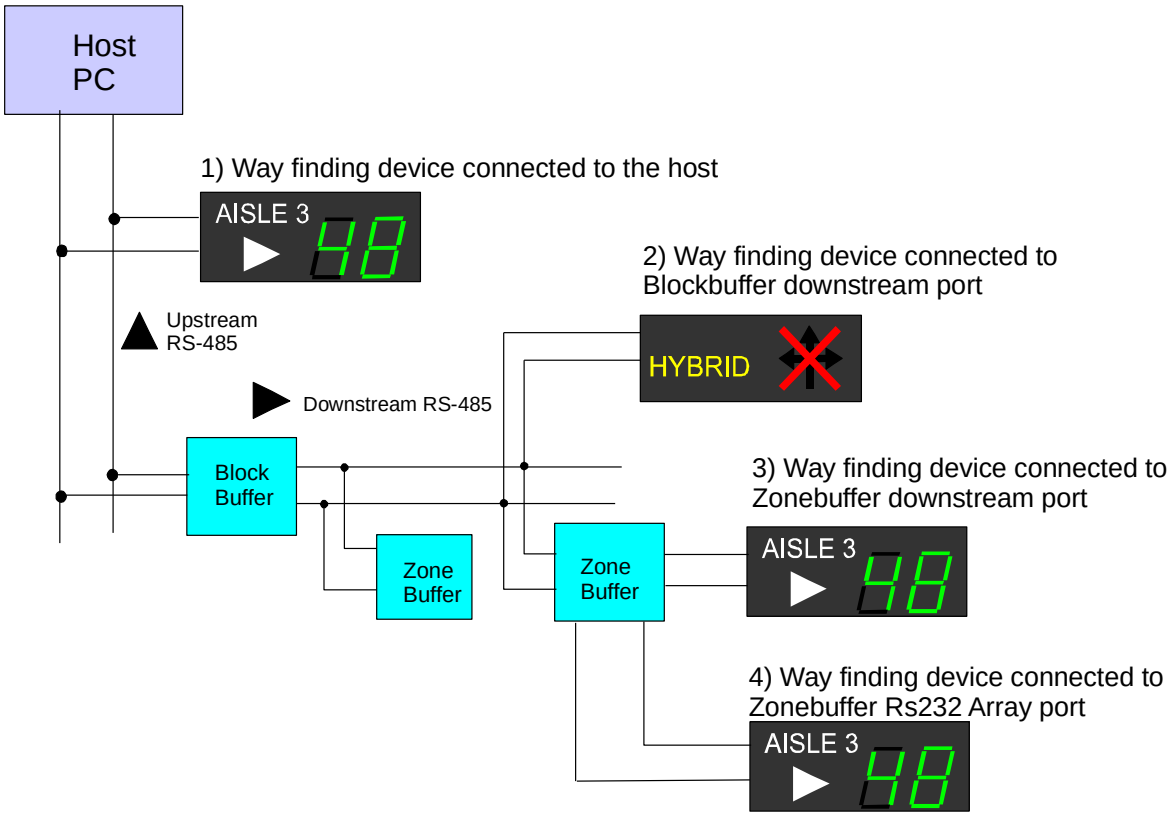
- On the parking floor, by inserting the MAP jumper.
- Remotely over the communication line.

During Block mapping, the BlockBuffer scans its downstream ports for connected devices. The devices may be:

- ZoneBuffers.
- Numeric Displays.

If a ZoneBuffer is found the BlockBuffer will also obtain the information regarding all the devices connected to the ZoneBuffer's downstream ports.
The configuration of each detected device is then used to build a database of numeric displays and their allocation.
The database is stored in a non-volatile memory and is fixed until another mapping command is received.
Using this database the BlockBuffer sends relevant information to all the numeric displays that have been assigned to its control.

The following drawing illustrates a typical connection of a BlockBuffer.



There are 4 logical points to which a way finding device can be connected:

1. To the host.

2. To the downstream port of any BlockBuffer together with the BlockBuffers. Such way-finding device is controlled by default as follows:
    - REM Jumper is inserted - By the host.
    - REM Jumper is not inserted - By the BlockBuffer.

3. To the downstream port of any BlockBuffer. Such way finding device is controlled by default as follows:
    - REM Jumper is inserted - By the upstream devices, BlockBuffer or Host.
    - REM Jumper is not inserted - By the BlockBuffer.

4. To the RS232 array port of any BlockBuffer. Such way finding device are controlled by default as follows:
    - REM Jumper is inserted - By the upstream device, BlockBuffer or Host.
    - REM Jumper is not inserted - By the BlockBuffer.

Block controlling

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

- Collect the status of all sensors from all the ZoneBuffers on the downstream port.
- Calculate the availability per each allocation and the total availability of the entire block.
- Updated all relevant displays, each via its applicable port.

Zone data concentrator

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

As data concentrator it:

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

Communication Status LED

The PGS BlockBuffer is equipped with two bi-colour communication status LED.

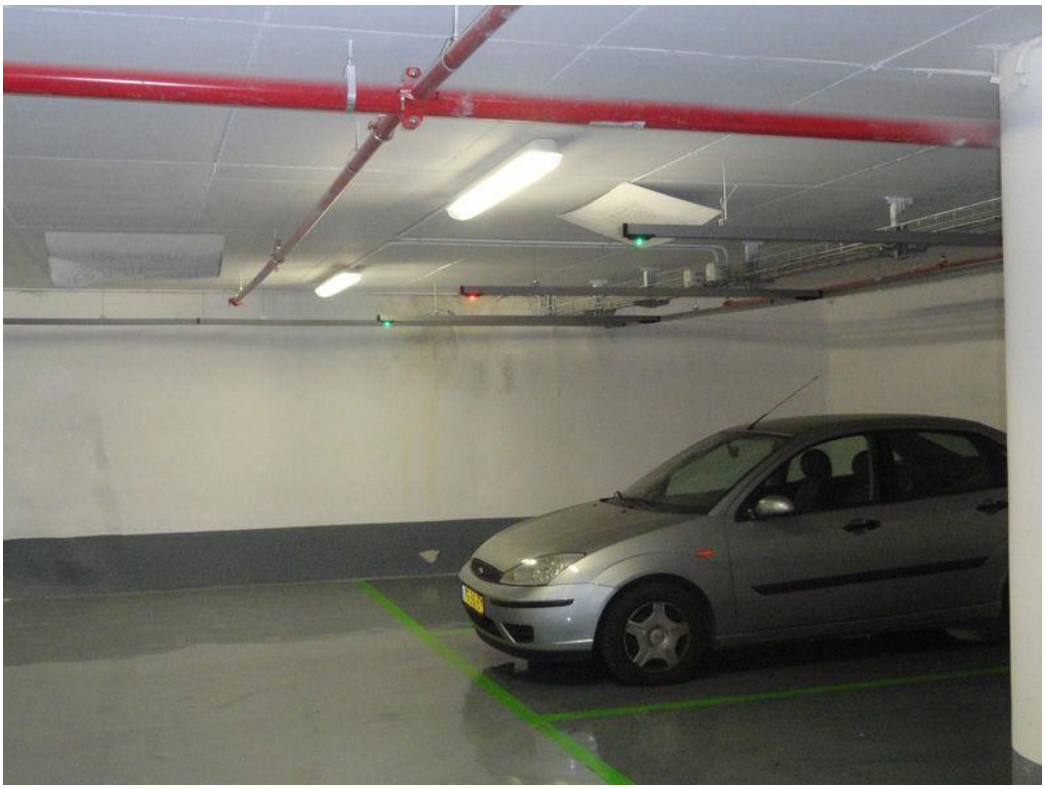
- Downstream RS485 communication status LED.
- Upstream RS485 communication status LED.

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

In addition to the communication status LEDs the BlockBuffer indicates the general status of the devices connected to its downstream port:

- Blink green - Downstream devices report OK.
- Blink red – At least one downstream device reports a fault.

3. Application examples



Total availability is calculated and displayed by the BlockBuffer

4. BlockBuffer 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-BlockBuffer