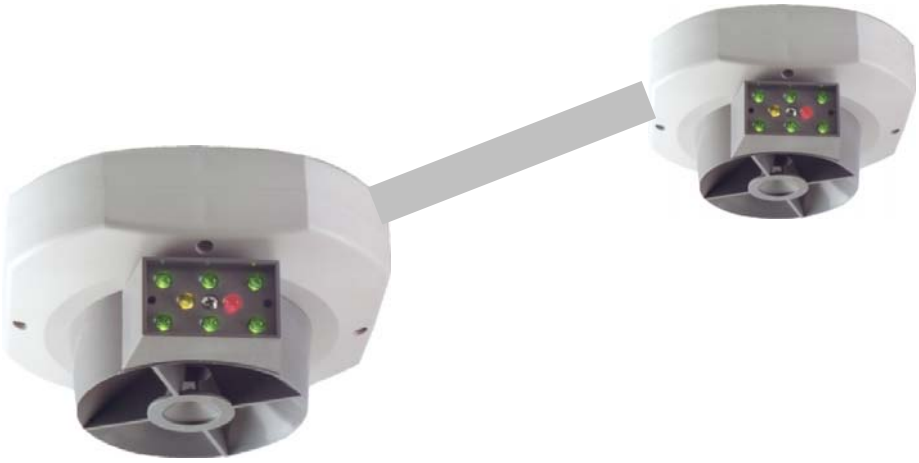
SIGNAL-PARK



Counting ramp

SP2-143

User's manual

Schick electronic SA

www.schick-sa.com

SIGNAL-PARK

Table of content

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1 Introduction

The SP2-143 is composed of two passing detectors linked together and mounted on a busbar rail.
One detector is called MASTER, and is equipped with a 3 pole M8 male serial connector for the link with the PC via a concentrator (SP2-210). The other is called SLAVE, and is connected to the MASTER detector.
The detection of vehicles is ultrasonic. According to the signals received by the two detectors, the MASTER detector will determine the direction of the vehicle passing under the ramp.

2 LED colours definitions

2.1 Normal operating mode

Green LED's are on when no vehicle is under the detector ("free" condition in this document)
Red LED is on when a vehicle is detected ("busy" condition in this document)

3 Installation

3.1 Fitting

Install the busbar rail in a parallel to the ground (and not to the ceiling !).
If the ceiling is in a parallel to the ground, then the busbar rail can be fixed directly to it.
Important specifications:

- The height of the ramp versus the ground must be less than 3m.
- The minimum distance between two ramps (In + out ramps) should be >3m.
- If the ramp is fixed with chains, avoid the rolling due to wind (3 or 4 points fixation).

3.1.1 Direction

The direction is determined by the movement of the car under the MASTER and SLAVE detectors. We recommend to install the ramp so that in normal condition the cars are running from MASTER to the SLAVE.
In all case, report them correctly on your drawings and documentations!

3.2 Connections

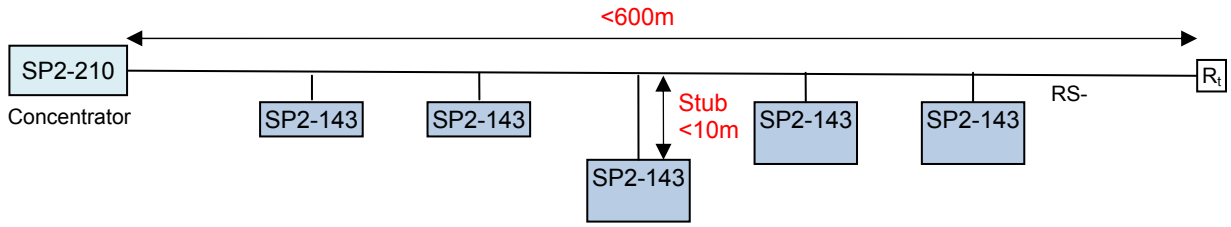
3.2.1 Power supply

The power supply is connected to the Canalis busbar rail with a 230VAC, 50/60Hz main supply (L-N-PE cable). Power consumption is about 5VA for each ramp detector.
Recommended cable: 3x1.5mm² (solid wire)

3.2.2 RS-485 bus

The MASTER detector is equipped with a M8 connector for the RS-485 serial line connection.

Bus schematic



Important specifications:

- The total length of the line should not exceed **600m** (400ft).
- The stub length must not exceed **10m**. The shortest is the best.
- Put a termination resistor of ~120Ω at the line ends in the last junction box between the two signal wires.
  A termination is supplied with the concentrator SP2-210.

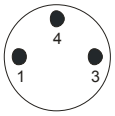
- The STP cable shielding should not be connected or in contact with any metal part or grounded. This will cause phantom ground currents and disturb the communications.

A 1m cable is supplied for the connection of the bus to the MASTER detector.

Needed cable: **shielded twisted pair** 1x2x0.25-0.34mm² solid wire.
For example:

- STP, S/FTP, FTP
- G51
- Ethernet LAN cable

3.2.3 M8 pin out

	M8 Pinout / cable color	Description	STP comm cable
	 1 - brown 3 - blue 4 - black	RS-485 D+ Gnd RS-485 D-	white shielding blue

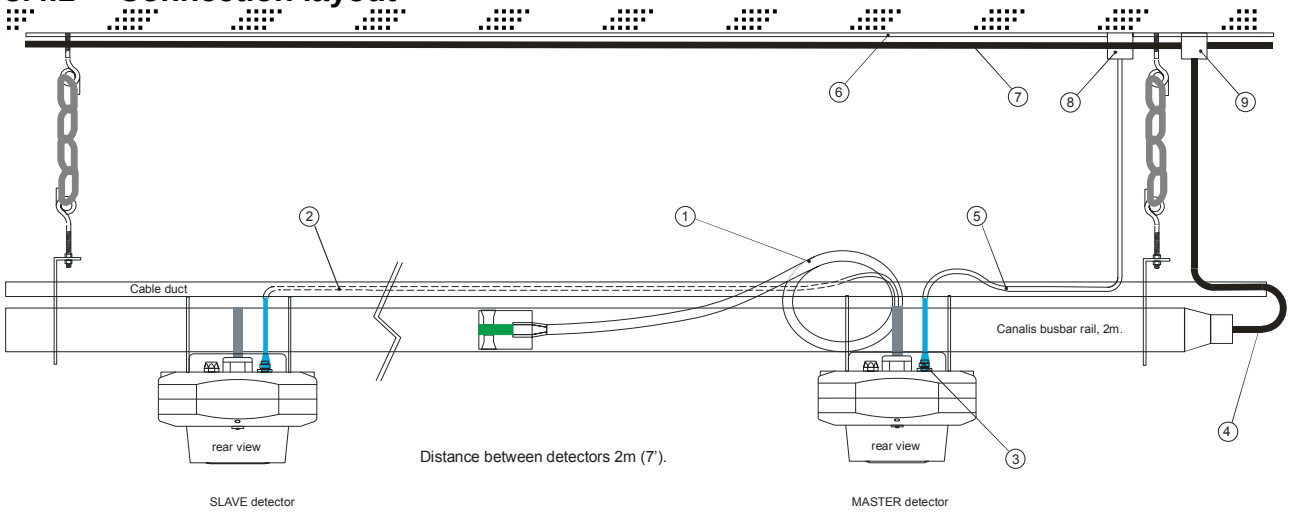
3.3 Limit of supply

The ramp detector is delivered with:

- Female Canalis connector for busbar supply
- 1m communication cable for connection between SP2-143 and junction box

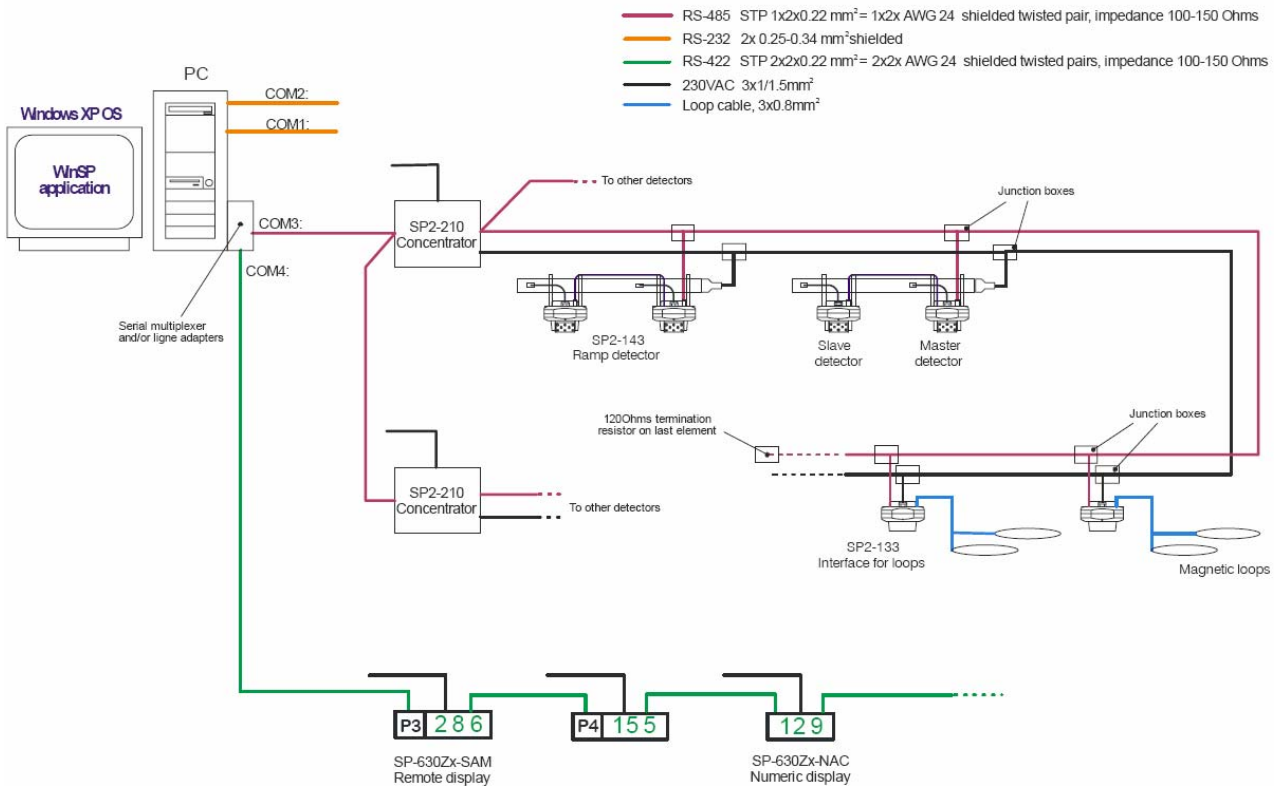
3.4 Example

3.4.1 Connection layout



1 - Power plug : remove cover, push plug, enclick green tab
2 - Cable to SLAVE detector
3 - Comm cable to junction box: screw 3p. female connector
4 - Power cable (230VAC): plug and arrange cable to junction box
5 - Comm cable (RS-485) same as 6, max 1m. : arrange inside the channel and fix with Colson clips
6 - RS-485 bus : 1 shielded twisted pair STP 2xAWG24 (0.22mm2) 100-150Ohms
7 - Power distribution : L - N - PE
8 - RS-485 junction box: connect bus with detector cable with 3x3p Scotchlock
9 - Power junction box: connect power distribution with detector cable with Wago clips

3.4.2 Schematic



4 Parameters

4.1 Address

Each ramp has its own address. The MASTER and the SLAVE must be programmed with the same address.
The address must be unique on the line(s) controlled by a specific concentrator SP2-210.

4.2 Other

All other parameters like:

- Height
- Ultrasound sending interval
- Logic
- Tolerance
- Etc

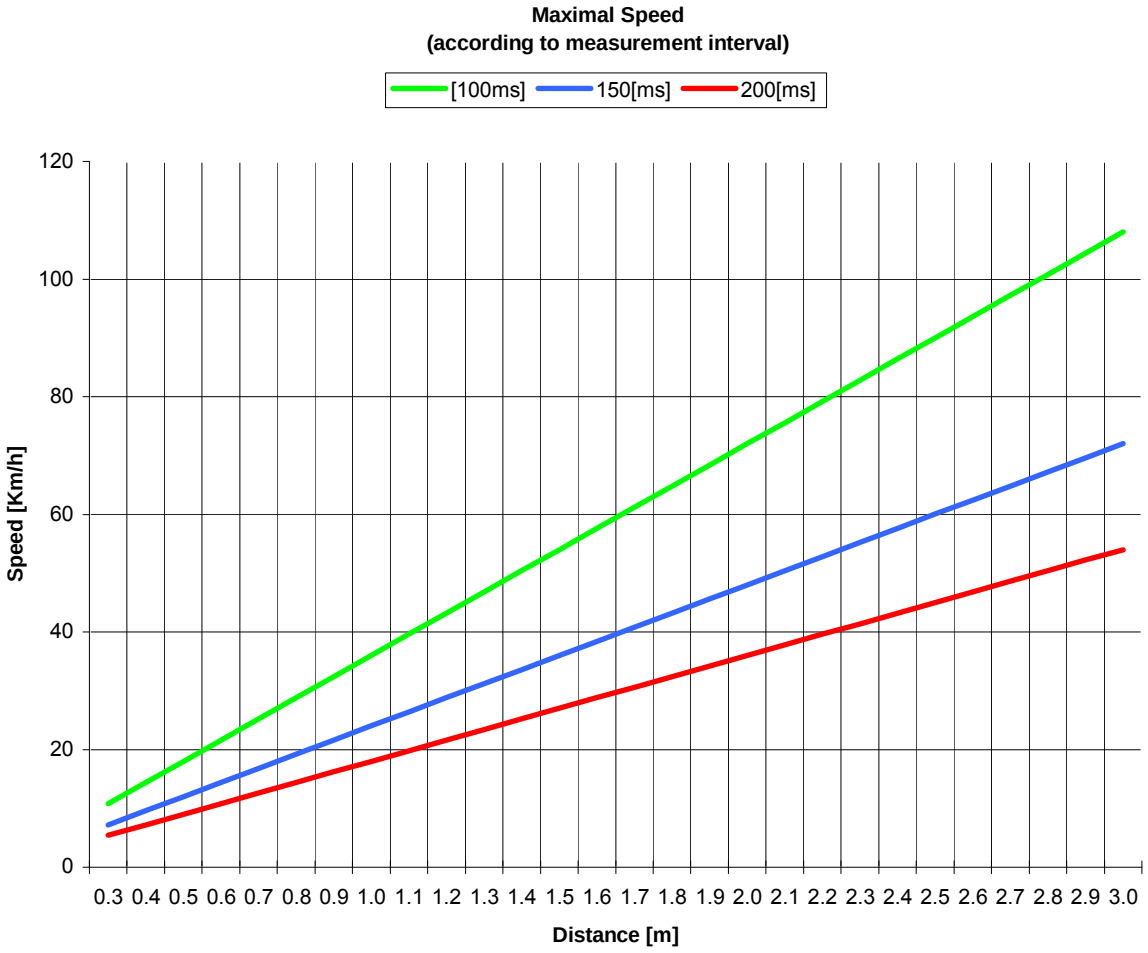
Can be updated after installation through the main computer using the specific software **SPtools**.

5 Speed

If the ramp is used for the vehicle counting, a maximum detection speed is effective.
The maximum speed depends on the distance between both detectors and the measurement interval.
Use following formula or diagram to determine the maximum speed :

5.1 Metric system

$$Vmax\ [Km/h] = \frac{Distance\ [m]}{Measurement\ Interval\ [s]} * 3.6$$



5.2 Anglo-Saxon system

$$Vmax\ [mph] = \frac{Distance\ [ft]}{Measurement\ Interval\ [s]} * 0.682$$

SCHICK electronic SA
Av. des Baumettes 9
CH-1020 RENENS
Switzerland

Phone: +41 21 635 06 12
Fax: +41 21 635 74 70
Web: www.schick-sa.com
E-mail: signal-park@schick-sa.com