

Trigentic AB

EmpirBus NXT SP-12 User manual

Covering models SP-12V-CL, SP-12V-CL-D, SP-12H-CL, SP-12H-CL-D.

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1. Introduction

The SP-12 is a product from the EmpirBus NXT product family.

This document contains basic specifications and installation instructions. This and other documents are available at www.empirbus.com.

2. Scope of Delivery

The SP-12 is delivered with 4 pc T6 mounting screws for thermo plastic mounting. Screws require predrilled 1 mm holes.

3. Model Range

Both the unit and the box are marked with model number.

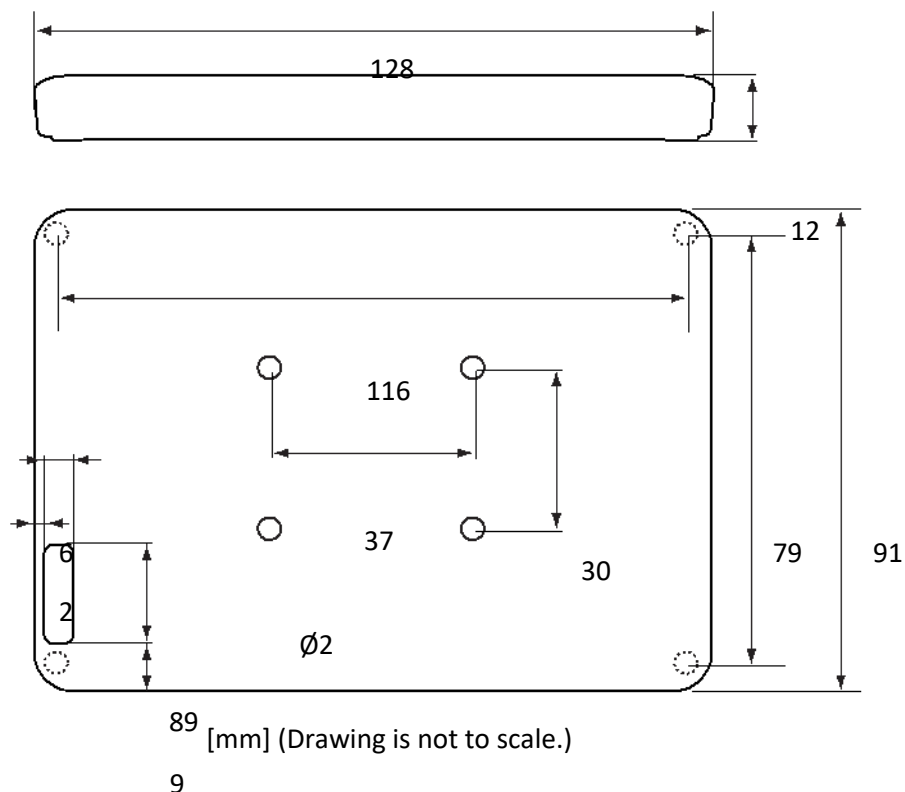
Vertical model	SP-12V-CL	SP-12V-CL-D
Horizontal model	SP-12H-CL	SP-12H-CL-D
Buttons (switches)	12 (24)	10 (20)
NMEA2000	X	X
LIN	X	X
Display		X

Table 3.1: Model range

4. Installation

4.1 Mounting

The SP-12 should be mounted on a flat vertical surface with four screws.



4.2 Connectors

The connector marked CAN is for NMEA2000 and the connector marked AUX is for LIN. The panel cable should be mounted with the text in the rubber mold facing upwards and on the 4 pin connector the brown and white cable should be on top. See figure 4.1.

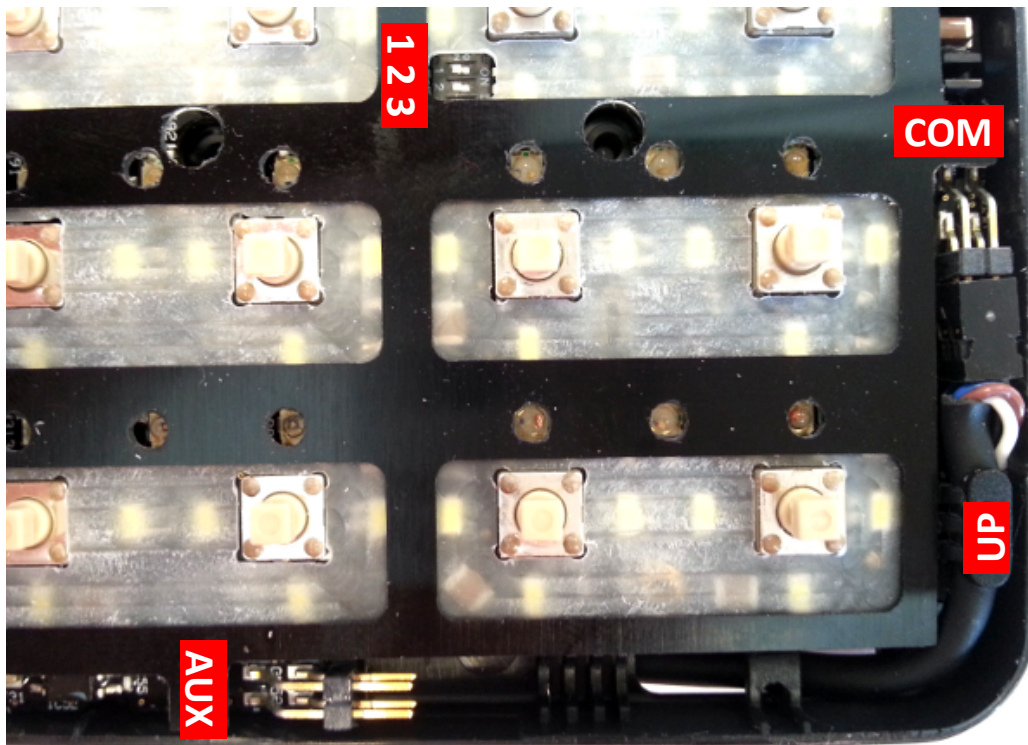


Figure 4.1: SP-12 showing labels for the COM and AUX connectors, the rubber mold on the panel cable marked UP and terminal resistor switches 1 through 3.

4.3 Terminal resistor switches

The SP-12 has onboard terminal resistors that can be connected to the bus using switches located beneath button 5 on a horizontal panel and under button 8 on a vertical panel. See figure 4.1, 5.1 and 5.2 for position of the switch.

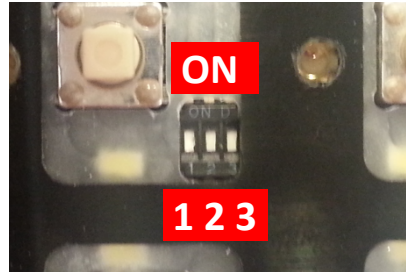


Figure 4.2: Internal terminal resistor switches

The switch is on as it is pushed towards on, and off as it is pushed towards the numbers. Switch 1 and 2 will individually add 120 Ω to the CAN bus. Switch 3 will add 1 k Ω to the LIN bus.

The NMEA2000 requires a total resistance of the bus of 60 Ω which is achieved by two parallel 120 resistors. If the SP-12 panel is placed within 6 meters from the end of the bus, an internal terminal resistor in the SP-12 can be used to exclude one external terminal resistor.

If the total bus length is shorter than 6 meters, both external terminal resistors can be excluded by using both of the internal terminal resistors in the SP-12.

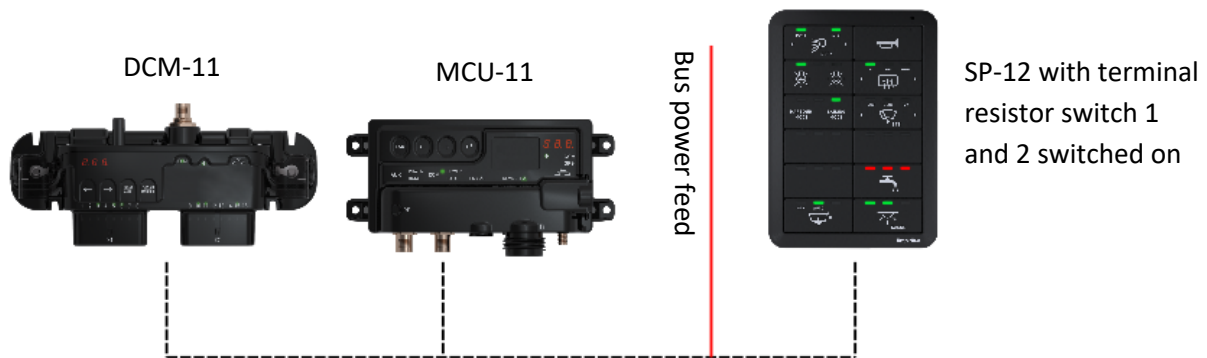


Figure 4.4: Bus example with total bus length less than 6 meter

5. Buttons

For each button there are three indicator windows. The indicators can be programmed individually and can indicate red or green. Each button has two switches – left side and right side – that can be programmed individually. **N.B.:The buttons are designed to snap firmly to the SP-12 switches and are not designed to be detached once mounted on the panel.**

5.1 Button orientation

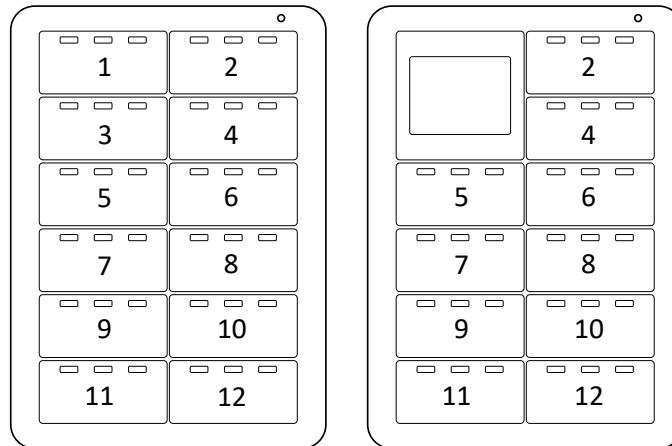


Figure 5.1: Button orientation on vertical panels

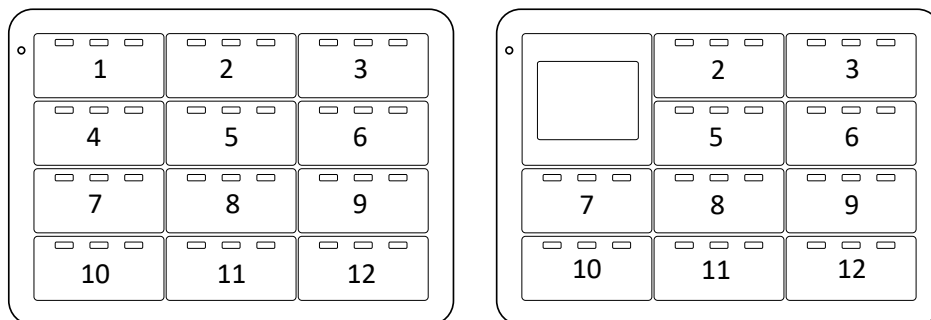


Figure 5.2: Button orientation on horizontal panels

The frame of the SP-12 panel should be mounted so that the EmpirBus logo is placed next to button 12. Compare figure 5.1, 5.2 and 6.1 for frame and button orientation.

6. Design



Figure 6.1: SP-12 panels with designed buttons and display

6.1 Button design

A list with the currently available predesigned buttons can be found in the SP-12 button legend on www.empirbus.com. Navigate to “NXT PRODUCTS” and “Download files”, the link is called “SP-12 Button Legend [release date]”.

New buttons can also be designed per request for a fee.

6.2 Display layout design

The display of the SP-12V-CL-D and SP-12V-CL-D can be designed with custom images and logos in 24-bit color. The screen resolution is 160 x 128 and the display backlight can be programmed to fit the light environment.

For questions regarding equipment and software for display layout design, contact the Trigent support.

7. Product specifications

See table 3.1 for model specification and hardware support

Communication <i>CAN-bus</i> <i>LIN</i>	NMEA2000 Not yet supported
Power supply <i>Max/average</i> <i>Supply voltage</i>	500mA/0,25mA 9-32VDC (Note: Power feed is through the NMEA 2000 bus)
Connectors <i>NMEA 2000</i> <i>LIN</i>	SP-12 panel cable Not yet supported
Environment <i>Ambient temperature</i> <i>Enclosure</i>	-20 to +55 degrees Celsius Ingress Protection IP20
Physical data <i>Size</i> <i>Weight</i>	128 x 91 x 12 mm 0,2 kg

Notes:

DECLARATION OF CONFORMITY

We, manufacturer, Trigentic AB, Uddevalla, Sweden, declare that the articles:

2041311, 2041351, 2041314, 2041354, 2041313, 2041353, 010-02370-00, 010-02371-00, 010-02372-00, 010-02373-00

are in conformity with EC Directive EMC 2014/30/EU.



We also declare that the articles:

2041311, 2041351, 2041314, 2041354, 2041313, 2041353,
010-02370-00, 010-02371-00, 010-02372-00, 010-02373-00



comply with

FCC 47 CFR Part 15, Subpart B, Class A.

SIGNS ON BEHALF OF

Garmin Sweden Technologies AB

Name:

Henrik Niklasson

Position:

Product & Sales Manager

Location and date:

Uddevalla, Sweden, 1st December 2019

Signature:

Henrik Niklasson

RoHS CERTIFICATE OF CONFORMANCE

We, manufacturer, Trigentic AB, Uddevalla, Sweden, declare that the articles:

2041311, 2041351, 2041314, 2041354, 2041313, 2041353, 010-02370-00, 010-02371-00, 010-02372-00, 010-02373-00

are in compliance with Directive 2011/65/EU on the restriction of the use of certain hazardous substances in mechanics, electrical and electronic equipment (RoHS Directives).

SIGNS ON BEHALF OF	Garmin Sweden Technologies AB
Name:	Henrik Niklasson
Position:	Product & Sales Manager
Location and date:	Uddevalla, Sweden, December 1 st 2019

Signature:	<u>Henrik Niklasson</u>
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