



SDI01 Inclinometer

USER MANUAL

V1.2

SDI01 Inclinometer

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1. Introduction

SDIO1 is a high-resolution digital inclinometer for pitch and roll with manual calibration. It is fully compatible with existing SIMARINE monitoring systems. The module was designed so that the configuration and calibration of the inclinometer is quick and user friendly.

NOTE: Please make sure you are running a firmware version higher than version 3.000.



2. Safety

Only qualified electricians with proper safety equipment should make installation of Simarine electronics. When working with batteries, you should wear protective clothing and eye protection.

CAUTION: Batteries contain acid, a corrosive, colorless liquid that can burn your eyes, skin, and clothing. If the acid comes into contact with eyes or skin, wash out with lukewarm water and immediately seek medical support.

CAUTION: Do NOT connect anything to a damaged battery. It could heat up, catch fire, or explode.

CAUTION: Lead-acid batteries can generate explosive gases during operation. Never smoke, allow flames, or sparks near the battery. Make sure to keep sufficient ventilation around the battery.

3. EU Declaration of conformity



MANUFACTURER: SIMARINE d.o.o.

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Declares that the following product:

PRODUCT TYPE: INCLINOMETER

Is in conformity with the relevant European union harmonization legislation:

EMC Directive 2014/30/EU

(as per harmonized standards EN EIC 61000-6-1:2023, etc.)

Low Voltage Directive 2014/35/EU

(as per harmonized standards EN EIC 62368-1:2023)

Radio Equipment Directive 2014/53/EU

(as per harmonized standards ETSI EN 300 328, ETSI EN 301 489-1, ETSI EN 301 489-17 and EN 18031)

UNECE Regulation No. 10 (ECE-R10)

(as per the latest applicable version, e.g., ECE-R10, Rev.6/Amend.5)

RoHS Directive 2011/65/EU and amendments

(as per harmonized standards EN EIC 63000:2018)

4. Overview



- A - Calibration button
- B - 2x SICOM port

5. Installation

CAUTION: Install the shunt module in a clean and dry place protected from accidental spilling of liquids.

- Place the inclinometer on a firm and stable surface.

5.1 Cables

For the SiCOM connection, use the supplied cable. If not possible, use the following table to determinate the correct cable type.

CABLES	
Cable length	Cable type
< 5m	No limitations
>= 5m	2x2x0.25 mm ² twisted pair (recommended)

6. Connecting the inclinometer

Like any other SIMARINE module, the SDI01 also communicates with the SIMARINE monitoring system through a SiCOM data cable, which is included with the inclinometer.

You can either connect the module **directly to the SPLITTER** or you can connect it to another module which is already connected to the SPLITTER and thus forming a so called “daisy chain” (indirect wiring).

6.1 Directly to the splitter

Connecting a digital inclinometer directly to the splitter port.



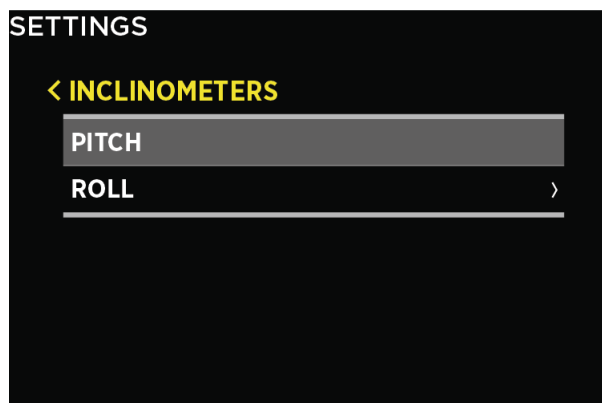
6.2 Through another module to the splitter

Connecting the inclinometer to another module to the splitter.

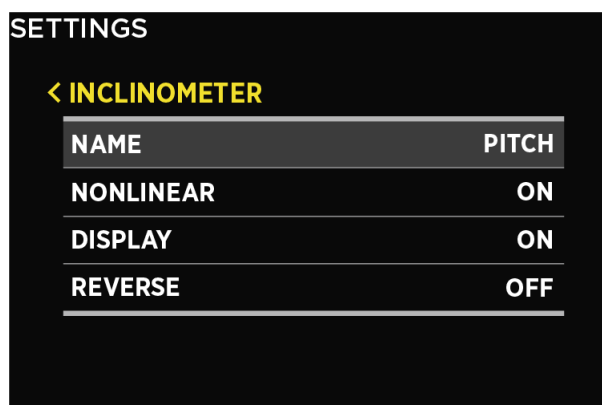


7. After connecting the inclinometer

After connecting the inclinometer, your monitor will automatically recognize it and **configure two new** inclinometer devices, which you can see in the list of inclinometers **MENU > DEVICES > INCLINOMETERS**



When selecting either PITCH or ROLL, can configure the following:



- **NAME** - The display name of your inclinometer. You can select either **PITCH** or **ROLL**.
- **NONLINEAR** - This parameter is for display purposes. By configuring **NONLINEAR** setting to OFF, the inclination line will follow the angle values read by the sensor more closely. This means that at the lower angles (1°-10°) the drawn offset may not be as apparent. The default value is ON.
- **DISPLAY** - The parameter determines if the inclinometer is to be displayed on the inclinometers screen. The default value is ON.
- **REVERSE** - Reverses the display, which means that at the 5° angle the angle will be presented as -5°. This gives the user more options when first mounting the module to its location.

On the main screen, after scrolling down (using arrow-down button), past the first screen, you will reach a new »Inclinometers« screen, which shows you the current readings of your inclinometer module. Please note that at this step, due to the lack of calibration, it is expected that the angle values are incorrect. The process of calibrating your sensor is explained in the next section.



8. Calibration of the inclinometer

Before calibrating the module, you must make sure that the module is mounted in its final position and the vehicle is parked on a level surface.

The calibration procedure can be executed in two ways. Either through the monitor or by using the CAL button on the inclinometer module itself.

The result of the calibration is 0° angles for both PITCH and ROLL inclinometers at the current position of the module.



8.1 Calibration using the CAL button on the SDI01 module

To calibrate the module using the CAL button, please press and hold the CAL button which is located on the top right corner of the module. Hold the button until the LED light on the module starts flashing red.



8.2 Calibration through the monitor

To calibrate the module through the monitor, please navigate to the inclinometers screen. **Press and hold both up-arrow and down-arrow buttons** at the **same time** until the confirmation screen appears.

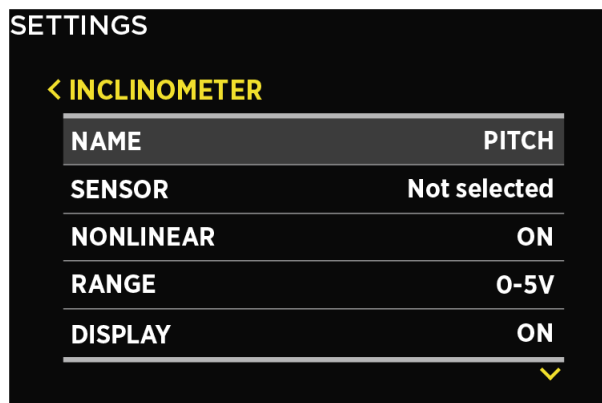


After the conformation screen appears, long press the  button to confirm.



9. Configuring a 3rd party Inclinometer

This is only for 3rd party inclinometers, if you have a SIMARINE Inclinometer, you can skip this page.



- **NAME** - The display name of your inclinometer. You can select either **PITCH** or **ROLL**.
- **SENSOR** - Here you select the device, where you connected the inclinometer to (SC303, ST107, etc.)
- **NONLINEAR** - This parameter is for display purposes. By configuring **NONLINEAR** setting to OFF, the inclination line will follow the angle values read by the sensor more closely. This means that at the lower angles (1°-10°) the drawn offset may not be as apparent. The default value is ON.
- **RANGE** - Tells the PICO or VIA, what voltage to take for 0° and 360°. (You can choose from 0 - 5V or 0 - 10V)
- **DISPLAY** - The parameter determines if the inclinometer is to be displayed on the inclinometers screen. The default value is ON.
- **REVERSE** - Reverses the display, which means that at the 5° angle the angle will be presented as -5°. This gives the user more options when first mounting the module to its location.

10. Technical specifications

Operating	
Voltage range	6 - 35 V
Resolution	0,1°
Range (pitch&roll)	+/-89°
Power consumption	
Power consumption at 12V	1mA
Connectivity	SiCOM

Safe Voyage.



S I M A R I N E

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