Installation and Operation Manual

Be smart. Measure it.

S305

Dew Point Monitor



English

www.suto-itec.com

Dear Customer,

Thank you for choosing our device.

The operating instructions must be read in full and carefully observed before starting up the device. The manufacturer cannot be held liable for any damage which occurs because of non-observance or non-compliance with this manual.

Should the device be tampered with in any manner other than a procedure which is described and specified in the manual, the warranty is void and the manufacturer is exempt from liability.

The device is destined exclusively for the described application.

SUTO iTEC offers no guarantee for the suitability for any other purpose. SUTO iTEC is also not liable for consequential damage resulting from the delivery, capability or use of this device.

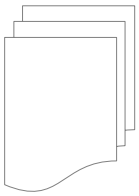
Revision: 2026-2

Last modifications: September, 2026

Table of contents

1 Safety Instructions ····· 4
2 Registered Trademarks ····· 5
3 Application ····· 6
4 Features ····· 6
5 Technical Data ····· 7
5.1 General ····· 7
5.2 Electrical Data ····· 7
5.3 Input Signals ····· 7
5.4 Output Signals ····· 8
5.5 Accuracy ····· 8
6 Dimensional Drawing ····· 9
7 Installation ····· 10
7.1 Installation Requirements ····· 10
7.2 Installation Procedure ····· 11
7.3 Sensor Change ····· 12
7.4 Electrical Connection ····· 12
7.4.1 Layout of Terminal Blocks ····· 12
7.4.2 Power Supply Connection ····· 13
7.4.3 Relay Connection ····· 13
7.4.4 Signals of Terminals ····· 14
7.4.5 Pin Assignment ····· 14
7.4.6 Connect an Additional Analog Sensor to S305 ····· 15
7.4.7 Connect the External Alarm Unit to S305 Relays ····· 15
8 Configuration ····· 16
9 Operation ····· 16
9.1 Description of Keys ····· 16
9.2 Sensor Settings ····· 17
9.3 Alarm Settings ····· 17
9.4 System Status and Settings ····· 17
9.5 Service Settings ····· 17
10 Signal Inputs ····· 18
10.1 Digital Input ····· 18
10.2 Analog Input ····· 18
11 Signal Outputs ····· 18
11.1 Analog Output ····· 18
11.2 Alarm Output ····· 18
12 Volume Setting of Alarm Unit ····· 18
13 Calibration ····· 19
14 Maintenance ····· 19
15 Disposal of Waste ····· 19

1 Safety Instructions



Please check if this instruction manual matches the device type.

Please observe all notes and instructions indicated in this manual. It contains essential information which must be observed before and during installation, operation and maintenance. Therefore, this instruction manual must be read carefully by the technician as well as by the responsible user / qualified personnel.

This instruction manual must be available at the operation site of the dew point monitor at any time. If anything in this manual is unclear, or if you have questions, please contact the manufacturer.



WARNING: Compressed Air Hazard!

Contact with rapidly escaping pressurized air or bursting components can cause serious injury or death.

- Only use pressure tight installation material.
- Ensure that nobody can be hit by escaping air or bursting parts.
- The system must be depressurized before any maintenance work.



WARNING: Electrical Hazard!

Contact with energized electrical components may cause electric shock, resulting in serious injury or death.

- Consider all regulations for electrical installations.
- Disconnect the device from the power supply before maintenance.
- Only qualified personnel may perform electrical work.



CAUTION: Permitted Operating Parameters!

Operating the device outside the specified limits may result in malfunctions, measurement errors, or damage to the device and associated system components.

- Do not exceed the permitted operating parameters.
- Make sure the device is operated within its permitted limits.
- Do not exceed or undercut the permitted storage and operation temperature and pressure.

General safety instructions

- Do not use the device in explosive areas.
- Please observe the national regulations before/during installation and operation.

Remarks

- Do not disassemble the device beyond the sensor replacement described in section 7.3 .
- Always use suitable tools that are in proper working order.



CAUTION: Measurement Accuracy!

Improper use or inadequate maintenance of the device may affect measurement accuracy and lead to unreliable measurement results.

Storage and transportation

- Transportation temperature: -30 ... +70°C.
- Original packaging recommended: use the supplied packaging for the device during transit.
- Storage temperature: 0 ... +40°C.
- Protect from direct UV and solar radiation during storage.
- Storage humidity: less than 90%, no condensation.

2 Registered Trademarks

SUTO®

Registered trademark of SUTO iTEC

3 Application

The S305 is an all-in-one Dew Point Monitor that integrates the S217 dew point meter and a display in a rugged housing (IP65). It monitors the dew point in compressed air or gas in industrial applications.

The S305 is mainly used in the compressed air systems in an industrial environment. It is not used in explosive areas.

4 Features

- Two models: -60 ... +20°C Td and -20 ... +50°C Td
- Plug & Play (complete solution)
- Compressed air supply through 6 mm quick connector
- Power supply: 100 ... 240 VAC or 18 ... 30 VDC
- Easy wall mounting
- Accuracy of ±2°C Td
- IP65 casing for robust protection in rough industrial environment
- 4 ... 20 mA output to PLC or SCADA system
- Pre-alarm and main-Alarm programmable:
  - Optical: red blinking display
  - Two-relay outputs
  - Optional alarm unit: wall mounting or casing mounting

5 Technical Data

5.1 General

CE	
Measuring range (model depending)	Dew point: -60 ... +20°C Td -20 ... +50°C Td
Dew point sensor	Polymer
Temperature sensor	NTC
Ambient temperature	-10 ... +40°C
Ambient humidity	0 ... 100% rH
Operating pressure	0.3 ... 1.6 MPa
Temperature of the measured medium	-30 ... +70°C
Electrical connection	Screw terminals
Process connection	6 mm quick connector
Housing material	ABS, Aluminium alloy
Protection level	S305: IP65 Alarm unit (optional): IP54
Dimensions	See dimensional drawing on page 9
Display	Graphic display, 220 x 140 pixels with back light
Interface	USB to PC
Keyboard	4 keys
Weight	520 g

5.2 Electrical Data

Power supply	D699 3050 / 3052: 100 ... 240 VAC, 15 VA
	D699 3051/3053: 18 ... 30 VDC, 20 W

5.3 Input Signals

Digital input	1 x SDI for dew point
Analog input	0 ... 20 mA / 4 ... 20 mA, 0 ... 1 VDC / 0 ... 10 VDC

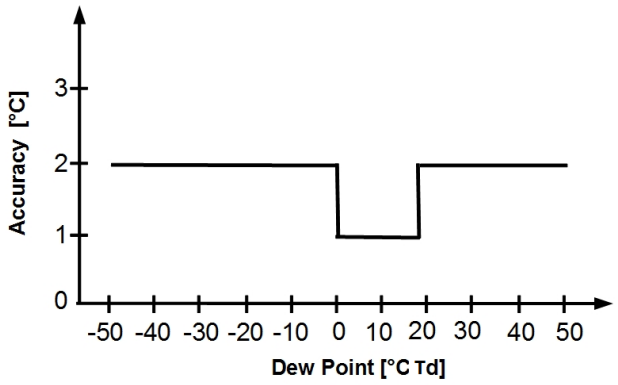
5.4 Output Signals

Analog output	4 ... 20 mA for forwarding the analog signal to customer systems
Alarm output	2 relays, 230 VAC, 3A, changeover contact

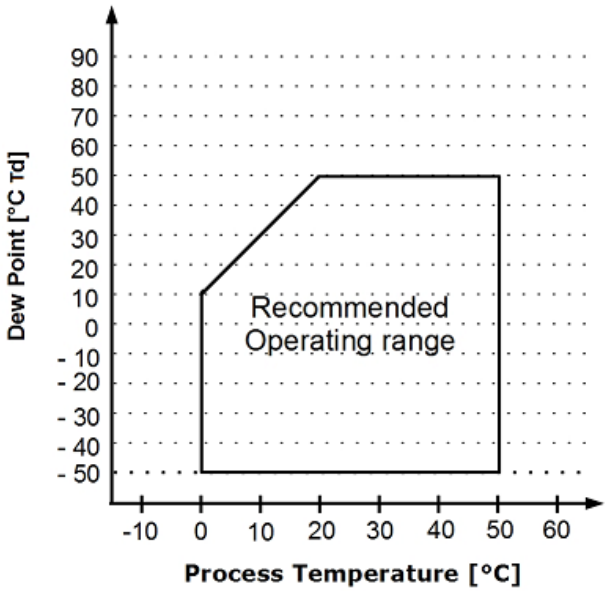
5.5 Accuracy

Accuracy	±2°C Td (see picture below)
Repeatability	±0.5°C
Stated accuracy at	Ambient/process temperature 23°C ± 3°C Ambient/process humidity <95% rH, no condensation Airflow > 2 l/min at sensor tip

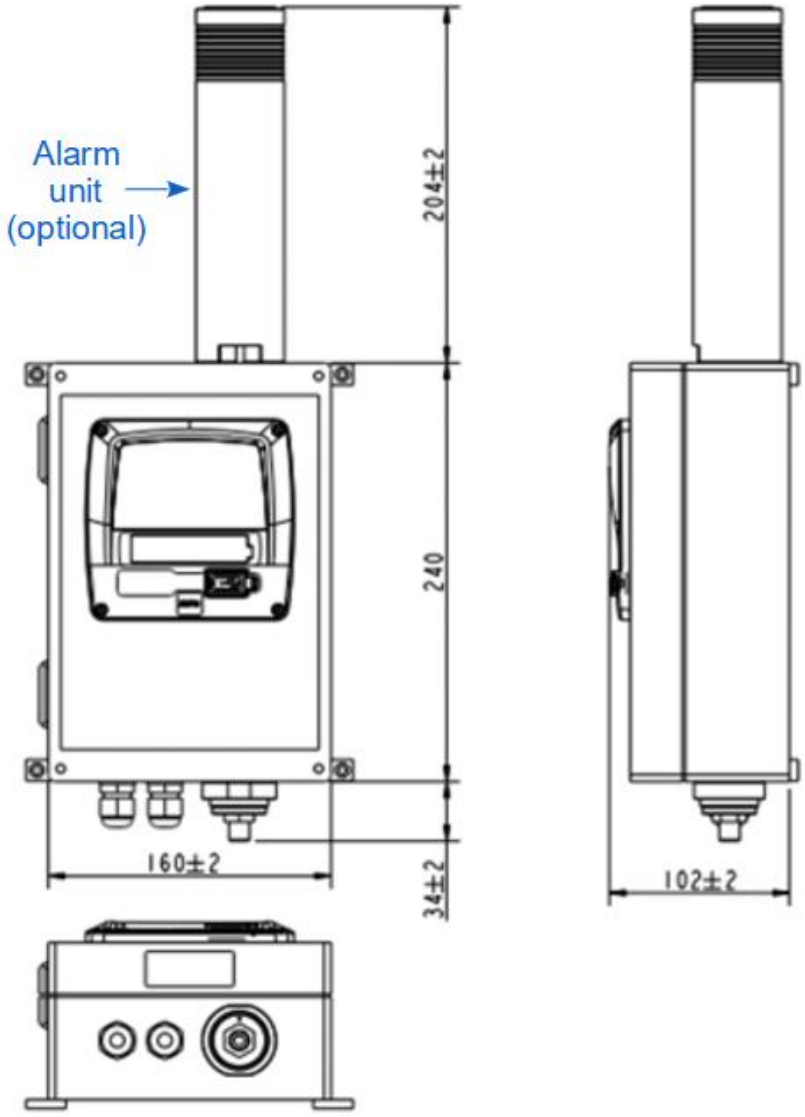
Accuracy:



Valid working range:



6 Dimensional Drawing



7 Installation

Please make sure that all components listed below are included in your package.

Qty	Description	Item No.
1	S305 Dew Point Monitor in wall-mounted housing	D699 3050 D699 3051 D699 3052 D699 3053
1	Instruction manual	No P/N

The descriptions of order numbers of the S305 are as follows:

Order No.	Description
D699 3050	S305 Dew Point Monitor, -20 ... +50 °C Td, 6 mm quick connector, 15 bar, 1 x 4 ... 20 mA, 100 ... 240 VAC, 2 relay outputs
D699 3051	S305 Dew Point Monitor, -20 ... +50 °C Td, 6 mm quick connector, 15 bar, 1 x 4 ... 20 mA, 24 VDC, 2 relay outputs
D699 3052	S305 Dew Point Monitor, -60 ... +20 °C Td, 6 mm quick connector, 15 bar, 1 x 4 ... 20 mA, 100 ... 240 VAC, 2 relay outputs
D699 3053	S305 Dew Point Monitor, -60 ... +20 °C Td, 6 mm quick connector, 15 bar, 1 x 4 ... 20 mA, 24 VDC, 2 relay outputs

Optional accessory

Order No.	Description
A554 0024	Alarm unit for wall mounting, 110/220 VAC, red flashing light and buzzer alarm (The unit is activated via the integrated alarm relays of the S305 and comes with 400 mm connection cables).
A554 0025	Alarm unit mounted on the S305 housing, 110/220 VAC, red flashing light and buzzer alarm (pre-wired Plug & Play; The unit is activated via the integrated alarm relays of the S305).

7.1 Installation Requirements

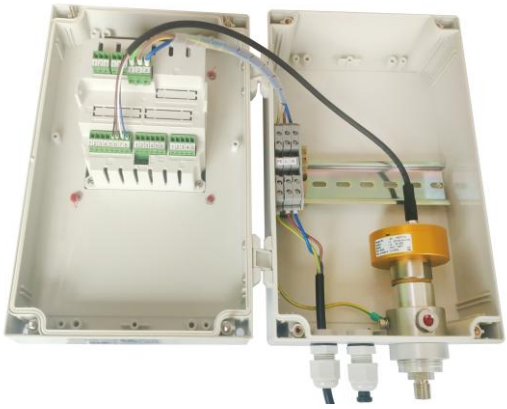
The device can be mounted on a wall. Please observe the drawings in chapter 6 for details. The housing of the S305 must be fixed on the wall using suitable dowels and screws.

7.2 Installation Procedure

The device is mounted on a wall. Follow the installation steps described below.



1. For the wall mounting, mount the brackets to the bottom of the casing as indicated in the picture.



2. Connect the power supply as described in section 7.4 .



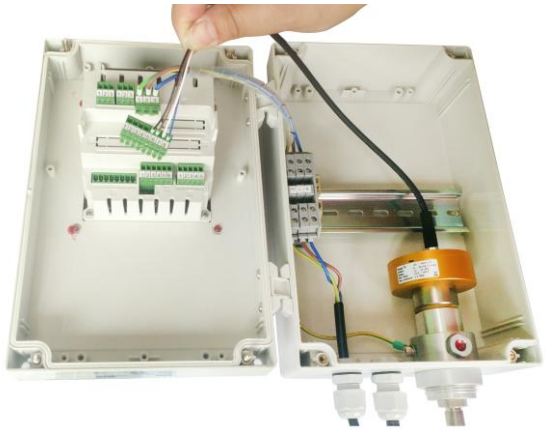
3. Close screw openings with covers.



4. Connect the compressed air. The S305 will produce a small, compressed air bleeding of about 2 l/min. This is required to have a good response time.

7.3 Sensor Change

For service or calibration, the sensor unit may have to be replaced.



1. Open the S305 case and remove the sensor cable connected at the display terminal first. See the left picture. To do this, disconnect the entire plug.



CAUTION!

Please ensure that the power supply is switched off before opening the casing!



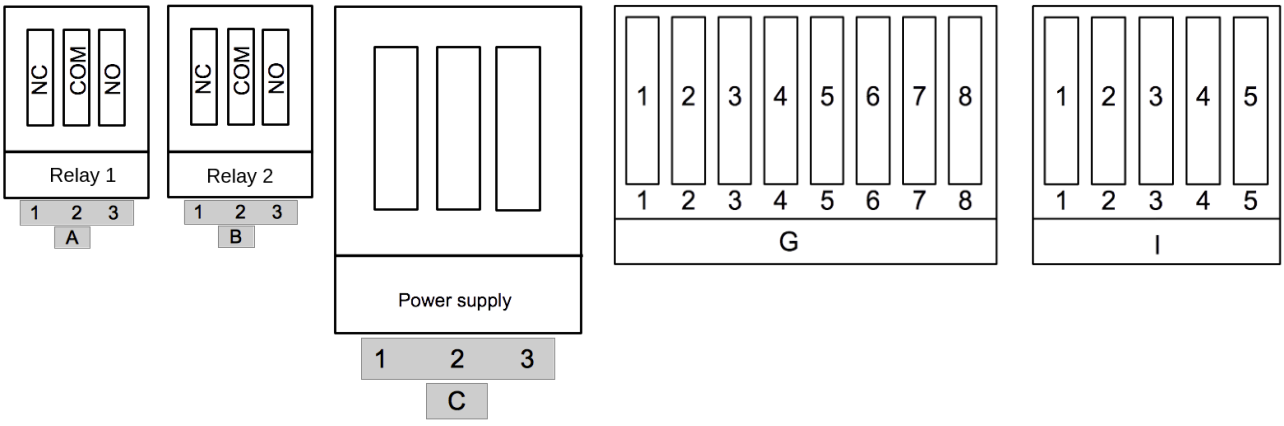
2. Screw the sensor unit out of the measuring chamber.

3. Remove the green terminal connector from the old sensor and connect it to the new sensor.

7.4 Electrical Connection

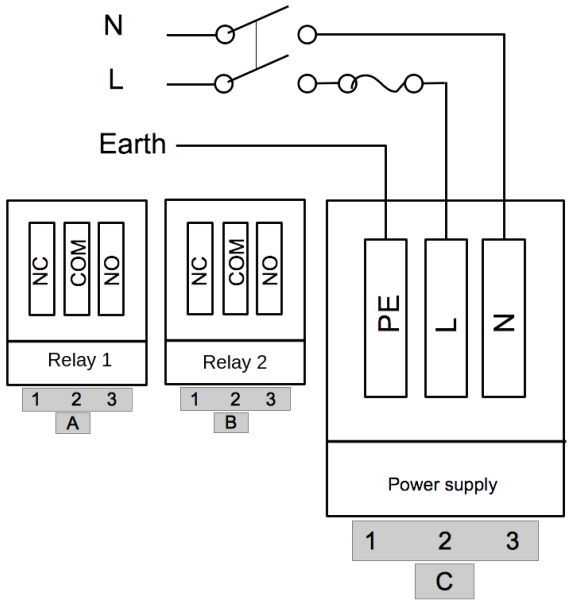
7.4.1 Layout of Terminal Blocks

The diagrams below show the terminal blocks on the S305 back panel.

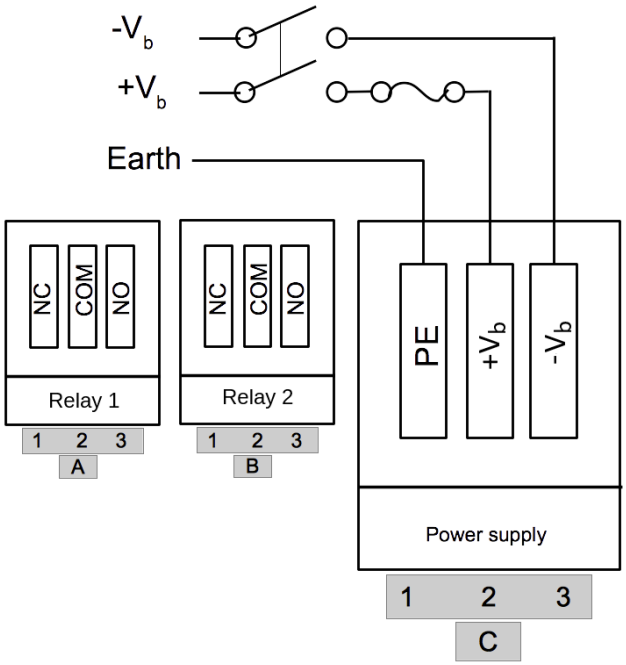


7.4.2 Power Supply Connection

AC power supply connection



DC power supply connection



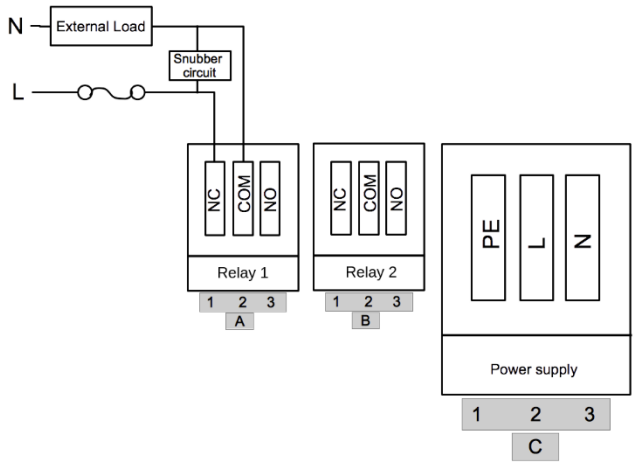
Terminal C to AC power

Pin	Signal	Description
1	N	Neutral connector
2	L	Life connector
3	PE	Protection earth

Terminal C to DC power

Pin	Signal	Description
1	$-V_b$	Negative power supply
2	$+V_b$	Positive power supply
3	PE	Protection earth

7.4.3 Relay Connection



Terminal	Pin	Signal	Description
A, B	1	NC	Normally closed
	2	COM	Common ground
	3	NO	Normally open

7.4.4 Signals of Terminals

Terminal	Pin	Signal	Description
G	8	$+V_b$	Positive sensor supply
	7	$-V_b$	Negative sensor supply
	6	SDI	Digital communication signal from sensors
	5	Iin	4 ... 20 mA signal from sensor
	4	N/A	Not available
	3	$-V_b$	Negative signal connection to PLC
	2	Iout	4 ... 20 mA signal to PLC
	1	$-V_b$	Negative signal connection to PLC
I	5	$+V_b$	Positive analog sensor supply
	4	$-V_b$	Negative analog sensor supply
	3	+20 mA	Positive current input
	2	S_{GND}	Signal ground (internally connected to $-V_b$)
	1	+10 V	Positive voltage input

Remark: Analog sensors can be connected to the terminal I.

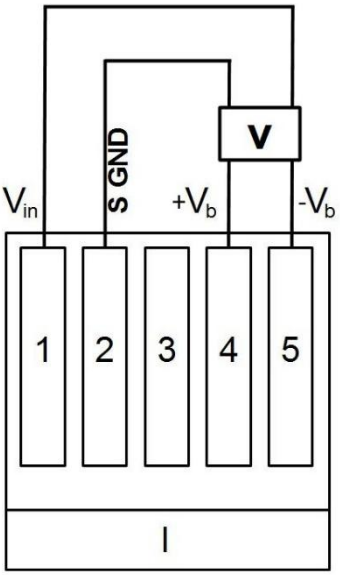
7.4.5 Pin Assignment

This following table lists the pin wiring between the S305 and its internal S217. The table also shows the current signal which can be used to connect the S305 to a PLC.

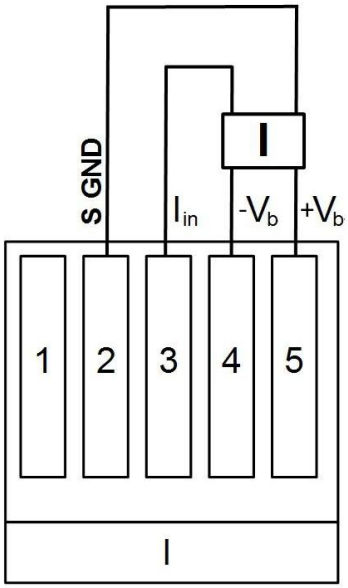
S305			S217		PLC
Terminal	**Pin**	**Signal**	**Pin**	**Colour**	
G	8	$+V_b$	3	blue	
	7	$-V_b$	2	white	
	6	SDI	1	brown	
	5	Iin	4	black	
	4	N/A			
	3	$-V_b$			
	2	Iout			+I of PLC
	1	$-V_b$			-I of PLC

7.4.6 Connect an Additional Analog Sensor to S305

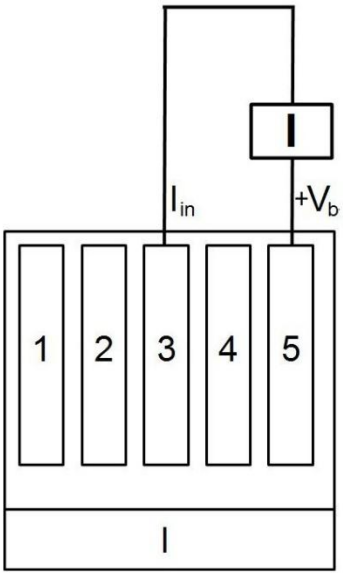
A. voltage input 0 ... 1 V DC / 0 ... 10 V DC



B. current input, 3/4 wire 0 / 4 ... 20 mA

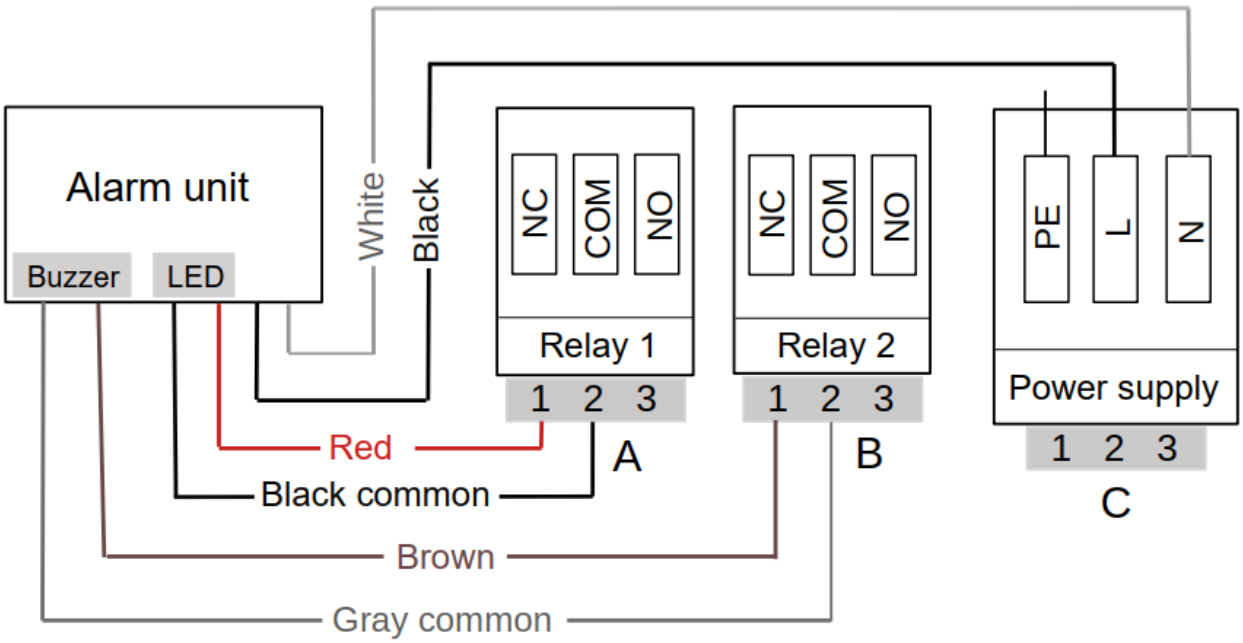


C. Current input, 2 wire 4... 20 mA



7.4.7 Connect the External Alarm Unit to S305 Relays

The picture below shows the connection of the external alarm unit to the S305 utilizing the alarm relays. The pre-alarm (Relay 1) will trigger the LED, and the main alarm (Relay 2) will then trigger the buzzer. The alarm threshold values can be set using the on-screen menu under Alarm Settings.



CAUTION!

Be sure to distinguish between the two black wires; do not connect the “black common” wire to the terminals of the power supply.

8 Configuration

The S305 is delivered with specific customer settings according to the order.

Using the S305 display and keys, you can configure most settings of the S305 (including its internal S217). To configure the remaining settings, you need to use the S4C-Display.

S4C-Display is free configuration software provided by SUTO iTEC and available for download at http://www.suto-itec.com.

To configure settings using the S4C-Display:

1. Download and install the S4C-Display on a PC.
2. Connect the S305 to the PC via the USB interface.
3. Start the S4C-Display, and all device settings are accessible.

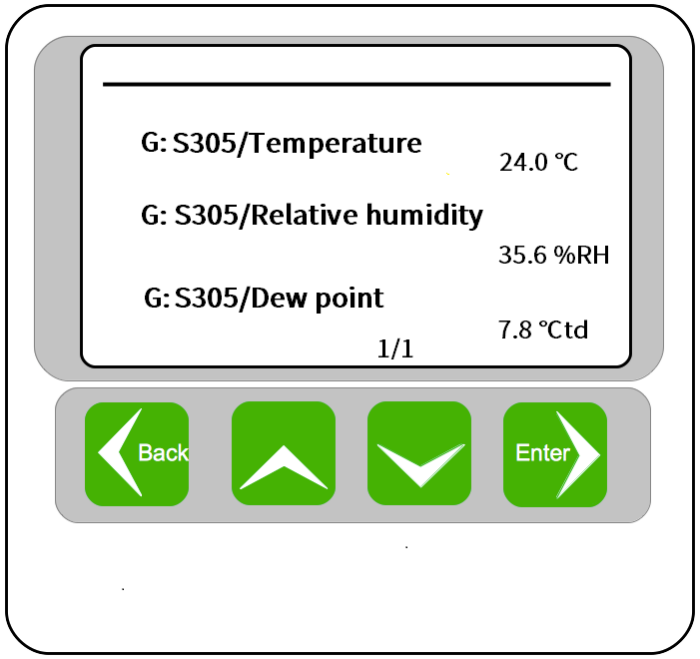
All settings are stored permanently in the S305.

9 Operation

9.1 Description of Keys

The display is used to show measurement values and setting items.

You can use the following four keys to operate the device.



	• To exit the current menu level. • To leave any setting state without saving the changes.
 	• To browse and select different items in menu, and to scroll through pages of measurement values. • To change or adjust the setting option or numbering.
	• To enter the submenu or next menu level of the current selected menu item. • To confirm the setting change or enable an option in all setting state.

After pressing the **Enter** key, you can select different submenus. The following sections describe functions of important submenus.

9.2 Sensor Settings

After selecting **Sensors**, the screen will show which kind of sensors are programmed at which terminals.

You can change the settings for a sensor by selecting the terminal that the sensor is connected to.

9.3 Alarm Settings

The S305 has two alarm relay outputs. You can set the value and the direction of the value for **Alarm 1** (Relay 1) and Alarm 2 (Relay 2).

9.4 System Status and Settings

The submenus of the **System settings** are described below.

Device Info	Shows different system information such as device type, device serial number, firmware version, hardware version etc.
LCD Contrast	To view and change contrast of the display.
Reset	To restart the S305.
Language	To choose the desired language.

9.5 Service Settings

To view and change contact information of the service company.

10 Signal Inputs

10.1 Digital Input

The S305 has one SDI input for connecting a SUTO iTEC dew point sensor.

10.2 Analog Input

The display has one input for connecting analog sensors (0 ... 20 mA / 4 ... 20 mA; 0 ... 1 V / 0 ... 10 V).

11 Signal Outputs

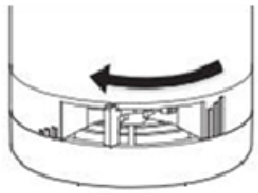
11.1 Analog Output

A 4 ... 20 mA output signal of the internal S217 sensor. It can be looped to an external PLC. See section 7.4.5 .

11.2 Alarm Output

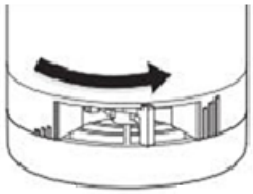
S305 has two alarm relay outputs (230 VAC, 3 A).

12 Volume Setting of Alarm Unit



As shown in the left figure, when the volume control lever of the buzzer is moved to the left, the volume of the buzzer decreases.

Minimum 65±4 dB at 1 m



As shown in the left figure, when the volume control lever of the buzzer is moved to the right, the volume of the buzzer increases.

Maximum 85±4 dB at 1 m

13 Calibration

The device is factory calibrated. The calibration date is stated on the certificate supplied with the device. The accuracy of the sensor may be influenced by site-specific operating conditions. Factors such as oil contamination, high humidity, and other impurities can adversely affect measurement performance and long-term accuracy. it is recommended to calibrate the device at least once per year.

Note: The calibration is excluded from the device warranty. Contact the manufacturer for calibration services.

14 Maintenance

To clean the device and its accessories, use only a moist cloth.



CAUTION!

Do not use isopropyl alcohol to clean the display!

15 Disposal of Waste



Electronic devices are recyclable material and do not belong in the household waste.
The device, its accessories and the packaging must be disposed of according to local statutory requirements. Disposal can also be carried out by the manufacturer; please contact the manufacturer.

Contact Details

SUTO iTEC GmbH

Grißheimer Weg 21
D-79423 Heitersheim
Germany

Tel: +49 (0) 7634 50488-00
Email: sales@suto-itec.com

SUTO iTEC (Asia) Co., Ltd.

Room 10, 6/F, Block B, Cambridge Plaza
188 San Wan Road, Sheung Shui, N.T.
Hong Kong

Tel: +852 2328 9782
Email: sales.asia@suto-itec.com

SUTO iTEC Inc.

5460 33rd St SE
Grand Rapids, MI 49512
USA

Tel: +1 (616) 800-7886
Email: sales.us@suto-itec.com

SUTO iTEC (China) Co. Ltd

11A Floor, D3 Building, TCL International E City
No. 1001 Zhongshanyuan Road
Nanshan District, Shenzhen 518057
China

Tel: +86 (0) 755 8619 3164
Email: sales.cn@suto-itec.com

SUTO iTEC India

2062-2063, S-wing 2nd Floor,
Akshar Business Park, Plot No 3,
Sector 25, Vashi, Navi Mumbai – 400 703
India

Tel: +91-9825744804
Email: sales.in@suto-itec.com

SUTO iTEC (Thailand) Co., Ltd.

18/6 Romklao Road, Khlong Sam Prawet,
Lat Krabang
Bangkok 10520
Thailand

Tel: +66 (0)2108 9658
Email: sales.th@suto-itec.com

PT SUTO iTEC Indonesia

ITC Cempaka Mas Office Tower 8th floor
room 8 B. Jl. Letjend Suprapto Kav 1
Jakarta 10640
Indonesia

Tel: +6221 4280 3853
Email: sales.id@suto-itec.com

SUTO iTEC (Malaysia) Sdn Bhd

No.22-A, Jalan Tiara 2
Tiara Square, UEP Subang Jaya Industrial Park
47600 Subang Jaya Selangor
Malaysia

Tel: +603 5122 2082
Email: sales.my@suto-itec.com

All rights reserved ©

Modifications and errors reserved