

SiDis AD 40

Brief operating instructions



Start

Thank you for choosing Sigrist-Photometer AG. The following information will guide you safely and efficiently to initial start-up of the device.

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EU Declaration of Conformity

The device fulfils the requirements for affixing the CE mark within the European Union (EU).

EU declaration of conformity for SiDis AD 40

<https://www.sigrist.com/59ec>

**UKCA Declaration of Conformity**

The device fulfils the requirements for affixing the UKCA mark within the United Kingdom.

UKCA Declaration of Conformity for SiDis AD 40

<https://www.sigrist.com/f59b>



1 Your Safety

1.1 Intended use

The SiDis AD 40 is designed to display device information and to operate a connected SIGRIST photometer.

1.2 Foreseeable misuse

DANGER

Hazards in case of foreseeable misuse

Incorrect use of the device can result in injuries to persons, process-related consequential damage and damage to the device and its periphery. In the following cases, the manufacturer cannot guarantee the protection of persons and the device and therefore does not accept any liability:



- ▶ The device is used outside the area of application.
- ▶ The device is not installed, set up or transported properly.
- ▶ The device is not installed and operated according to the operating instructions.
- ▶ The device is operated with accessories that are not expressly recommended by Sigrist-Photometer AG.
- ▶ Improper modifications are made to the device.
- ▶ The device is operated outside the specifications.
- ▶ The device is exposed to shocks, vibrations or other mechanical forces.

1.3 Warnings

The warnings are four-tiered: Danger, warning, caution, notice. They include: Nature of the hazard, possible consequences and measures to avert it.

Signal word	Meaning
DANGER	Signal word to indicate a hazard with high risk, which will directly result in death or serious physical injury.
WARNING	Signal word to indicate a hazard with medium risk, which can possibly result in death or serious physical injury.
CAUTION	Signal word to indicate a low-risk hazard that may result in minor or moderate bodily injury.
NOTE	Signal word for a potentially harmful situation in which the equipment or an object in its vicinity may be damaged.

1.4 Residual risks

The device has been built in accordance with the applicable standards and the recognised safety rules and corresponds to the state of the art. However, according to the risk assessment of the applied safety standard DIN EN 61010-1, injuries to persons, damage to the device or material damage to the infrastructure cannot be completely ruled out during use.

Danger from electricity



The device is operated at 24 VDC. If a power supply unit (100...240 VAC) is used in addition, there is a risk of electric shock with fatal consequences if exposed cables are touched.

- ▶ Do not operate the device unless it has been professionally installed and repaired.
- ▶ Only operate the device if all cables are undamaged.
- ▶ Never operate the power supply with the housing removed or open.

Danger due to incorrect supply voltage



An incorrect supply voltage may cause damage and lead to non-functionality of the device.

- ▶ The device may only be connected to power sources that match the rating plate.

Danger from moisture and condensation on electronic components during operation.



Moisture inside the device may lead to damage and render the device non-functional.

- ▶ Carry out maintenance work as described in the operating instructions.

Danger from use of aggressive chemicals for cleaning



The use of aggressive cleaning agents can damage the device.

- ▶ Do not use aggressive chemicals or solvents for cleaning.
- ▶ If the device has come into contact with aggressive chemicals nonetheless, check it for damage immediately.

Unauthorised access to the device



Unauthorised access by third parties may lead to changes in the configuration and incorrect measurements therefore cannot be ruled out.

- ▶ Ensure that the operator takes safety precautions to prevent unauthorised access.

2 Device data

2.1 Device description

The SiDis AD 40 is designed to display device information and to operate a connected SIGRIST photometer. It is used when

- a display and control unit integrated into a photometer is not visible and operable (unfavourable fitting position within an installation or, for example, close to the floor or viewing height).
- the photometer does not have an integrated display and control unit or
- operation of devices intended for use in hazardous areas is not possible on the device directly.

CAUTION!

The SiDis AD 40 must be installed in a non-hazardous area.

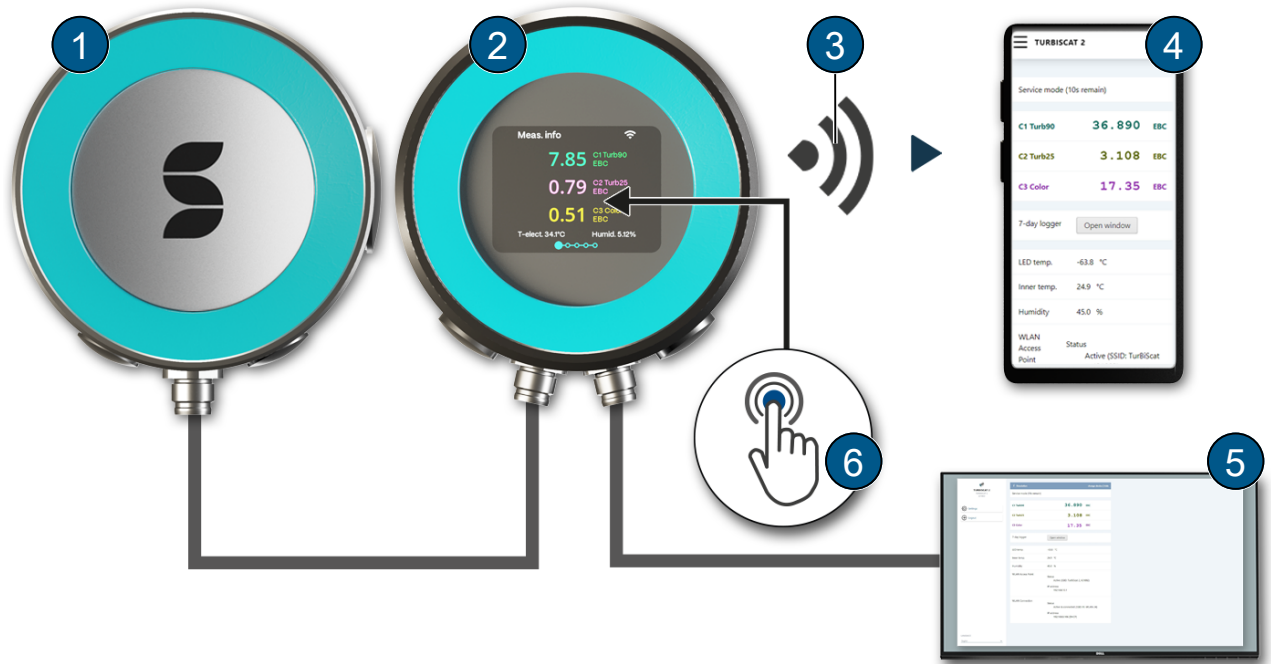
The SiDis AD 40 has an input to a SIGRIST photometer and a communication output to the PLC controller. There are various communication options. Depending on the type of communication, there is an additional input for the power supply (24 V).

The inputs and outputs are implemented using M12 connectors.

2.2 General view

The displays shown in this document refer to an example photometer. They can vary depending on the device connected.

2.2.1 TurBiScat PM 40 with SiDis AD 40



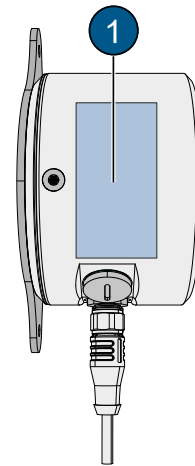
TurBiScat PM 40 with SiDis AD 40

- | | | | |
|-----|------------------------------------|-----|-------------------|
| (1) | TurBiScat PM 40 without display | (2) | SiDis AD 40 |
| (3) | WLAN connection | (4) | WLAN input device |
| (5) | Operating device or control system | (6) | Touchscreen |

2.3 Nameplate

The rating plate is mounted on the SiDis AD 40 (1). It shows:

- Type of device
- Type ext.: Device name
- PN: Article number
- SN: Serial number
- U: Service voltage
- P: Power
- DOM: Production date
- Conformity information
- Warning notice
- Manufacturer



2.4 Scope of supply and accessory parts



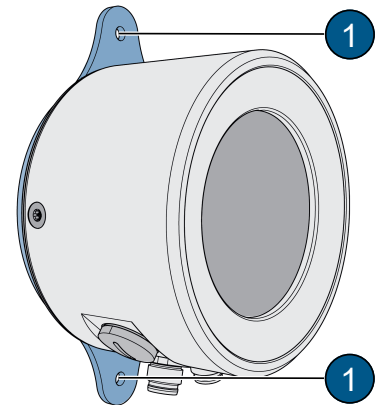
The scope of delivery can be found in the sales documents.

3 Mounting

3.1 Mounting SiDis AD 40

3.1.1 Wall mounting

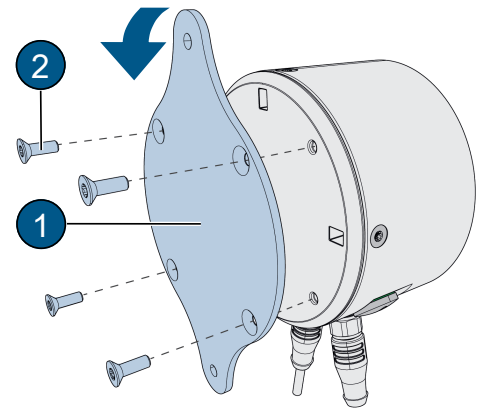
- Mount SiDis AD 40 on the wall with two screws (1) according to the dimension drawing.



3.1.2 Rotate mounting plate

If necessary, the mounting plate can be rotated by 90° as follows:

- Loosen four screws (2).
- Turn the mounting plate (1) in the desired position.
- Fasten with four screws (2).



4 Electrical installation

DANGER

Danger due to improper connection of the operating voltage.

Improper connection of the electrical service voltage can be life-threatening. The system can also be damaged in the process.



- ▶ Connection must be carried out by a specialist in accordance with local regulations.
- ▶ Install a disconnecting device near the power supply to disconnect the device from the mains. The disconnecting device should be easily accessible and labelled.

4.1 Types of device in scope

Display and control unit SiDis AD 40

Various SIGRIST photometers

		e.g. • 122442 TurBiScat PM 40-S1IO-3C10.000S - 90/25° - turbidity / colour, IO, display, blanking plate, without cable • 122443 TurBiScat PM 40-S0SC-3010.000S - 90/25° turbidity, blanking plate, without cable • 123773 TurbiGuard AD 40-S1IO for medium/high turbidities • 123905 – PhaseGuard ST 40-S2IO Measurement of high turbidity for phase separation
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Device version

To connect the SiDis AD 40, the photometer requires an IO port or alternatively an SC interface (e.g. TurbiGuard AD 40-S1IO-...).

Communication with the control system

Various interfaces are available for communication between the SiDis AD 40 and the control system. See Determine communication module [▶ 9](#).

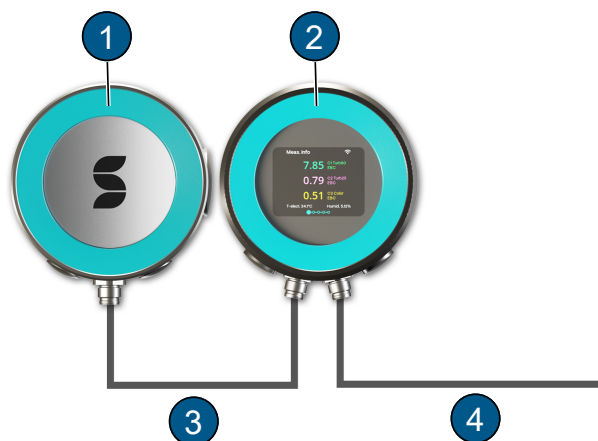
4.2 Installation

The photometer is connected to the SiDis AD 40 via a connecting cable. The plug-in connector on both sides ensure an easy, fast and secure connection.

The connecting cable is available in 3 lengths between 5 m and 30 m.

The power supply to the connected photometer is via the SiDis AD 40.

- (1) Photometer
- (2) SiDis AD 40
- (3) Connecting cable from SiDis to photometer
- (4) Device cable



Configuration

Parameterisation on the photometer in simple configuration mode:

- ▶ Configure the digital inputs/outputs IO 1 and IO 2 as Modbus RTU A and B connections.
- ▶ In the "Function" menu line, select the "Connection to SICON/SiDis" configuration template.

Parameter	Values	Default value
 «Function»	Connection to SICON/SiDis 0/4...20 mA output *) Own settings	
Select parametrisation templates: Connection to SICON/SiDis: • IO 1: RS485 A • IO 2: RS485 B • IO 3...6 Inactive 0/4...20mA Outputs_: • IO 1: Digital output - warning, error, priority • IO 2: Digital output - Inactive • IO 3: Current output channel 1 • IO 4: Current output channel 2 • IO 5: Current output channel 3 • IO 6: Current output channel 4 *) Further settings can be made in the Advanced parametrisation mode.		

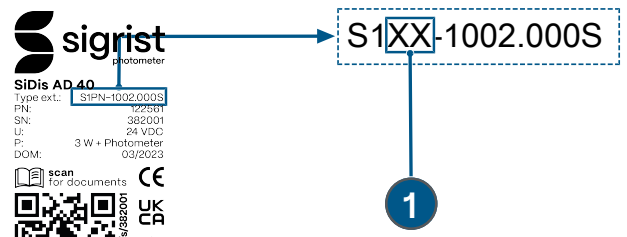
Parameterisation on the photometer in advanced configuration mode:

► In the "IO module EG_IO" menu line, set "Sigi-Link" to **On**.

Parameter	Values	Default value
 «Sigi-Link»	Off/On	Off
Activate interface parameters for the connection to SICON/SiDis.		

4.3 Determine communication module

The integrated communication module can be seen on the rating plate. The following codes (1) are possible:
 LT = EG_LT | IO = EG_IO | PE = EG_PoE |
 PB = EG_Profibus | PN = EG_Profinet

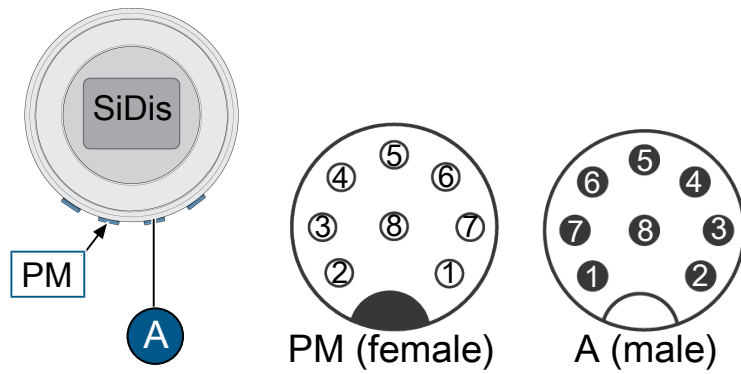


LT	1 measuring channel, 1 power output terminal 0/4 ... 20 mA, 2 digital outputs, 1 digital input
IO	Up to 4 measuring channels, max. 4 current outputs 0/4 ... 20 mA, max. 4 digital outputs, max. 2 digital inputs, Modbus RTU (up to 6 connections in total, Modbus RTU counts as 2 connections) [optionally allows connection of an additional remote display (SiDis)]
PE	Ethernet LAN connector with Power over Ethernet: - Ethernet according to 10/100BaseT, PoE according to 802.3af, class 0 - web server, Modbus TCP
PB	Profibus DP-V1 slave
PN	Profinet IO, conformity class B

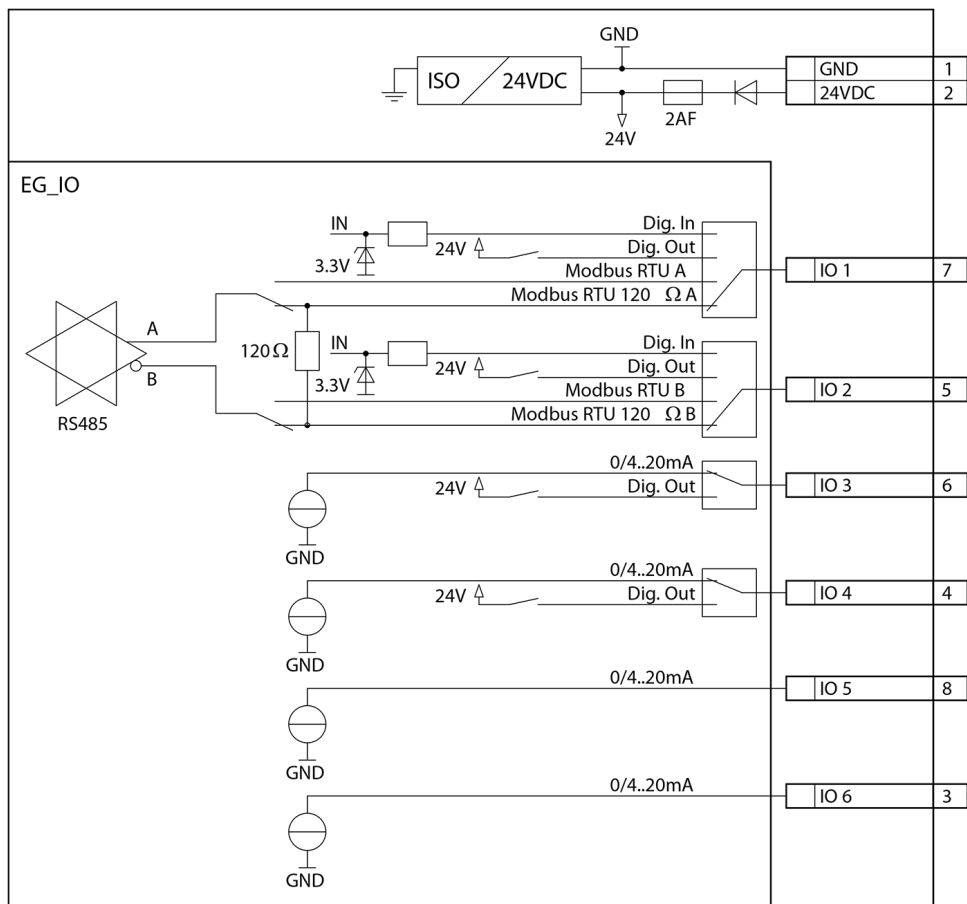
Tab. 1: Communication modules

4.4 Connecting communication modules

4.4.1 EG_IO



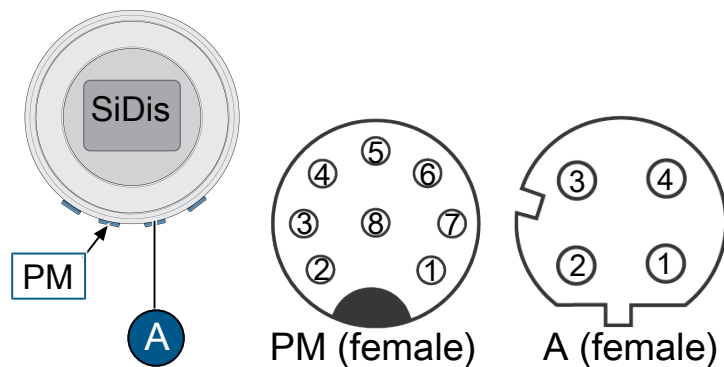
Plug-in connector pin no.	1	2	3	4	5	6	7	8
(A) M12 8-pin plug-in connector A coded	GND	24V	IO6	IO4	IO2	IO3	IO1	IO5
RS485 Modbus RTU (with/ without 120 Ω termination)					B		A	
Digital input 5-28 VDC					X		X	
Digital output "High Side Switch" max. 20 mA				X	X	X	X	
Power output terminal 0/4 ... 20 max. 700 Ω			X	X		X		X



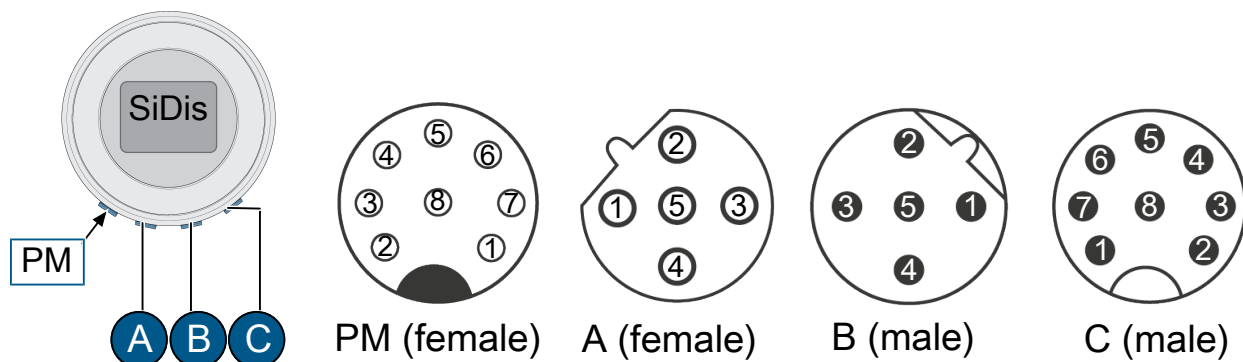
Wiring diagram EG_IO

4.4.2 EG_PoE

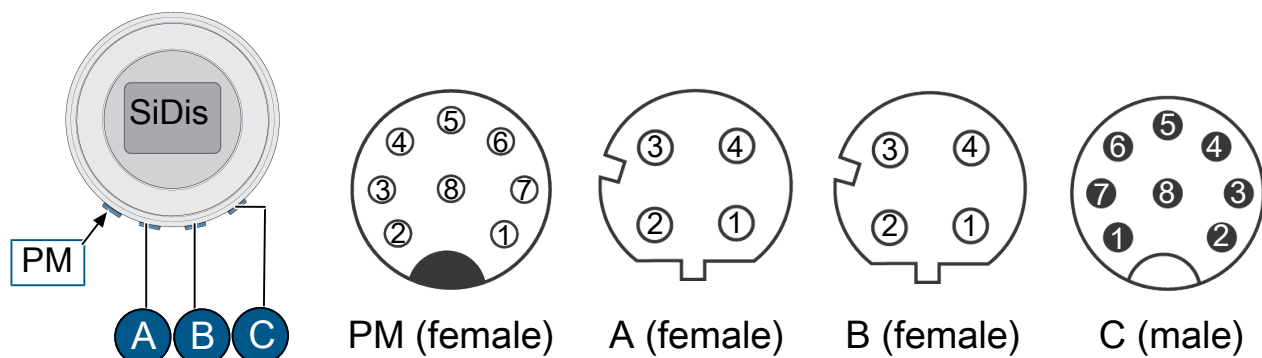
- PoE (802.3af, class 0)
- Cable characteristics: Cat. 6, STP, AWG 24/7, TIA-568A. Fast Ethernet 100Base_T supported
- Available web services: Web server, Modbus TCP



Plug-in connector pin no.	1	2	3	4
(A) M12 4-pin socket D coded	TX+	RX+	TX-	RX-

4.4.3 EG_Profibus

Plug-in connector pin no.	1	2	3	4
(A) M12 5-pin socket B coded	5V	PB_A	GND	PB_B
(B) M12 5-pin plug-in connector B coded	5V	PB_A	GND	PB_B
(C) M12 8-pin plug-in connector A coded	GND	24V		

4.4.4 EG_Profinet

Plug-in connector pin no.	1	2	3	4
(A/B) M12 4-pin socket D coded	TX+	RX+	TX-	RX-
(C) M12 8-pin plug-in connector A coded	GND	24V		

5 Operation

The most important operating data can be viewed on the local display. Parametrisation is carried out via a WLAN-capable device

5.1 Display and operating concept

Integrated display and control unit

Most new SIGRIST photometers are equipped with an integrated display and control unit.

This has the following advantages:

- Display and control directly at the measuring point, with clear assignment of the measuring value to the measuring point
- Modern operation, simple software updates
- Reduced maintenance effort and easy provision of support data
- Faster installation (only 1 device), no cabling between photometer and display required, smaller footprint

Remote display and control unit SiDis AD 40

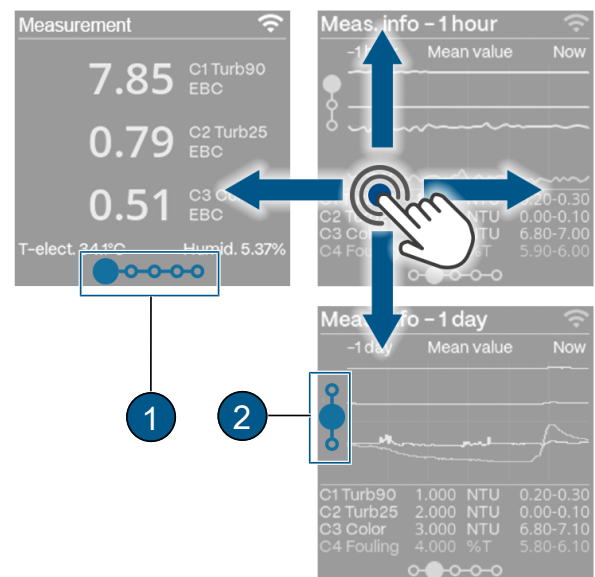
If a remote display and control unit is required (for photometers without a display/control unit or as an additional display/control unit), the SiDis AD 40 display and control unit can be connected.

Multi-display and control unit

If data from multiple photometers or from sensors of other manufacturers need to be displayed, the multi-display and control unit SiCon XX 40 is available. (see corresponding product documentation).

5.2 Display

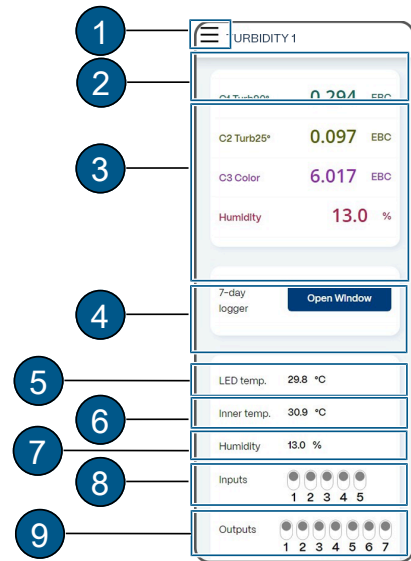
Navigation is carried out using swipe gestures. Navigation aids are located at the bottom (1) and left (2). If there is no activity, the display switches to the default display after one minute. The content depends on the device configuration. Example:



5.3 SIGRIST-Webinterface

The content depends on the device configuration.
Example:

- (1) Menu settings
- (2) Status
- (3) Current measured values
- (4) 7 day logger diagram
- (5) LED temperature
- (6) Sensor internal temperature
- (7) Sensor humidity
- (8) Status inputs
- (9) Status outputs

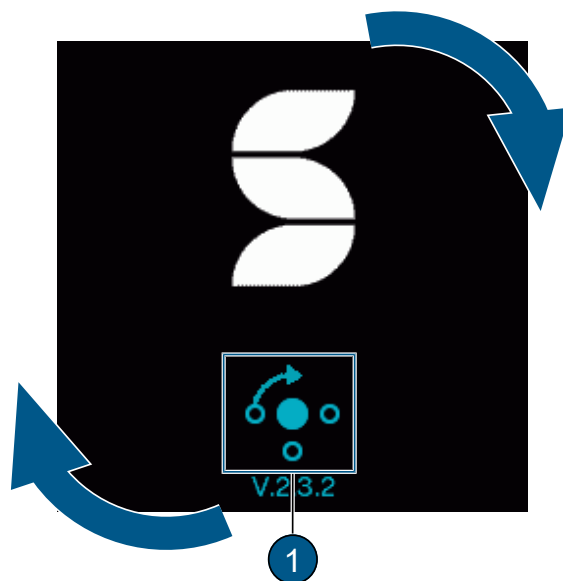


6 Commissioning

- ▶ Ensure correct mounting and electrical installation.
- ▶ Ensure that the process line is filled with sample medium.
- ▶ Establish service voltage.
 - ▷ Start screen appears.

Rotate display if necessary

- ▶ Tap the rotary symbol (1).
- ▷ Display rotates by 90°.
- ▶ Repeat until the display is in the correct position.



Activate WiFi access point

- ▶ Navigate to «WiFi Access Point».
- ▶ Swipe down.
 - ▷ WiFi access point is activated.



Connect mobile device

NOTICE!

No VPN connection must be active on the mobile device.

- ▶ Connect the mobile device to the WLAN with the QR code.
- ▶ Confirm the warning "No Internet connection" with [OK].
 - ▷ The mobile device is connected.

Alternative:

- ▶ Connect the mobile device to the WLAN.
- ▶ Select the displayed SSID.
- ▶ Enter the displayed access code.
- ▶ Confirm the warning "No Internet connection" with [OK].
 - ▷ The mobile device is connected.



Sigrist-Webinterface Open

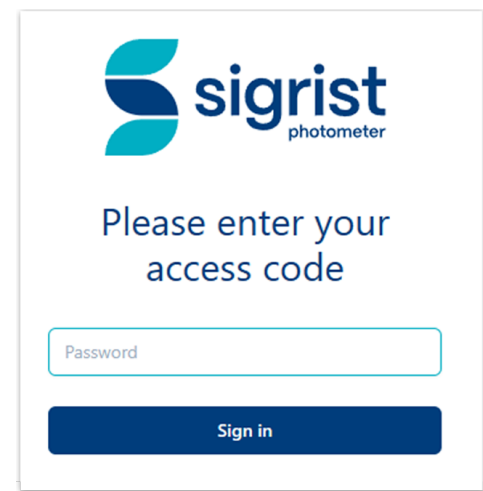
- ▶ Open Internet browser (e.g. Chrome, Safari).
- ▶ Enter the displayed URL (192.168.10.1).
 - ▷ Login screen appears.

Alternatively, access URL with QR code.



Log in to Sigrist-Webinterface

- ▶ Log in without password with **[Sign in]** .
- For detailed information, see instruction manual.

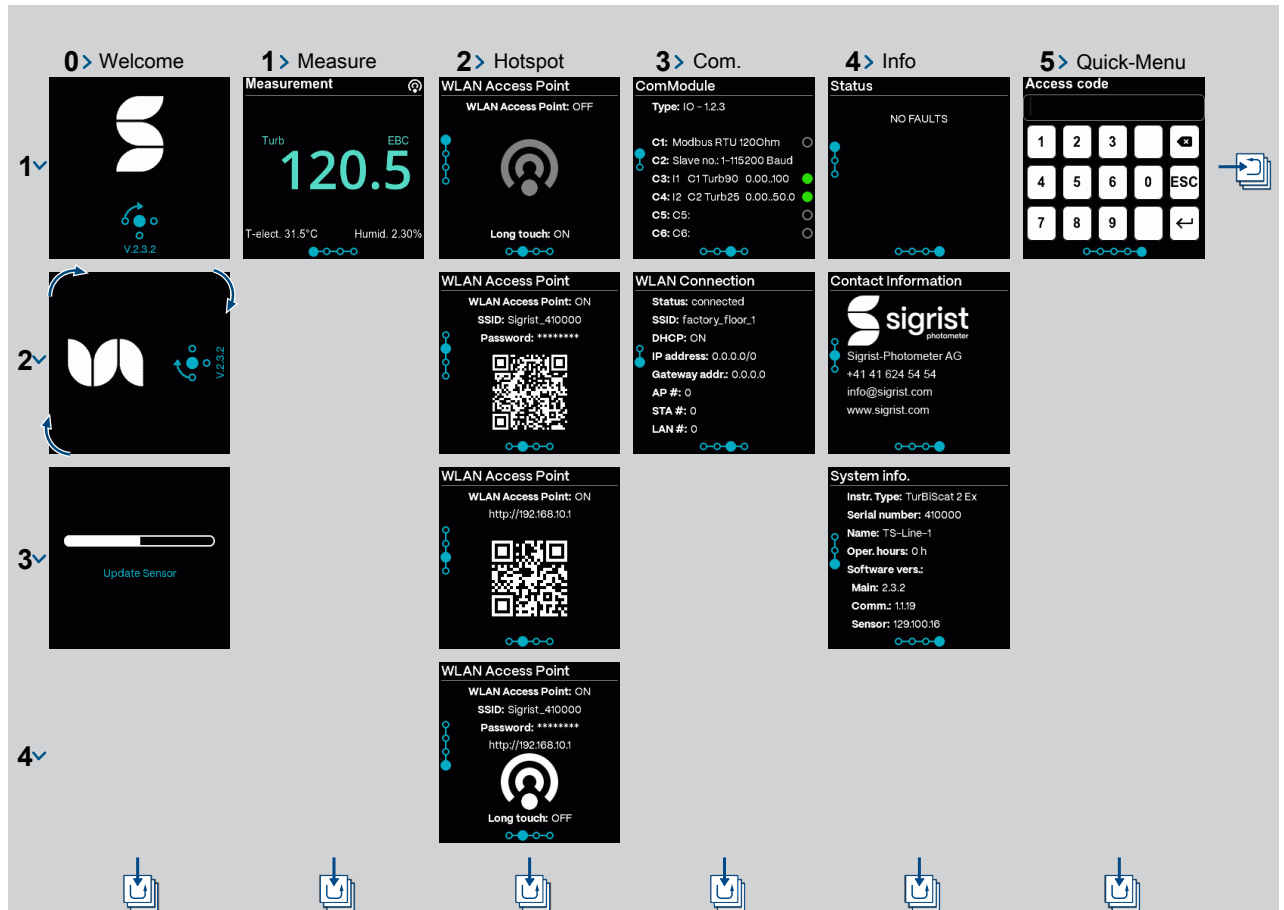


7 Settings

7.1 Displays

Navigation is carried out using swipe gestures. Navigation aids are located at the bottom and on the left. If there is no activity, the display switches to the standard display after one minute.

The availability of the displays depends on the connected photometer.



Status displays

If the display on the photometer is set to status display, these status displays are shown. The default display can be set in the menu.

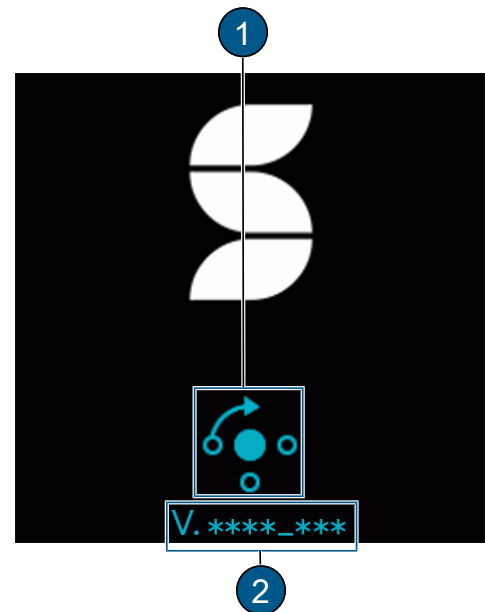
- (1) Device in measuring mode, no malfunction.
- (2) Warning
- (3) Error
- (4) Limit value
- (5) Pause (service mode)
- (6) Base station active
- (7) WLAN connection active



7.1.1 Menu 0: Start display

Start display

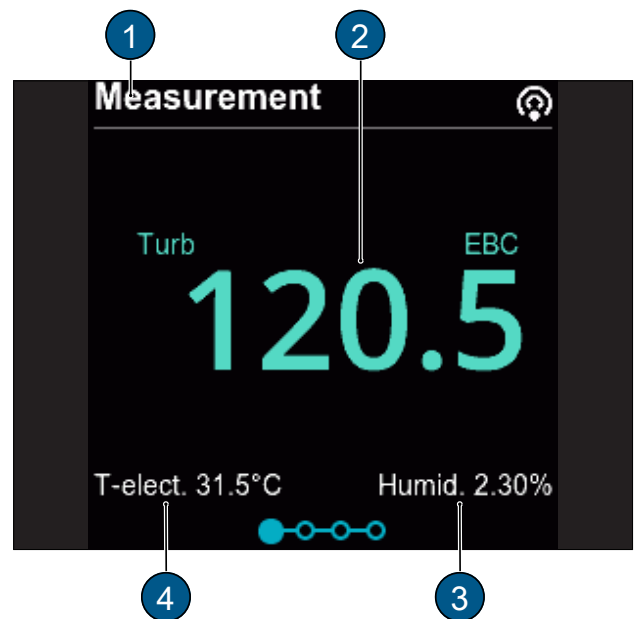
- (1) Symbol for rotating the display
- (2) Software version



7.1.2 Menu 1: Measurement displays

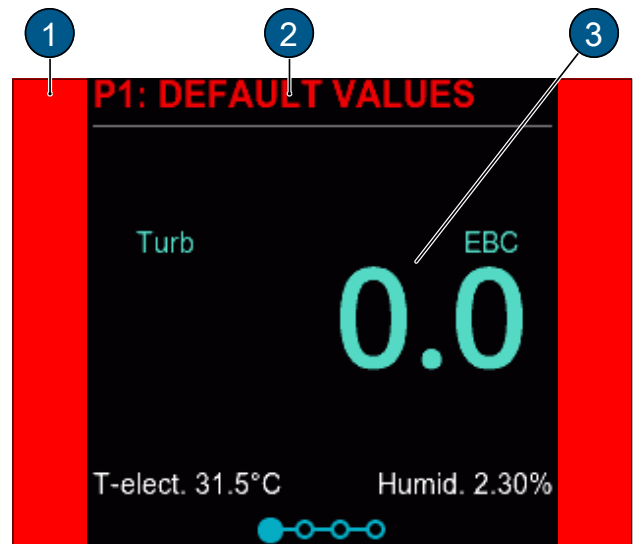
Measuring mode

- (1) Measuring mode
- (2) Channels with current measuring values
- (3) Humidity in the device
- (4) Temperature in the device

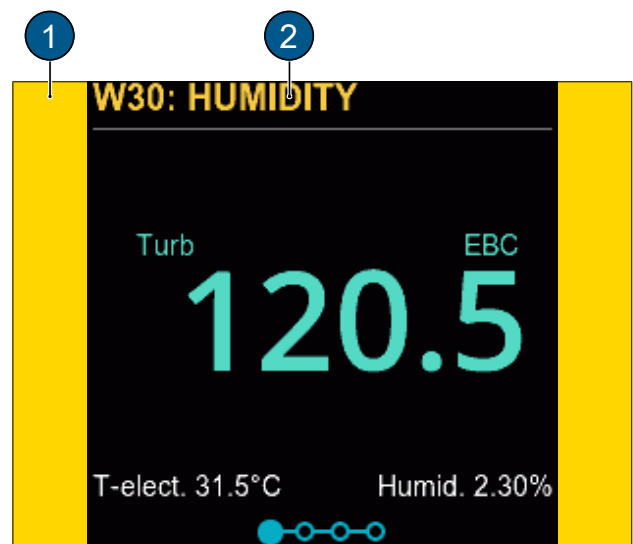


Fault

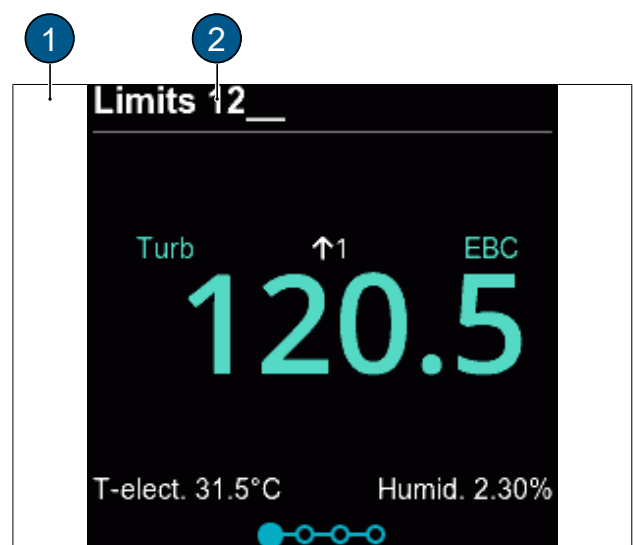
- (1) Side bars are coloured red.
- (2) Fault indication in the display
- (3) Measuring value at 0.

**Warning**

- (1) Side bars are coloured yellow.
- (2) Warning indication in the display

**Limit values exceeded/not reached**

- (1) Side bars are coloured white.
- (2) Indication in the display which channels have exceeded/fallen below the limits.



Pause (service mode)

If the device is operated in service mode, this is shown on the measurement display.

- (1) Side bars are coloured grey.
- (2) Pause status is displayed.

**WLAN base station active**

If the WLAN base station (for connection with mobile device) is activated, this is shown on the measurement display.

- (1) Side bars are not coloured.
- (2) WLAN base station is active.

**WLAN connection active**

If the device is connected to a WLAN network, this is shown on the measurement display.

- (1) Side bars are not coloured.
- (2) Mobile device is connected.

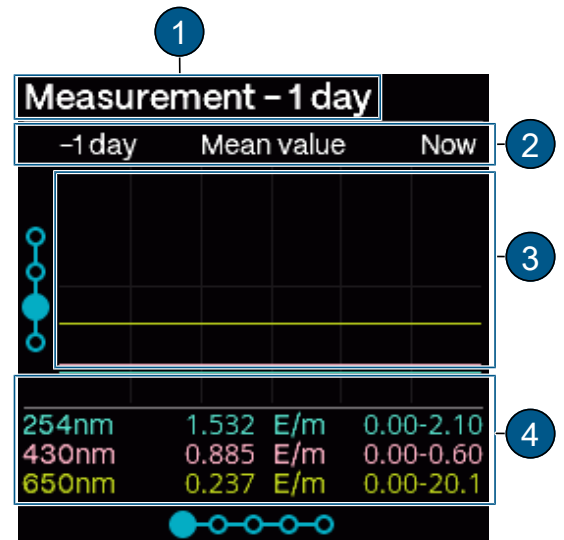


Logger active

- (1) Side bars are not coloured.
 (2) Logger is activated.

**Graphic display**

- (1) Measurement info
 (2) Time period: function describing how the measuring value is displayed.
 (3) Measuring value display with three time periods: 1 hour/ 1 day/ 7 days
 (4) Channel name with measuring value, unit and displayed measuring range.
 Up to 4 curves can be displayed in one diagram - provided the connected photometer supports this function.

**7.1.3****Menu 2: WLAN base station****WLAN**

Establish WLAN connection during Commissioning.

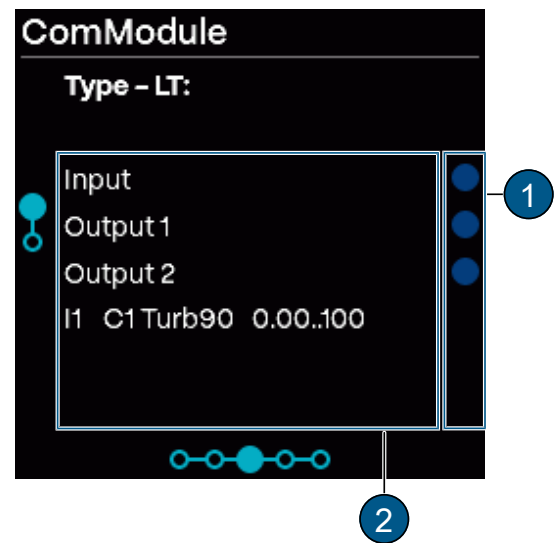


7.1.4 Menu 3: Communication module

LT module:

(1) Module status: Grey → Inactive/Blue → Active in idle mode/Green → Active/Red → Error

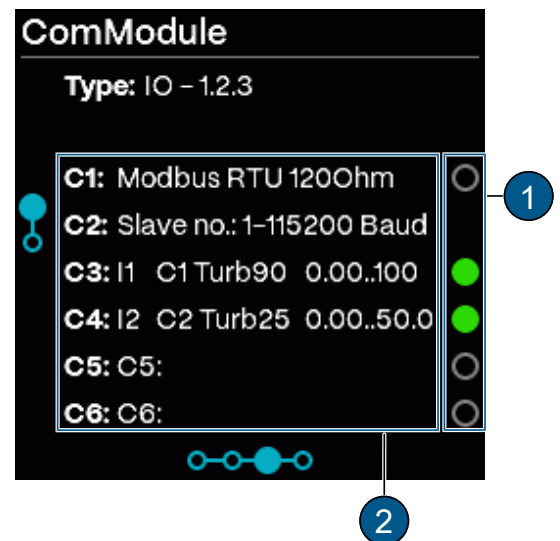
(2) Assigned function: Can be parametrised



IO module:

(1) Module status: Grey → Inactive/Blue → Active in idle mode/Green → Active/Red → Error

(2) Assigned function: Can be parametrised

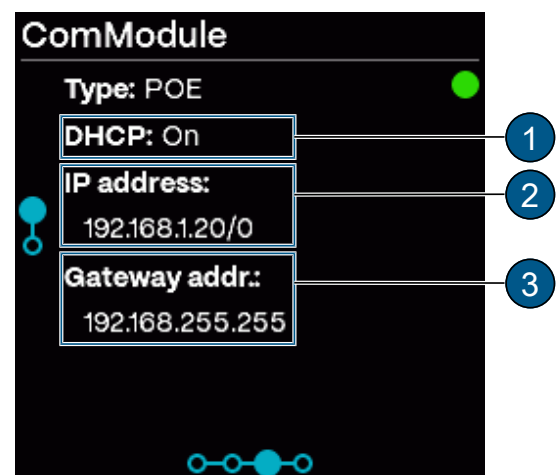


PoE module:

(1) DHCP: On/Off

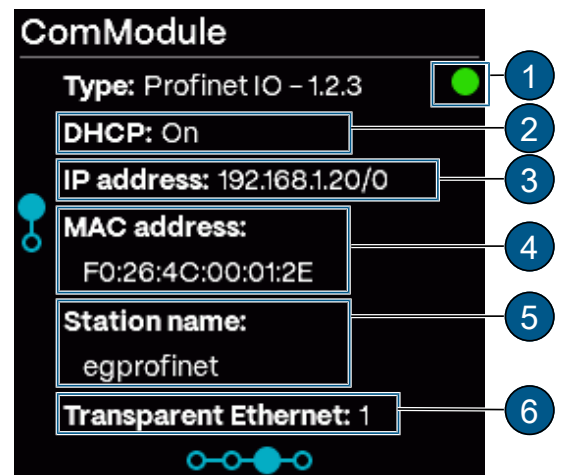
(2) Assigned IP address

(3) Gateway address

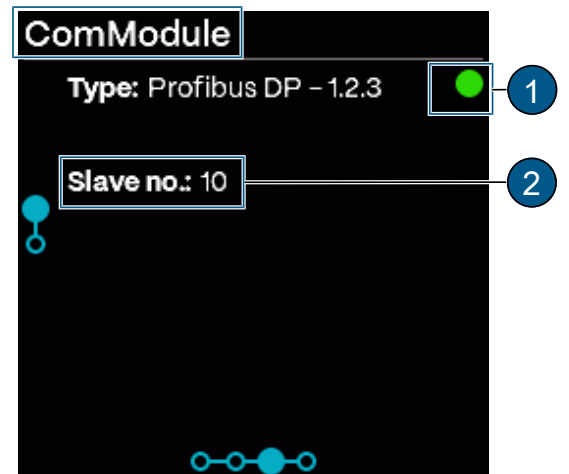


Profinet IO module:

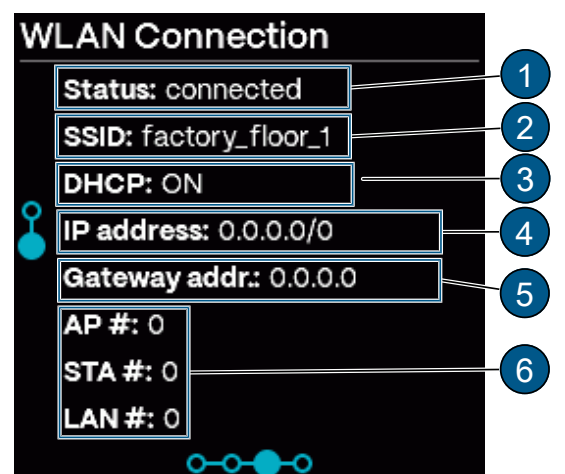
- (1) Module status: Grey → Inactive/Blue → Active in idle mode/Green → Active/Red → Error
- (2) DHCP: On/Off
- (3) Assigned IP address
- (4) MAC address
- (5) Station name of the device
- (6) Transparent Ethernet: 1: Sigrist web server/0: Web server of gateway module

**Profibus DP module:**

- (1) Module status: Grey → Inactive/Blue → Active in idle mode/Green → Active/Red → Error
- (2) Slave no.

**WiFi connection**

- (1) Connection status
- (2) SSID: Name of the WLAN network
- (3) DHCP: On/Off
- (4) Assigned IP address
- (5) Gateway address
- (6) Connected devices
- WLAN base station (AP)
 - WiFi connection (STA)
 - LAN connection (PoE, Profinet)

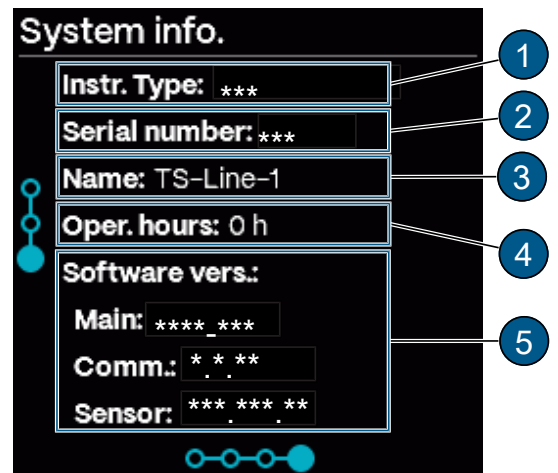


7.1.5

Menu 4: Information

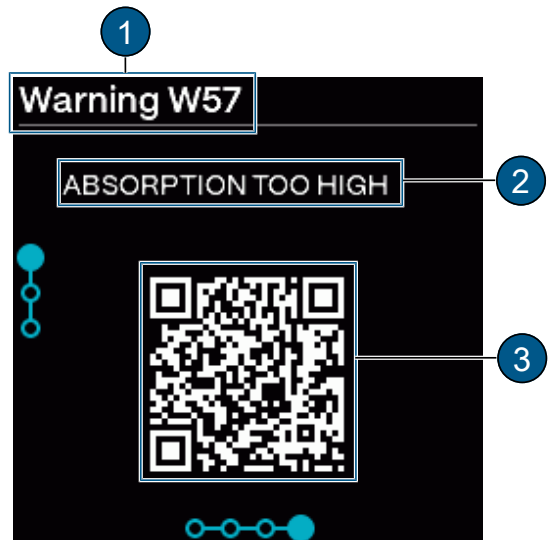
System info

- (1) Device type
- (2) Serial number
- (3) Designation of the measuring station/device
- (4) Oper. hours: Operating hours (h)
- (5) Software version:
 - Main controller
 - Communication controller
 - Sensor controller



Status

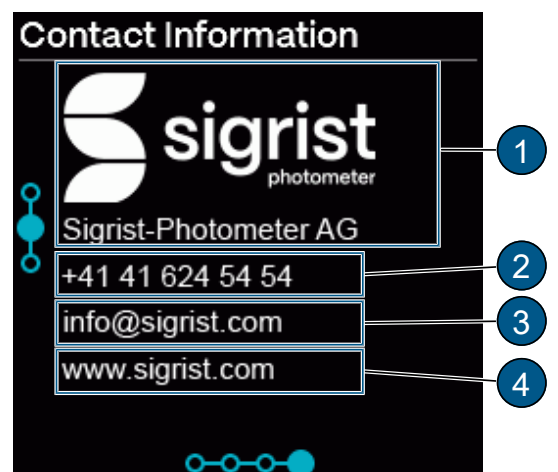
- (1) Fault/warning code
- (2) Error/warning message
- (3) QR code for fault description



Contact information

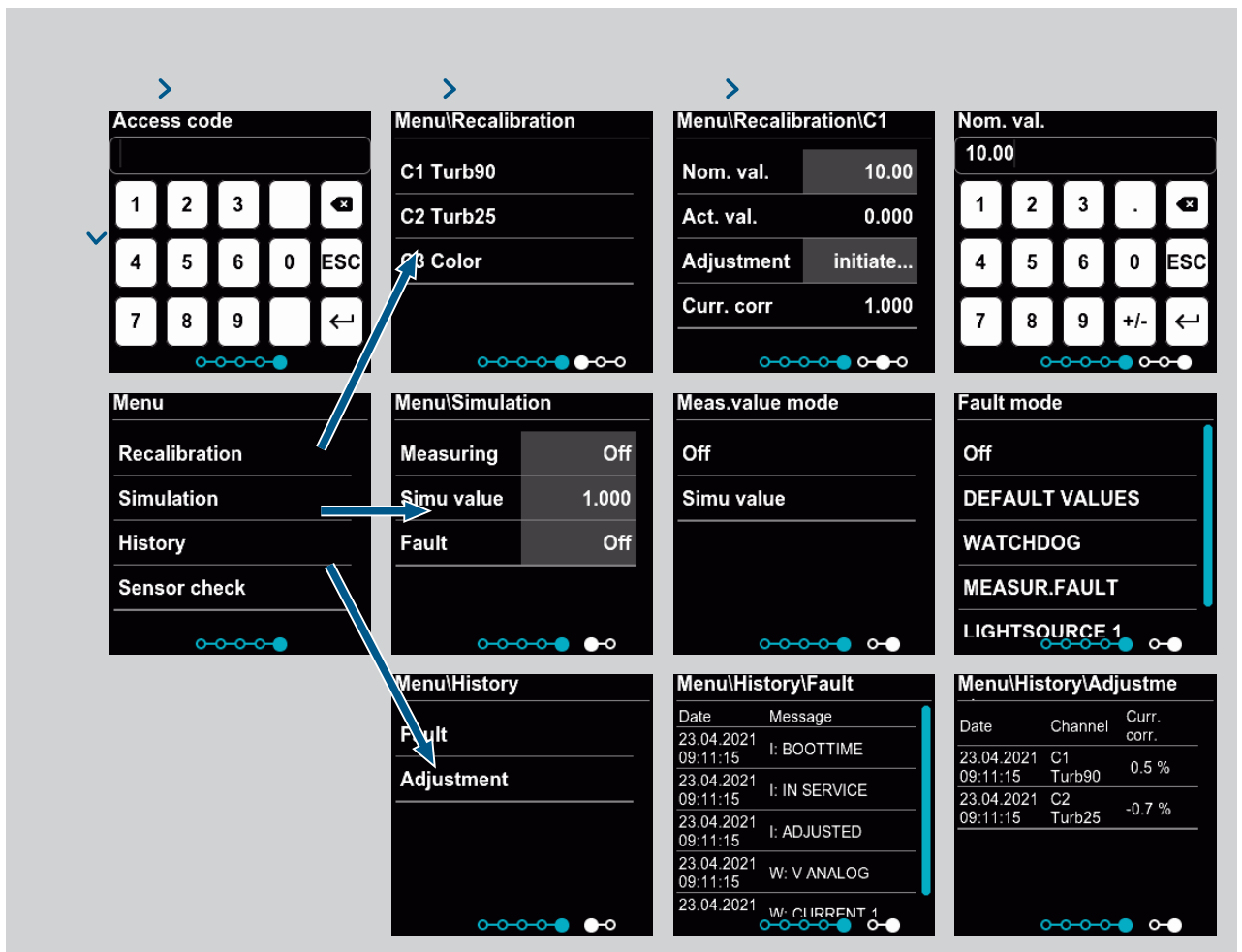
For display customisation, see System menu.

- (1) Manufacturer of the device
- (2) Telephone number of the supplier
- (3) Email address of the supplier
- (4) Web address of the supplier



7.1.6 Menu 5: Quick menu

The most important functions can be set directly on the photometer in the integrated quick menu. More detailed functions are set at Sigrist-Webinterface [▶ 25](#).



Quick menu overview

Access to the quick menu

On delivery, the access code is "0". This should be adjusted after initial commissioning in the menu «**Simple configuration mode / Configuration / Access code**».

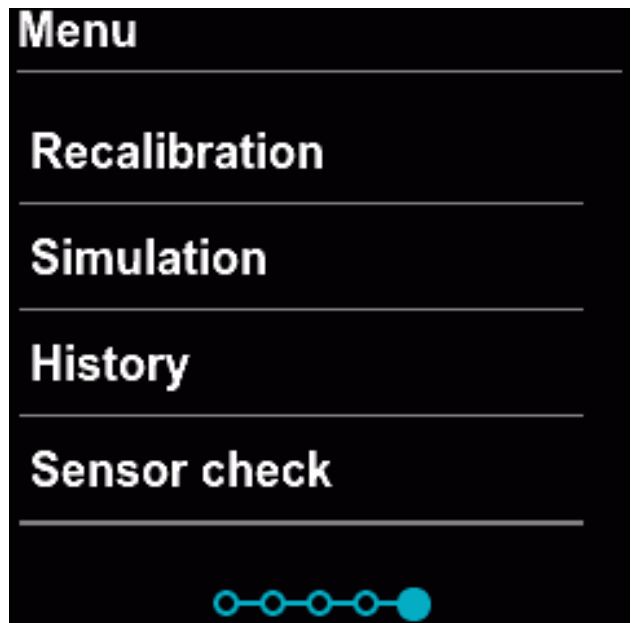
► Enter the access code (service code).

► Confirm with  .



Select setting

- ▶ Select the desired setting.
- ▶ Enter the setting.

**Navigate**

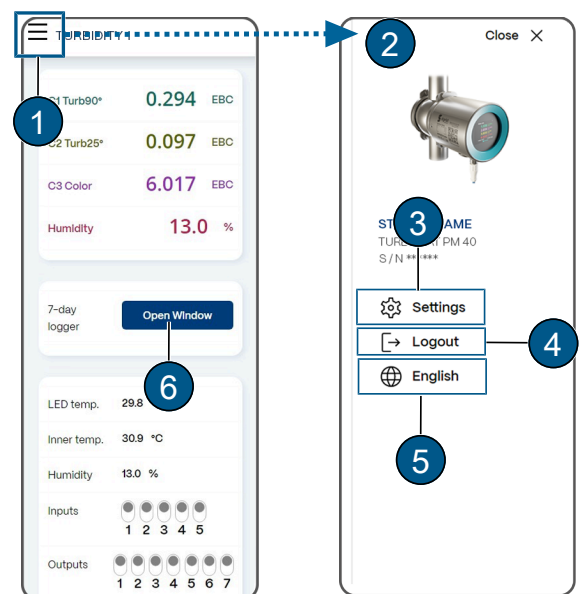
You can navigate within the quick menu with your finger. Swipe to scroll and tap to select a menu item. To exit the quick menu, swipe from left to right until you are back in the main menu.

7.2 Sigrist-Webinterface

7.2.1 Homepage

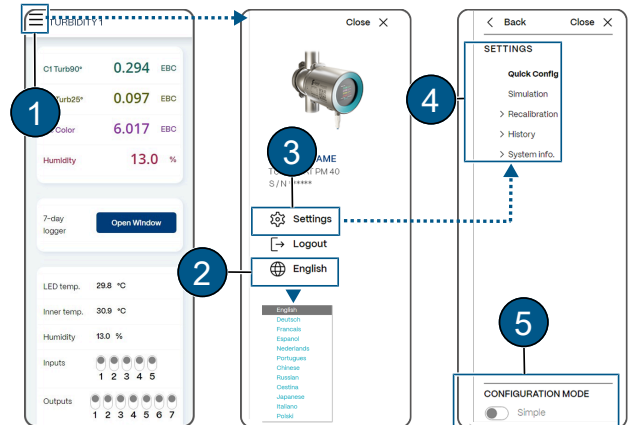
After logging in, the Sigrist-Webinterface appears in measuring mode. The content depends on the device configuration. Example:

- (1) Open menu
- (2) Start menu
- (3) Settings for the photometer Simple/Advanced configuration mode
- (4) Log in/log out
- (5) Change language
- (6) Open logger diagram



7.2.2 First steps

- ▶ Open menu (1).
- ▶ Select «language» (2).
- ▶ Select [settings] (3).
 - ▷ The Simple Configuration Mode (4) appears (Advanced Configuration Mode (5))



7.3 Field bus

7.3.1 General requirements

- The computer or the control system must be compatible with the bus system Modbus RTU/TCP, Profibus DP or Profinet IO.
- The photometer must be equipped with the appropriate communication module.

7.3.2 Fault codes

The fault codes apply to all field bus versions. The fault description and corresponding measures can be found here [▶ 31](#).

No fault	Prioritised faults	Fault	Warnings
0: NO FAULTS	1: DEFAULT VALUES 3: CRC EXPERTS 4: CRC USER 5: CRC DISPLAY	8: SERIAL 1 16: U ANALOG 17: MEASURING FAULT 19: LIGHT SOURCE 1 20: LIGHT SOURCE 2	2: WATCHDOG 25: U ON 27: ADJUSTMENT 28: SENSOR CHECK 29: OVER.TEMP 30: HUMIDITY 33-40: CURRENT 1 ... 8 41: TEMP. SENSOR 43: EXTERNAL ON 53: IO_PORT 57: ABSORPTION TOO HIGH 78: SERVICE 82: BATTERY

EXTERNAL (43) can be configured by the user as a warning, fault or prioritised error.

7.3.3 Modbus RTU/TCP

7.3.3.1 Modbus RTU general

- The EG_IO module must be integrated.
- The Modbus RTU interface must be activated and parametrised in the menu «IO module EG_IO».

7.3.3.2 Modbus TCP general

- The EG_POE module or the EG_Profinet module with active transparent mode must be integrated. Alternatively, the Modbus TCP interface is available on the WLAN interfaces.
- The communication runs on port 502.
- Only one Modbus TCP connection may exist at the same time. An unused connection is terminated after 30 seconds.

7.3.3.3 Address table Modbus RTU/ TCP

NOTE**Non-functionality due to writing data to undocumented addresses**

Writing data to undocumented addresses can lead non-functionality of the device.

► Only documented addresses according to the module table may be used.

The following values can be read using Modbus function 4:

Register	Address	Data type	Function	Values
30001	0x0000	Unsigned integer bits 15...0	Status	Fault codes
30002	0x0001	Unsigned integer bits 15...0	Source Progress Limit	Bits 0-7 : Value 0=Local; 1-8: Slave Bits 0-7: With LabScat progress Bits 8-15: Limit status
30003	0x0002	Real 32-bit Intel single precision bits 15...0	Measuring value Channel 1	
30004	0x0003	Real 32-bit Intel single precision bits 31...16		
30005	0x0004	Real 32-bit Intel single precision bits 15...0	Measuring value Channel 2	
30006	0x0005	Real 32-bit Intel single precision bits 31...16		
30007	0x0006	Real 32-bit Intel single precision bits 15...0	Measuring value Channel 3	
30008	0x0007	Real 32-bit Intel single precision bits 31...16		
30009	0x0008	Real 32-bit Intel single precision bits 15...0	Measuring value Channel 4	
30010	0x0009	Real 32-bit Intel single precision bits 31...16		
30011	0x000A	Real 32-bit Intel single precision bits 15...0	Measuring value Channel 5	
30012	0x000B	Real 32-bit Intel single precision bits 31...16		
30013	0x000C	Real 32-bit Intel single precision bits 15...0	Measuring value Channel 6	
30014	0x000D	Real 32-bit Intel single precision bits 31...16		
30015	0x000E	Real 32-bit Intel single precision bits 15...0	Measuring value Channel 7	
30016	0x000F	Real 32-bit Intel single precision bits 31...16		
30017	0x0010	Real 32-bit Intel single precision bits 15...0	Measuring value Channel 8	
30018	0x0011	Real 32-bit Intel single precision bits 31...16		
30019	0x0012	Real 32-bit Intel single precision bits 15...0	Math channel 1	
30020	0x0013	Real 32-bit Intel single precision bits 31...16		

Register	Address	Data type	Function	Values
30021	0x0014	Real 32-bit Intel single precision bits 15...0	Math channel 2	
30022	0x0015	Real 32-bit Intel single precision bits 31...16		
30055	0x0036	Unsigned integer 32-bit bits 15-0	Serial no.	Serial number
30056	0x0037	Unsigned integer 32-bit bits 31-16		
30057	0x0038	Unsigned integer 32-bit bits 15-0	SW vers.	Software version (4 bytes): major version, minor version, patch, build
30058	0x0039	Unsigned integer 32-bit bits 31-16		

7.3.4 Profibus-DP

- The EG_Profibus module must be integrated. This supports the DP-V1 standard.
- The connection to the Profibus master must be established.
- If the device is used as an end device, the bus must be correctly terminated.
- The slave number must be set in the "EG_Profibus IO module" menu.
- The correct GSD file (SIG11D4.gsd) must be loaded in the Profibus master, the required modules must be plugged in and the associated variables must be defined.

7.3.5 Profinet-IO

- The EG_Profinet module must be integrated. This supports conformance class B.
- The connection to the Profinet master must be established.
- The interface parameters must be set in the «**EG_Profinet communication module**» menu. Alternatively, these can be set using a Profinet configuration tool.
- The correct GSDML file (GSDML-V2.44-Sigrist-Photometer AG-EG_Profinet-20240621.xml) must be loaded in the Profinet master, the required modules must be plugged in and the associated variables must be defined.
- If «**Profinet transparent mode**» is active, the device's web server can be accessed. If the mode is inactive, the web server of the gateway module (HMS) can be accessed for diagnostic purposes.

7.3.6 Profibus-DP/Profinet-IO data

The data is divided into 15 input and 3 output modules. Only the first two modules are required for the basic functionality. The individual modules can be omitted and assigned to any slots.

The implementation is identical for all Sigrist devices. Depending on the device type, not all data is used.

Module table

Module name	Data type	Byte size	In/Out	Description	Min.	Max.
Status	byte	1	In	Bit 7: Live Bit 0-6: Fault codes		
	Byte	1	In	Limit status 1...8		
Meas. values 1...2	2xReal	8	In	Meas. values 1...2		
Meas. values 3...4	2xReal	8	In	Meas. values 3...4		
Meas. values 5...8	4xReal	16	In	Meas. values 5...8		
Meas. values 9...16	8xReal	32	In	Meas. values 9...16		
Meas. values 17...24	8xReal	32	In	Meas. values 17...24		
Status 1...2	2xByte	2	In	Status of measuring value 1...2		
Status 3...4	2xByte	2	In	Status of measuring value 3...4		
Status 5...8	4xByte	4	In	Status of measuring value 5...8		
Status 9...16	8xByte	8	In	Status of measuring value 9...16		
Status 17...24	8xByte	8	In	Status of measuring value 17...24		
Diagnosis	SIInt	1	In	Humidity		
	SIInt	1	In	Electronics temperature		
	SIInt	1	In	Heater temperature		
	SIInt	1	In	Soiling		
Control In	Byte	1	In	Live inverse		
	Byte	1	In	Operating mode		
Control In	Byte	1	In	Start (LabScat)		
	Byte	1	In	Lin table (LabScat)		
Config In	Byte	1	In	Integration 1...8		

Module name	Data type	Byte size	In/Out	Description	Min.	Max.
	Byte	1	In	Heater set point		
	Byte	1	In	Heater max. value		
	Byte	1	In	LV1...4 Cut-in delay		
	Byte	1	In	LV1...4 Cut-out delay		
	Byte	1	In	LV5...8 Cut-in delay		
	Byte	1	In	LV5...8 Cut-out delay		
	Byte	1	In	GW hysteresis *)		
Config Limits In	8xReal	32	In	Limit value 1...8		
Config Limits In	Real	4	In	Scaling 1		
	Real	4	In	Flow rate GW		
	Real	4	In	Soiling GW		
Control Out	Byte	1	Out	Live inverse	0	255
	Byte	1	Out	Operating mode	0	4
Control Out	Byte	1	Out	Start (LabScat)	0	2
	Byte	1	Out	Lin table (LabScat)	0	7
Config Out	Byte	1	Out	Integration 1...8	0	255
Config Out	Byte	1	Out	Heater set point	0	100
	Byte	1	Out	Heater max. value	0	75
	Byte	1	Out	LV1...4 Cut-in delay	0	255
	Byte	1	Out	LV1...4 Cut-out delay	0	255
	Byte	1	Out	LV5...8 Cut-in delay	0	255
	Byte	1	Out	LV5...8 Cut-out delay	0	255
	Byte	1	Out	GW hysteresis*)	0	100
Config Limits Out	8xReal	32	Out	Limit value 1...8	-5000	1.00E+09
Config Limits Out	Real	4	Out	Scaling 1	0.1	10
	Real	4	Out	Flow rate GW	-10	20000
	Real	4	Out	Soiling GW	0001	1000

*) Limit hysteresis: Lower limit value = upper limit value * (100.0 - value)/100

All available measuring values (meas. channels, math channels, analogue channels) are output in sequence under "Meas. values 1...n".

When writing, all values must be within the permissible limits, otherwise all changes will be discarded.

Communication monitoring:

There are two options for monitoring communication. On the one hand, a live bit (module: status – bit 7), which alternates between 0 and 1 every second. If this is used, an adequate evaluation logic is required.

The second option is an inverse byte. A value can be written to the corresponding address (module: Control Out – live inverse), after a time of max. 3...5 s the value is output inverted (module: Control In – live inverse). Write access to the photometer must be permitted for this function. This can be enabled via the menu "IO module EG_Profi/Control -> External".

8 Troubleshooting

8.1 Isolate faults

Malfunction	Measure
No display	► Check service voltage.
Error message in display	► Analyse error message (Warning/error/priority messages).
Measured value seems wrong	► Ensure correct operating conditions of the sample medium. ► Check calibration. ► Check correct mounting. ► Ensure that servicing duty has been carried out correctly. ► Perform sensor check.

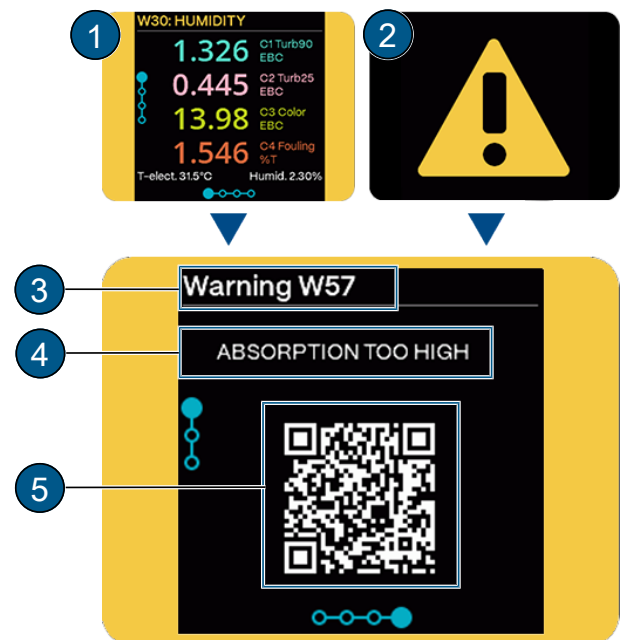
8.2 Warning/(Prio) error messages

In the event of a malfunction, either the measurement monitor with error message (1) or a corresponding status signal (2) is displayed, depending on the setting.

Warning messages

- System remains in operation.
 - Evaluate measurement results with caution.
 - The warning disappears after the cause has been rectified.
- Call up QR code (5).
- Rectify cause promptly.

- (1) Warning message with measured value display
 (2) Warning status symbol
 (3) Warning code
 (4) Warning message
 (5) QR code



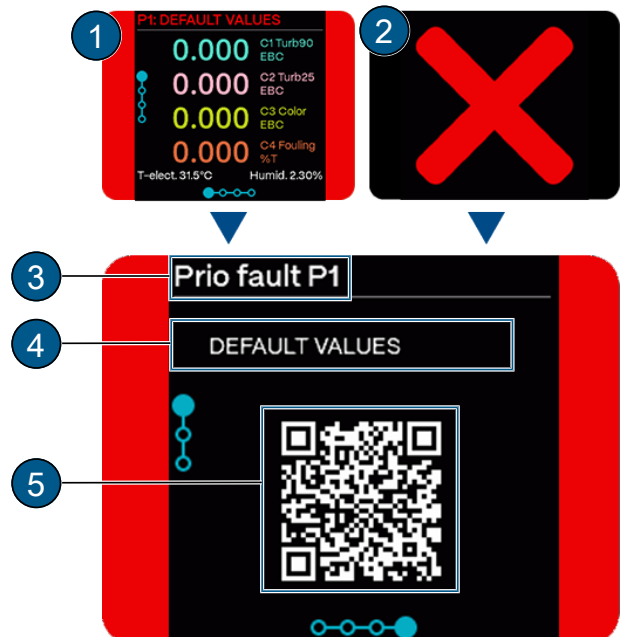
(Prio) error messages

- Measured values are set to 0.
 - Operation is impossible.
- Call up QR code (5).
- Rectify the cause immediately.

- (1) Error message with measured value display
 (2) Status symbol (prio) error
 (3) Fault code
 (4) Error message
 (5) QR code

NOTICE!

Prioritised errors must be cleared by a service engineer.



8.3 Creating support file for SIGRIST photometer

For remote troubleshooting, a support file can be sent to SIGRIST Support. The support ZIP file includes the current data as well as configuration values.

It takes approx. 30 seconds to generate the file.

Connecting to smartphone

Activate WiFi access point

- ▶ Navigate to «WiFi Access Point».
- ▶ Swipe down.
 - ▷ WiFi access point is activated.



Sigrist-Webinterface Open

- ▶ Open Internet browser (e.g. Chrome, Safari).
- ▶ Enter the displayed URL (192.168.10.1).
 - ▷ Login screen appears.

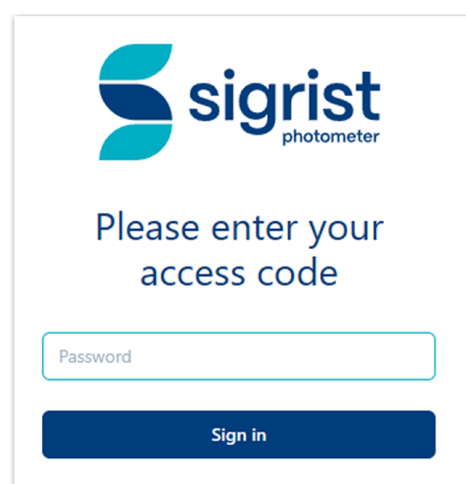
Alternatively, access URL with QR code.



Log in to Sigrist-Webinterface

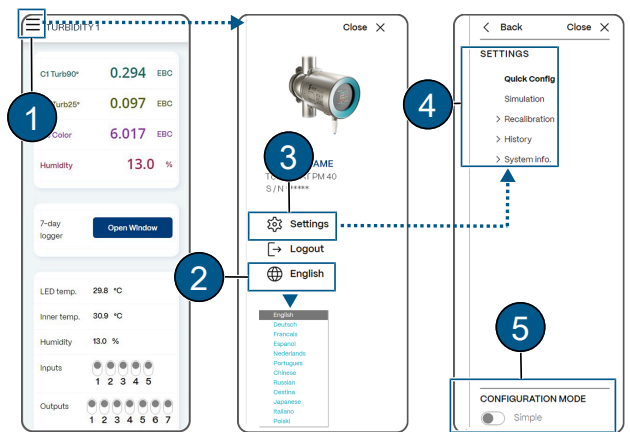
- ▶ Log in without password with **[Sign in]**.

For detailed information, see instruction manual.



Preparing the support file

- ▶ Open «Menu» (1).
- ▶ Select «Language» (2).
- ▶ Select «Parameterisation» (3).
- ▶ Open «System Info».
- ▶ Open «Support Info».
- ▶ Select [Download].
 - ⇒ The data are being collected.
 - ⇒ Confirmation appears.
 - ⇒ The download starts in the background.
- ▶ Close confirmation.
 - ⇒ The file is stored on the smartphone as a compressed file ([sensor name] ".ZIP") .
- ▶ Disable any active filters for images (*.jpg) or documents (*.doc ...).
 - ▷ The file is ready to be sent to Customer Support.



9 Disposal

The components must be disposed of in accordance with regional legal regulations. The components do not have any radiation sources that are harmful to the environment. The materials used must be disposed of or reused in accordance with the following table:

Category	Materials	Disposal option
Packaging	Cardboard, paper	Reuse as packaging material, local disposal points, incineration plants
	Protective films, polystyrene shells	Reuse as packaging material, recycling
Electronics	Printed circuit boards, electro-mechanical components, display and cables	To be disposed of as electronic waste
Optics	Glass, plastic and stainless steel	Recycling via used glass and scrap metal collection points
Battery	Lithium	Recycling via locally organised collection points
Photometer housing	Stainless steel	Scrap metal collection points
Desiccant	Molecular sieve	Normal waste disposal (chemically harmless)

10 Specification sheet

10.1 SiDis AD 40

Service voltage

24 VDC $\pm$ 10 % (EG_PoE according to standard)

Power input with photometer

Max. 4 W

Display

- Display: 1/4 VGA with touchscreen
- Resolution: 320 x 240 pixels with 2.4" diagonal

WLAN module

WLAN according to IEEE 802.11 b/g/n

Protection class

IP 66

Weight

Approx. 0.4 kg

Dimensions

Ø 105.5 x 71 mm

Material

- Housing: PC/ABS UL94 V0
- Touchscreen: Soda-lime tempering glass

10.2 Communication modules

EG_IO

6 configurable inputs/outputs:

- Max. 2 digital inputs: 5 ... 28 VDC
- Max. 4 digital outputs: High-side switch max. 20 mA
- Max. 4 power output terminals: 0/4 ... 20 mA, max. 700 ohm
- Modbus RTU

EG_PoE

Ethernet LAN connection with Power over Ethernet:

- Ethernet according to 10/100BaseT
- PoE according to 802.3af, class 0

EG_Profibus

Profibus DP-V1 slave

EG_Profinet

Profinet IO, conformity class B

Your service partner

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