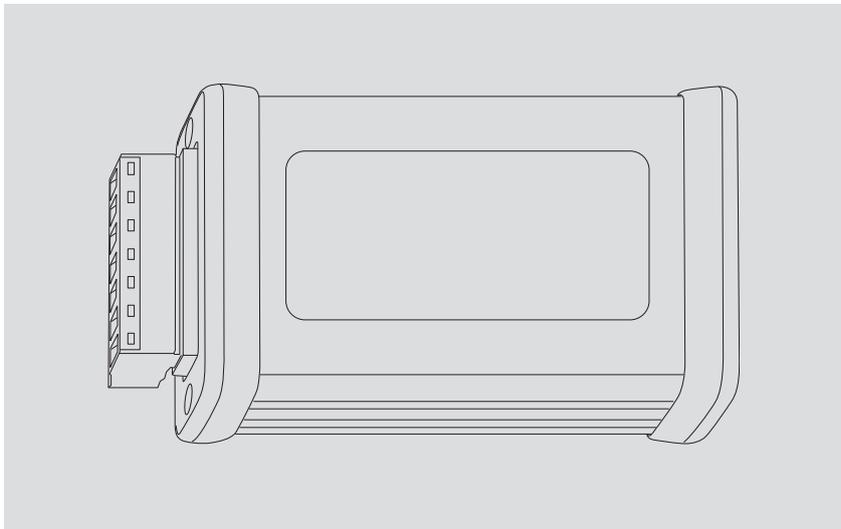




Operating instructions
OTT USB/SDI-12 Adapter



English

We reserve the right to make technical changes without further notice!

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1 Scope of delivery

- ▶ **OTT USB/SDI-12 Adapter**
 - 1 Interface converter with plug-in, 7-pin screw terminal strip (RS-485-/SDI-12 interface) and USB interface (USB type B socket)
 - 1 USB connection cable; USB connector type A to USB type B; 3 m
 - 1 USB stick with USB interface driver and "OTT SDI-12 Interface" software

2 Order numbers

- ▶ **OTT USB/SDI-12 Adapter** 65.050.002.9.2
- ▶ **Accessories**
 - "OTT SDI-12 Adapter – OTT FAD 5" connecting kit** 97.120.432.3.5
 - for temporarily connecting the OTT PLS-C and the OTT USB/SDI-12 Adapter within the OTT FAD 5 during conductivity sensor calibration

3 Basic safety information

3.1 Markings and symbols used in the instruction

- This bullet point indicates an instruction relating to a specific action.
- ▶ This bullet point indicates an item in a list.
 - This bullet point indicates a sub-item in a list.

- **Remark:** ...

- ▶ Information on easier and more efficient work
- ▶ Further information
- ▶ Definition

- **Please note:** ...

Information that prevents potential damage or malfunction on the USB/SDI-12 Adapter.

3.2 Note the following for safe and trouble-free operation

- ▶ Read these operating instructions before using the USB/SDI-12 Adapter for the first time! Become completely familiar with the installation and operation of the USB/SDI-12 Adapter! Keep these operating instructions for later reference.
- ▶ Only use the USB/SDI-12 Adapter as described in the operating instructions! The intended use of the USB/SDI-12 Adapter is the temporary connection of a sensor via the SDI-12 or RS-485 interface (SDI-12 protocol) to a PC – especially for changing the sensor configuration or for maintenance work (sensor calibration). Any other use is not permitted! For further information → refer to Chapter 4, "Introduction".
- ▶ In addition, observe the respective operating instructions of the sensor you are connecting to the USB/SDI-12 Adapter.
- ▶ Only install and maintain the USB/SDI-12 Adapter if you are appropriately qualified to do so. If necessary, arrange training by OTT HydroService.
- ▶ Ensure the electrical, mechanical, and climatic specifications listed in the technical data are adhered to.
For further information → refer to Chapter 10, "Technical data".
- ▶ Do not make any changes or retrofits to the USB/SDI-12 Adapter. If changes or retrofits are made, all guarantee claims are voided.
- ▶ Have a faulty USB/SDI-12 Adapter inspected and repaired by our repair center. On no account carry out repairs yourself!
For further information → refer to Chapter 8, "Repair".
- ▶ After putting the unit out of service, properly dispose of the USB/SDI-12 Adapter. On no account put the USB/SDI-12 Adapter into the normal domestic waste. For further information → refer to Chapter 9, "Note about the disposal of used units".

4 Introduction

When the "OTT SDI-12 Interface" PC software is used, the "USB/SDI-12 Adapter" provides the option of changing an existing SDI-12 sensor configuration via the SDI-12 or RS-485 interface (SDI-12 protocol).

For this purpose, the sensor must be temporarily connected to the PC via the interface converter.

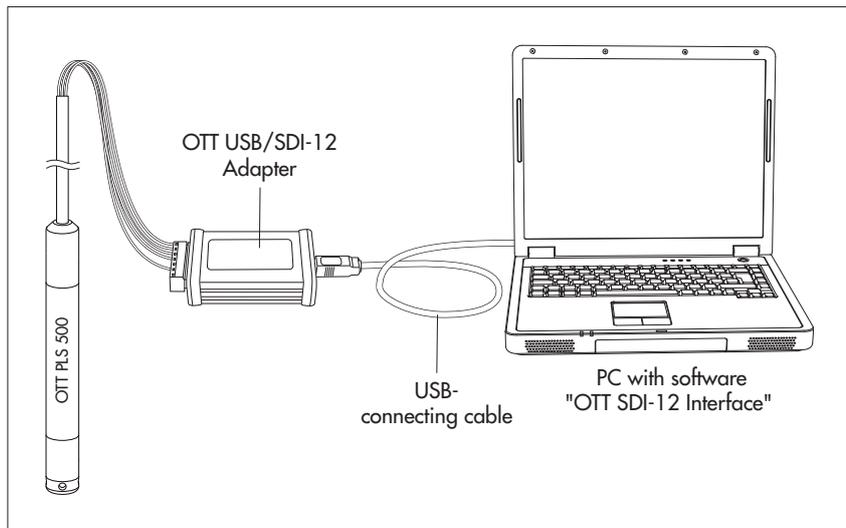
The PC Software automatically recognizes the connected sensor type and provides the appropriate SDI-12 commands conveniently as buttons. The software differentiates between "Standard SDI-12 commands" and "Extended SDI-12 commands". It is also possible to update the firmware of the sensors. For the OTT PLS-C pressure sensor with conductivity sensor, an additional button is available for calibrating the conductivity sensor.

The "USB/SDI-12 Adapter" supports for example the following sensors:

- OTT Pluvio² Precipitation Gauge,
- OTT PLS/OTT PLS 500 Pressure Probe,
- OTT PLS-C Pressure Probe with Conductivity Sensor,
- OTT RLS Radar Level Sensor,
- OTT CBS Bubble Sensor,
- OTT SE 200 Shaft Encoder,
- Side Looking Doppler OTT SLD.

You can also connect sensors from third-party manufacturers with a standard SDI-12 interface. The software also provides buttons for standard SDI-12 commands for these. In this case you can enter extended SDI-12 commands using an SDI-12 Terminal Mode.

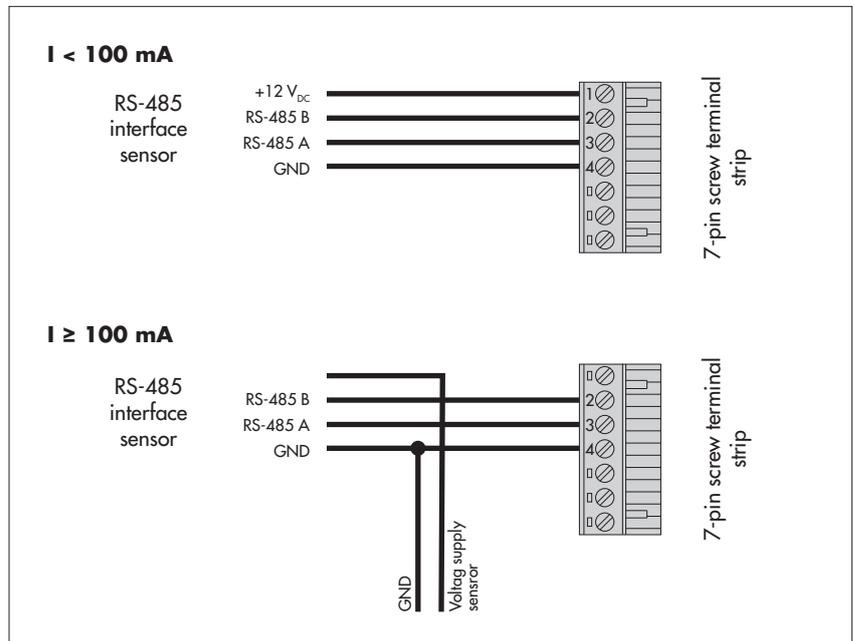
Fig. 1: Changing the factory configuration of an OTT sensor using SDI-12 commands at the example of a OTT PLS 500 pressure probe via the "OTT USB/SDI-12 Adapter".



5 Connecting a sensor to the OTT USB/SDI-12 Adapter

5.1 Using the RS-485 interface

Fig. 2: Connection plan of OTT PLS to "OTT USB/SDI-12 Adapter" via the RS-485 interface.

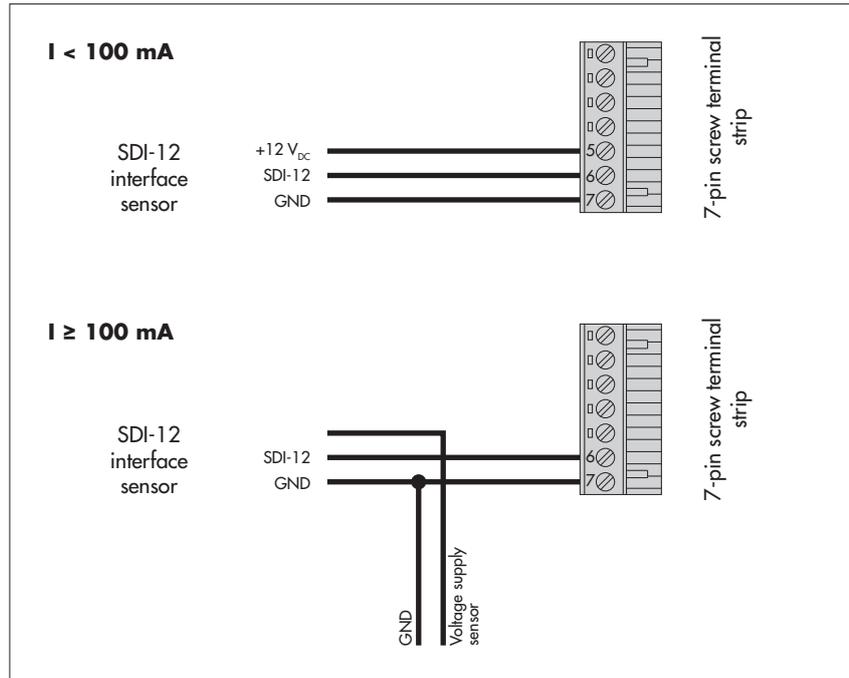


Please note:

- ▶ The OTT USB/SDI-12 Adapter can supply a connected sensor with a maximum current consumption of 100 mA. Beyond this, a separate power supply for the sensor is required. If the green/red LED at the USB/SDI-12 Adapter lights up red continuously during operation, the current consumption of the sensor is too high!
- ▶ For individual sensor types, it may be necessary to swap the connected wires at RS-485 A and RS-485 B for trouble-free operation!
- ▶ Maximum cable length/specification: see operating instructions of the connected sensor.

5.2 Via SDI-12 interface

Fig. 3: Connection plan of sensor with SDI-12 interface to the "OTT USB/SDI-12 Adapter".

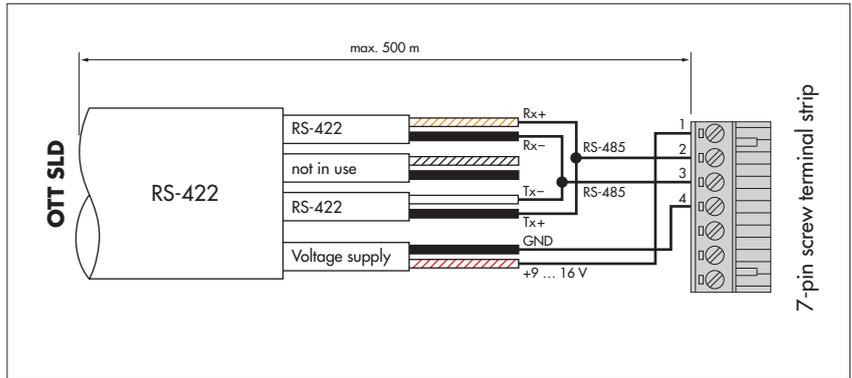


• **Please note:**

- ▶ The OTT USB/SDI-12 Adapter can supply a connected sensor with a maximum current consumption of 100 mA. Beyond this, a separate power supply for the sensor is required. If the green/red LED at the USB/SDI-12 Adapter lights up red continuously during operation, the current consumption of the sensor is too high!
- ▶ Maximum cable length/specification: see operating instructions of the connected sensors.

5.3 Special case: Connecting OTT SLD via RS-485 interface

Fig 4: Connection plan of OTT SLD to "OTT USB/SDI-12 Adapter" via RS-485 interface.

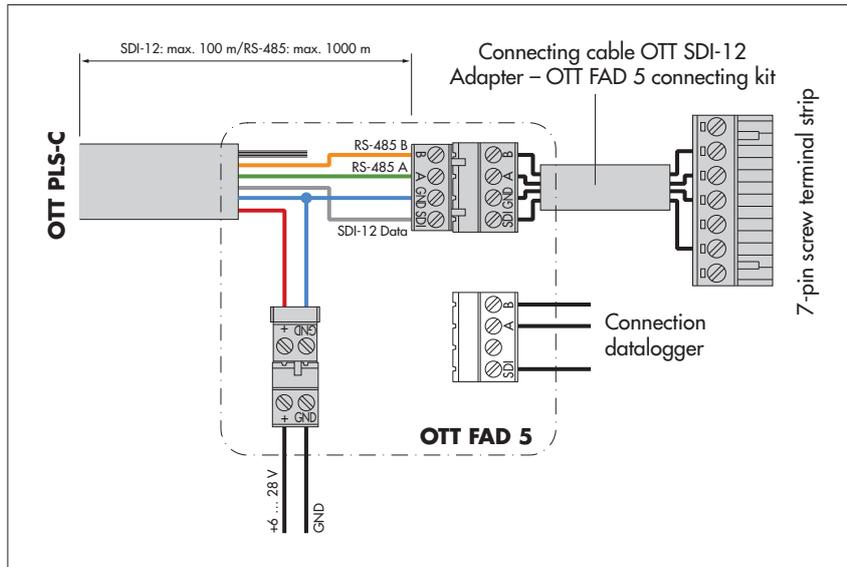


- **Note:** The connection of an OTT SLD via the SDI-12 interface is carried out as shown in Chapter 5.2 (variant above; $I \leq 100$ mA).

5.4 Special case: Connecting OTT PLS-C via RS-485-/SDI-12 interface using the OTT FAD 5 connecting kit

Fig. 5: Connection plan of OTT PLS-C to "OTT USB/SDI-12 Adapter" via SDI-12-/RS-485 interface.

Depending on the variant of the OTT PLS-C only one interface type (SDI-12 or RS-485) is used. The "OTT USB/SDI-12 Adapter – OTT FAD 5 connecting kit" still offers the possibility to connect the wires of the interface not in use to the screw terminal block



The connection variant described here shows the connection of the OTT PLS-C to the OTT USB/SDI-12 Adapter using the "OTT SDI-12 Adapter – OTT FAD 5 connecting kit".

- Disconnect the 4-pin plug connector (screw terminal strips) in the humidity absorber. If the voltage supply to the OTT PLS-C is continuous (not switched), the 2-pin connector can remain plugged.
- Connect the connecting cable of the connecting kit to the 4-pin plug in the humidity absorber and to the OTT USB/SDI-12.

- **Note:** If you do not use the connecting kit, the connection is made as shown in Chapter 5.1 or 5.2 (variant in each case above; $I \leq 100 \text{ mA}$).

6 Install, start and operate software

In order to change the configuration of an SDI-12 sensor, you need the PC software "OTT SDI-12 Interface" (SDI_Interface.exe) in addition to the USB/SDI-12 Adapter.

In addition, a special USB interface driver must be installed on the PC.

The setup files of the software and the USB interface driver are included on the USB stick supplied at the factory. Alternatively, you can also find them on the website "www.ott.com/resources" for download (free of charge).

Hardware and software requirements: Current standard PC with USB interface (USB socket type A; desktop/tower version or notebook); operating system: Microsoft Windows 10 or newer.

Installing the USB interface driver on the PC:

The USB interface driver must be installed once before using the "OTT SDI-12 Interface" software for the first time. For installation, the USB/SDI-12 adapter must not yet be connected to the PC!

- Log on to the PC with administrator rights.
- If the setup file of the USB interface driver was downloaded from the internet (file extension: ".zip"): Extract (unzip) the setup file.
- Start the setup file "CDMxxxxxx_Setup.exe"¹⁾ → the "FTDI CDM Drivers – InstallShield Wizard" opens²⁾.
- Follow the installation instructions on the screen.
- Then connect the USB/SDI-12 Adapter to the PC via the factory-supplied USB connection cable → the PC completes the driver installation on its own.

Install and start software "OTT SDI-12 Interface" on PC:

- Log on to the PC with administrator rights.
- Start the setup file "Setup_SDI12Interface_Vxxxx_DE.exe"¹⁾ → the "OTT SDI-12 Interface – InstallShield Wizard" opens²⁾.
- Follow the installation instructions on the screen.
- If the USB connection cable was removed after installing the USB interface driver: Reconnect the USB/SDI-12 Adapter to the PC via the USB connection cable.
- Start the software "OTT SDI-12 Interface" (Windows Start menu | subdirectory "OTT" | "SDI Interface") → the USB/SDI-12 Adapter is now ready for use; the green/red LED on the USB/SDI-12 adapter must be continuously green.

Operating the software "OTT SDI-12 Interface":

The software has an integrated, context-sensitive online help. To get detailed information on how to use the software, open a separate window with help topics:

- Select menu "?" | function "Help" or alternatively press "F".

¹⁾ „xxxxxx“; „xxxx“: current version number

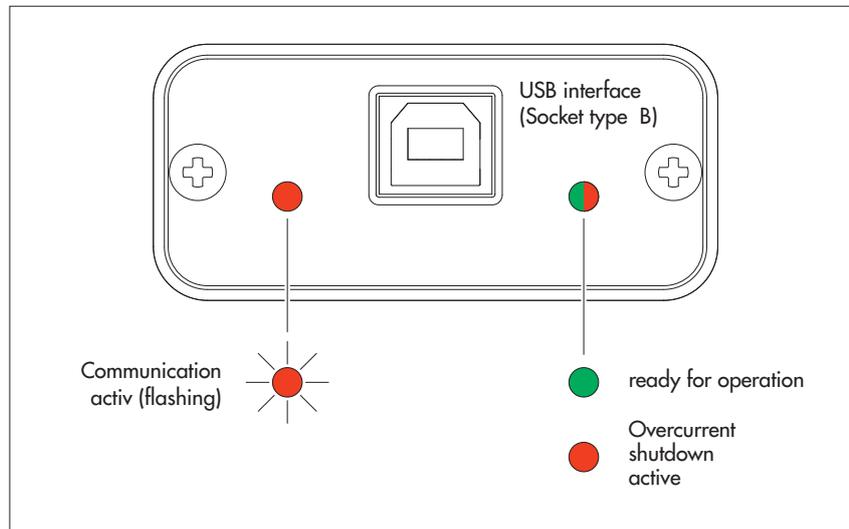
²⁾ if this file was downloaded from the Internet, a security warning will appear first

7 LED displays

To display different operating states, the OTT USB/SDI-12 Adapter has a

- ▶ red LED and
- ▶ green/red LED.

Fig. 6: Position of the LEDs and the USB interface on the side of the OTT USB/SDI-12 Adapter.



- ▶ red LED
 - flashes briefly several times
 - connected sensor and PC communicate via the USB/SDI-12 interface
- ▶ green/red LED
 - lights up green continuously
 - the USB/SDI-12 Adapter is ready for use
 - lights up red continuously
 - Overcurrent shutdown activated: Current consumption of the connected sensor > 100 mA
 - off
 - the USB/SDI-12 Adapter has no supply voltage: USB connection cable not/not correctly connected

8 Repair

- In case of device failure, please contact the OTT repair center.

OTT HydroMet GmbH
Repaircenter
Ludwigstr. 16
87437 Kempten · Germany
Phone +49 831 5617-433
Fax +49 831 5617-439
repair@ott.com

- **Please note:** Have a faulty OTT USB/SDI-12 Adapter checked and repaired only by the OTT repair center! Never attempt to repair the unit yourself! Any repairs or attempted repairs carried out by the customer will void any warranty.

9 Notes about the disposal of old units



Within the member countries of the European Union

In accordance with the European Union guideline 2012/19/EU, OTT takes back old devices within the member countries of the European Union and disposes of them in the appropriate way. The devices concerned by this are marked with the symbol shown aside.

- For further information on the return procedure, please contact your local sales contact. You will find the addresses of all sales partners in the internet on "www.ott.com". Please take into consideration also the national implementation of the EU guideline 2012/19/EU of your country.

For all other countries

- After putting the unit out of service, properly dispose of the OTT USB/SDI-12 Adapter.
- Observe the regulations applicable in your country for the disposal of electronic devices!
- Never dispose of the OTT USB/SDI-12 Adapter in the normal domestic waste!

Materials used

Refer to Chapter10, Technical data.

10 Technical data

Power supply	5 V _{DC} via USB interface
Current consumption	< 500 mA
Supply of sensor	
Power supply	12 V _{DC} ±10 %
Current consumption	< 100 mA
Interfaces	– SDI-12 version 1.4 – RS-485, two-wire (SDI-12 protocol; 1.4) – USB 2.0
Connections	– 7-pin, plug-in, screw terminal strip – USB socket, type B
Dimensions* (L x W x H)	98 mm x 57 mm x 26 mm
Weight*	ca. 0,1 kg
Housing material	aluminium, anodised
Protection class	IP 20
Operating temperature	0 ... +55 °C
Storage temperature	-45 ... +85 °C
Humidity	0 ... 90 %, non-condensing
CE (EU)	Device complies with the essential requirements of the EMC Directive 2014/30/EU
FCC (US)	
FCC Part 15, Class "B" Limits	Device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: - the equipment must not cause harmful interference - the equipment must accept any interference received, including interference that may cause undesired operation.
IC (CN)	
Canadian Radio Interference-Causing Equipment Regulation ICES-003, Class B	This Class B digital device meets all requirements of the Canadian Regulation, ICES-003, Class B Interference-Causing Equipment Regulations.

* including 7-pin screw terminal strip

Appendix A – Note on Declaration of Conformity

If necessary, you can download the current version of the Declaration of Conformity for the OTT USB/SDI-12 Adapter from our website as a PDF file: "www.ott.com/resources".

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