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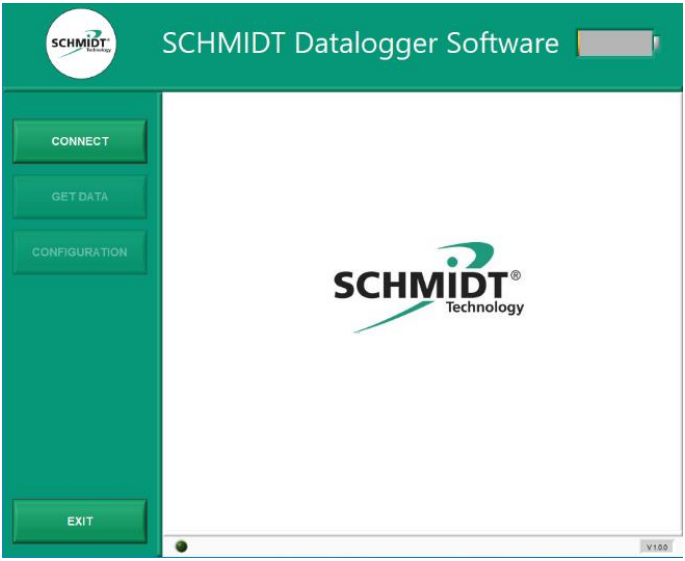


# SCHMIDT® Datalogger DL 10.010

## Instructions for Use

# SCHMIDT® Datalogger DL 10.010

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Imprint:



Edition: 564214.02
Subject to modifications

# 1 Important information

The instructions for use contain all required information for a fast commissioning and a safe operation of the **SCHMIDT® Datalogger DL 10.010**:

- Read these instructions for use completely and observe it carefully before downloading, installing and using the software on a suitable device.
- Any claims under the manufacturer's liability for damage resulting from non-observance or non-compliance with these instructions will become void.
- Tampering as well as interacting with the software in any way whatsoever - with the exception of the designated use and the operations described in these instructions for use - will forfeit any warranty and exclude any liability.
- The Datalogger as well as its software are designed exclusively for the use described below (see chapter *3*). In particular, it is not designed for direct or indirect protection of personal or machinery.
- **SCHMIDT Technology** cannot give any warranty as to its suitability for certain purpose and cannot be held liable for accidental or sequential damage in connection with the delivery, performance or use of this unit.

## Symbols used in this manual

The symbols used in this manual are explained in the following section.

**Important notes – Read carefully!**

Non-observance of these instructions may impair the functioning of the software or the connected device.

# 2 Scope of delivery

The complete set (material no. 569300) consists of the data logger dongle, an USB-capable programming cable and an user interface for Windows PCs, whose software can be installed from the included USB stick.


Detailed instructions for use in German and English are also available on the USB stick.
Both the software as well as the instructions for use are also available for download at:

www.schmidt-sensors.com or www.schmidttechnology.de

# 3 Field of application

The **SCHMIDT® Datalogger DL 10.010** is exclusively designed for communicating with the proprietary **SCHMIDT®** module interface.

The logging period is intended for short to medium-term use (i.e. days or weeks). Longer periods are possible, but deviations[1] of the real-time clock from real time must be taken into account.

[1] Maximum ±0.5 s per operating day (at 25 °C).

# 4 User interface

## 4.1 System requirements

A windows-based computer (PC, laptop, tablet) with an USB-interface is required to operate the **SCHMIDT® Datalogger Software**:

- Windows version: 7 or higher
- Data interface: USB, type standard-A (2.0 and higher)

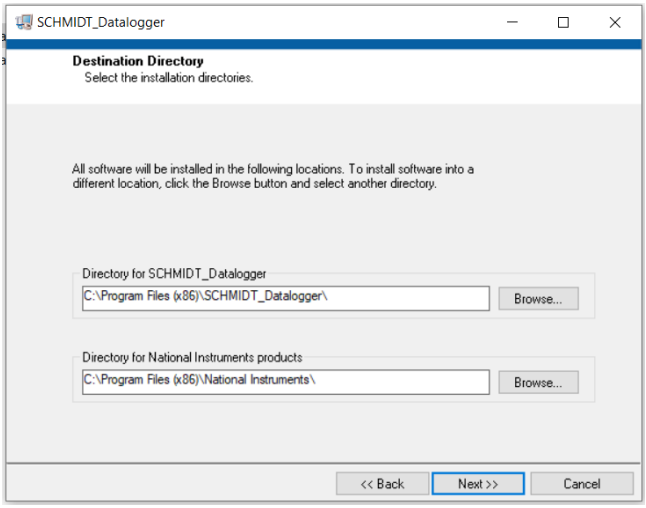
For installation and full functionality, the **SCHMIDT® Datalogger Software** requires an active connection to the Internet.
The core functionalities (configuration and/or reading of the **SCHMIDT® Datalogger DL 10.010**) require no internet connection.

## 4.2 Installation of the software

Installation of the **SCHMIDT® Datalogger Software** can be started directly from USB stick (double click on “SCHMIDT_Datalogger_install.exe”).
During installation Windows loads the necessary drivers from the internet.

For installation of the user interface software, an internet connection is required.

The location (path) of the **SCHMIDT® Datalogger Software** can be selected, the folder name “**SCHMIDT-Datalogger**” is immutable (see figure below).




After installation, a shortcut ("SCHMIDT_Datalogger") to the operating software can be found both on the desktop and in the Windows programme menu.

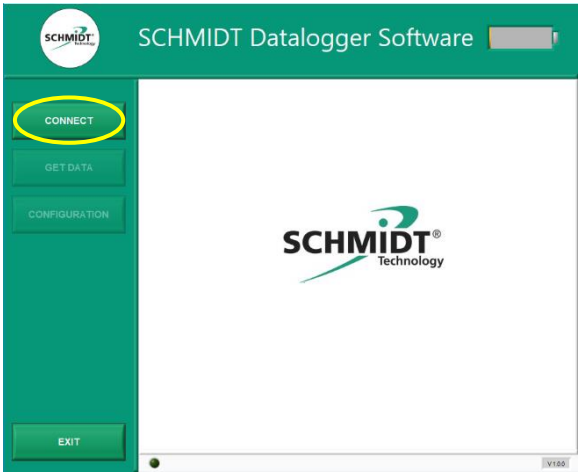
## 4.3 Connecting of datalogger to PC

For this purpose, the supplied programming cable is required.

First, it has to be plugged into a free USB port of the computer (internally named as a "COM port") and subsequently connected to the **Datalogger** (fully screw on connector of the programming cable to ensure a proper contact).

## 4.4 Starting of the operating software

By double-clicking on the shortcut "SCHMIDT-Datalogger", the user interface program is started and the following operating menu appears:

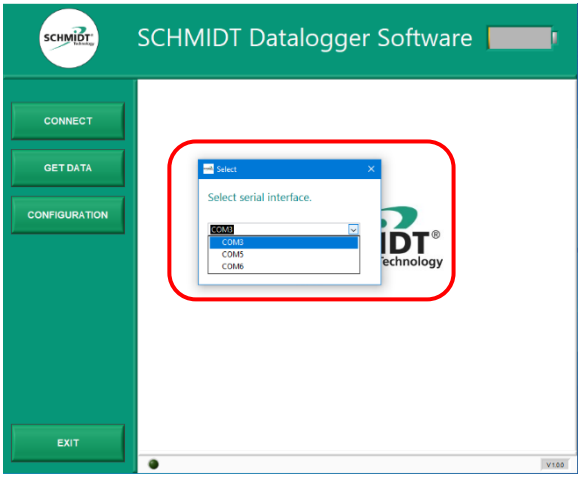



Communication with the data logger is established by clicking the field *Connect* (left column, top).

The user is initially prompted to select the computer's interface. To do this, open the drop-down list of the displayed dialog box and select the appropriate COM port (see figure next page).

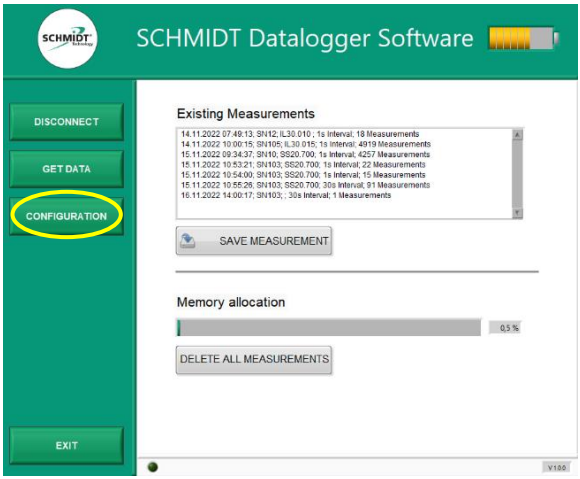
If multiple COM ports are displayed, the correct port can be determined as follows:

- Unplug the USB connector of the programming cable.
- Click *Update* in the drop-down list.
- Check which of the COM ports in the list is now missing.
- Replug the USB connector.
- Update the list again.
- Select the COM port that has been added.




## 4.5 Working with the software

Once the Datalogger is connected, the following will be displayed:

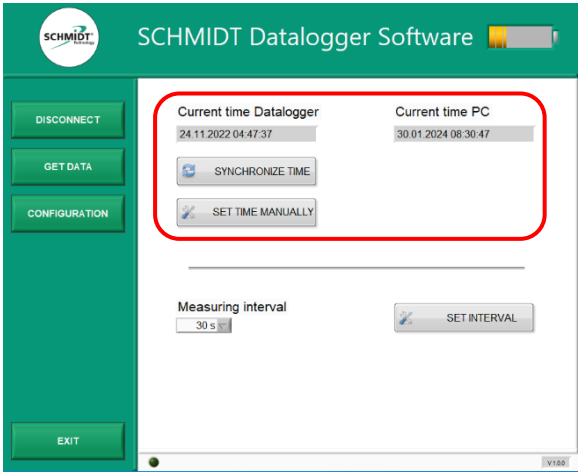



First of all, the data logger settings should be checked or set. For this, click on the *Configuration* button in the left-hand menu column.

A menu opens in which the most important data logger settings can be configured (see figure below):

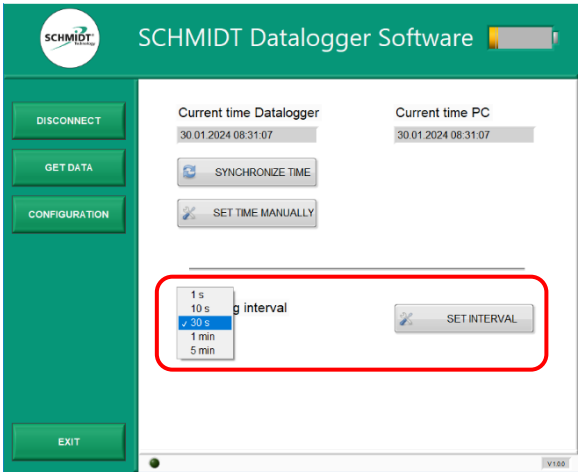
- The first step after prolonged logging operation or non-use should be to synchronise the internal real-time clock of the data logger to the correct (PC) time; alternatively, you can also set your own time that is independent of the PC.

To do this, click on the button *SYNCHRONIZE TIME* or *SET TIME MANUALLY*. The time updated in the data logger is immediately displayed in the "Current time Datalogger" window (top right).




The status[2] of the data logger's real-time clock should be checked before each use and adjusted if necessary.

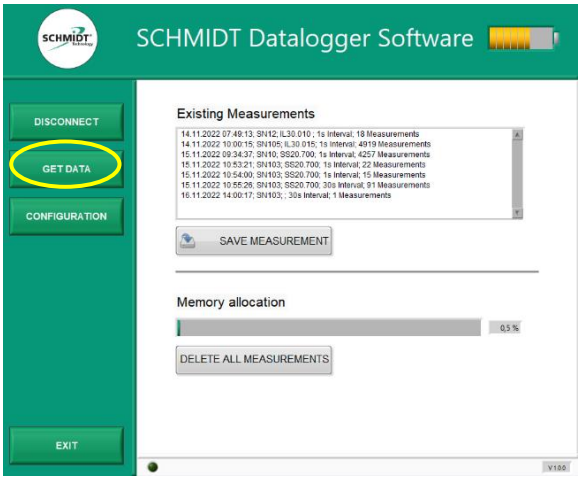
- The "Measuring interval" can now be set (see illustration below).
  This is the time interval at which the individual measurement data records are recorded from the connected sensor and stored in the datalogger (for details see subsection *5.3*).




[2] The deviation of the real-time clock is max. ±0.5 s per operating day (at 25 °C).

From the drop-down list, it is possible to select *1 s*, *10 s*, *30 s*, *1 min* or *5 min*. The smaller the selected interval, the finer the temporal resolution of the measurements, but the more memory is required for the same recording period.
Therefore, it makes sense to find a compromise between temporal resolution and available data storage volume (2 million data records).

Use the button *Get Data* (left menu column) to open a window that allows you to work with the saved measurement files:




- The window "Existing Measurements" at the top, lists the measurement files saved on the data logger.
  Each of these files can be selected individually[3] and downloaded to the PC by cklicking *Save Measurement*.
- The horizontal bar "Memory allocation" indicates the actual memory allocation of the data logger.
- Using the button *DELETE ALL MEASUREMENTS* erases all data records stored on the data logger.

Finally, use the button *Disconnect* (left menu column) to terminate the connection between PC and dongle.

Pressing *Exit* closes the operating software.

[3] It is not possible to select several files at the same time

# 5 Datalogging

## 5.1 Fundamentals

The **SCHMIDT® Datalogger DL 10.010** has a small energy storage device[4] that buffers the real-time clock as long as the dongle is not operating, i.e. it is not connected to a device (sensor, PC) that supplies it with energy.
The backup time[5] is approx. 4 days, after which the real-time clock stops and loses its synchronisation with real time. If the dongle is then plugged into a sensor again, the real-time clock continues to run on the previously saved time stamp, i.e. the time data is incorrect or invalid.
As soon as the data logger is connected to a sensor or PC, the energy storage unit recharges itself in a short time (approx. 2 resp. 10 min).

## 5.2 Connecting and operating of the data logger

The actual operation of the data logger as a recording device is simple.
When the dongle is connected to the module interface of an operational sensor, data recording starts immediately without any further action and a measurement file is automatically created (for details, see subsection *5.3*). Disconnecting the data logger from the sensor ends the current logging process and the associated file is closed.
Reconnecting the data logger to a sensor starts a new recording phase with a new, separate measurement file.
The available memory is sufficient for approx. 2 million data records. Depending on the configured measuring interval, this result in the following maximum recording periods:

| Measuring interval | Max. recording time [days] |
|---|---|
| 1 second | 24 |
| 10 seconds | 242 |
| 30 seconds | 728 |
| 1 minute | 1,456 |
| 5 minutes | 7,281 |

Notes:

- If the memory is used up completely (memory overflow), no more data will be saved.
- The length of the individual measurement files should not be too large, otherwise the download times[6] (dongle to PC) will take a long time.

[4] SuperCap
[5] After repeated charging; the initial buffer time for a new device is approx. 2 days
[6] Download rate approx. 2000 data sets per second

## 5.3 Measurement files

Each logging process generates an own measurement file automatically:

- File format: '.csv'
  In this format, the individual measured values are separated by a semicolon (';') and a comma (',') serves as decimal separator.
  These files may be directly imported and analysed in table processing programs (e.g. MS Excel).
- File name:
  The name is generated automatically with the following structure (the individual terms are linked by an underscore):
  - Date of file generation [yymmdd]
  - Time of day of file generation [hhmmss]
  - Serial number „xxx" of connected sensor [SNxxx]
  - Type of connected sensor
  - String 'Datalogger'

  Example: „240522_142530_SN144_IL30.010_Datalogger.csv"
- File structure: Header
  The first file lines contain a header with detailed information on the connected sensor and its measured variables:
  - 'SCHMIDT Measurement Datafile'
  - 'Name:' Name of file
  - 'Date:' Date of file generation [dd.mm.yyyy]
  - 'Time:' Time of day of file generation [hh:mm:ss]
  - 'Sensor Type:' Type of connected sensor
  - 'Serial No.:' Serial number of connected sensor [SNxxx]
  - 'Unit Value #1:' Measurement unit of primary measurand [m/s, $m^3$/h ...]
  - 'Unit Value #2:' Measurement unit of secondary measurand [°C]
  - 'Record Comment: Datalogger'
- File structure: Measurement data records
  The following data set consists of four values, which are arranged in four columns according to the '.csv' format:
  - Date (real-time clock: date)
  - Time (real time clock: time)
  - MV #1 (primary measured value)
  - MV #2 (secondary measured value)

- File structure: Visualisation by operating software (example)

| SCHMIDT Measurement Datafile | | | |
|---|---|---|---|
| Name: 240522_142530_ SN144_ IL30.010 _Datalogger.csv | | | |
| Date: 22.05.2024 | | | |
| Time: 14:25:30 | | | |
| Sensor Type: IL30.010 | | | |
| Serial No.: SN144 | | | |
| Unit Value #1: m³/h | | | |
| Unit Value #2: °C | | | |
| Record Comment: Datalogger | | | |
| | | | |
| Date | Time | MV #1 | MV #2 |
| 22.05.2024 | 14:25:41 | 4,1 | 25,53 |
| 22.05.2024 | 14:25:42 | 2,58 | 25,53 |
| 22.05.2024 | 14:25:43 | 1,78 | 25,53 |
| 22.05.2024 | 14:25:44 | 0,98 | 25,61 |
| 22.05.2024 | 14:25:45 | 0,32 | 25,63 |
| 22.05.2024 | 14:25:46 | 0 | 25,63 |
| 22.05.2024 | 14:25:47 | 0 | 25,63 |
| 22.05.2024 | 14:25:48 | 0 | 25,71 |
| 22.05.2024 | 14:25:49 | 0 | 25,77 |
| 22.05.2024 | 14:25:50 | 0 | 25,84 |
| 22.05.2024 | 14:25:51 | 0 | 25,9 |
| 22.05.2024 | 14:25:52 | 0 | 25,98 |

# 6 Technical data

| | |
|---|---|
| **PC requirements** | |
| Operating system | Windows 7 and higher |
| Application interface | **SCHMIDT® Datalogger Software** |
| **Programming cable** | |
| Operating current | < 100 mA |
| Electrical connections:<br>- To datalogger:<br>- To PC: | <br>Socket plug M12, female, 5-pin[7], A-coded<br>USB, type A (2.0) |
| Operating temperature | 0 … +60 °C |
| Storage temperature | -25 … +80 °C |
| Humidity | < 95 % RH |
| Protection type | IP65 (connector of sensor, correctly screwed) |
| Protection class | III (PELV) |
| Length | 1.5 m |
| Weight | 150 g |
| **Datalogger** | |
| Model | **SCHMIDT® Datalogger DL 10.010** |
| Storage capacity | Approx. 2 Mio. data sets |
| Download rate (to PC) | Approx. 2000 data sets per second |
| Real-time clock deviation | Max. ±0.5 s/d (@ 25 °C) |
| Buffer time energy storage | Approx. 4 d (RTC operation without external supply) |
| Supply voltage | PC (USB): 5 VDC; typ. 12 mA (max. 70 mA)[8]<br>Sensor: 24 VDC ± 20 %; typ. 6 mA (max. 25 mA)[9] |
| Operating temperature | -20 … +60 °C |
| Storage temperature | -25 … +60 °C |
| Humidity | < 95 % rF |
| Protection type | IP65 (correctly screwed) |
| Protection class | III (SELV or PELV) |
| Dimensions (L x Ø) | 58 mm x 18 mm |
| Weight | 14 g |

[7] Central pin (no. 5) is not connected
[8] Only when charging a fully discharged SuperCap, charging time approx. 10 min
[9] Only when charging a fully discharged SuperCap, charging time approx. 2 min

# 7 Declarations of conformity

**SCHMIDT Technology GmbH** herewith declares in its sole responsibility, that the product

## SCHMIDT® Datalogger DL 10.010

Part-No. **569 300**

is in compliance with the appropriate

European guidelines and standards

and

UK statutory requirements and designated standards.

The corresponding declarations of conformity can be download from **SCHMIDT®** homepage:

www.schmidt-sensors.com

www.schmidttechnology.de

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