User manual

myDatasensH2S1000 BLE & 3G

Valid from:

- **Firmware version: 01v000**
- **Server version: 45.12**
- **Hardware version: 1.2**

300741 | Rev.03

Microtronics
We live M2M

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Chapter 2 Declaration of conformity

2.1 BLE & 3G Gateway

EU-Konformitätserklärung

EU Declaration of Conformity / Déclaration de conformité UE

Produktbezeichnung: Product: Désignation du produit:	Frei programmierbares (PAWN) Instrument zum Übertragen von Messdaten mittels Bluetooth Smart (BLE) oder Mobilfunk (2G/3G)
Type : Type code: Type:	**BLE & 3G Gateway**
Hersteller: Manufacturer : Fabricant:	**Microtronics Engineering GmbH** Hauptstrasse 7 A-3244 Ruprechtshofen

Das bezeichnete Produkt stimmt mit den folgenden Europäischen Richtlinien überein.
The designated product is in conformity with the following european directives.
Le produit décrit est conforme aux directives européennes suivantes.

		Europäische Norm	Ausgabedatum
(2014/30/EU)	**EMC Directive**	ÖVE/ÖNORM EN61326-1	2013-08
(2014/35/EU)	**LVD Directive**	ÖVE/ÖNORM EN61010-1	2011-08
(2014/53/EU)	**RED Directive**	ÖVE/ÖNORM EN301489-1 V1.9.2 ÖVE/ÖNORM EN301489-7 V1.3.1 ÖVE/ÖNORM EN301511 V9.0.2 ÖVE/ÖNORM EN300328 V1.9.1	2011-09 2006-02 2003-06 2015-05
(2011/65/EU)	**RoHS Directive**	ÖVE/ÖNORM EN 50581	2013-03

Ruprechtshofen, den 20.04.2016

Ort und Datum der Ausstellung
Place and date of issue
Lieu et date d'établissement

Hans-Peter Buber, Managing Director
Unterschrift
name and signature of authorised person
Nom et signature de la personne autorisée

2.2 H2S 7H Sensor module

EU-Konformitätserklärung

EU Declaration of Conformity / Déclaration de conformité UE

Produktbezeichnung:
Product:
Désignation du produit:

BLE Sensormodul zum Einsatz in einem BLE Gateway

Type :
Type code:
Type:

BLE Sensormodul

Hersteller:
Manufacturer :
Fabricant:

Microtronics Engineering GmbH
Hauptstrasse 7
A-3244 Ruprechtshofen

Das bezeichnete Produkt stimmt mit den folgenden Europäischen Richtlinien überein. Eine oder mehrere der in der zugehörigen Baumusterprüfbescheinigung SIQ 17 ATEX 008 X genannten Normen wurden durch neue Ausgaben ersetzt. Der Hersteller erklärt für das vorstehend genannte Produkt auch die Übereinstimmung mit den Anforderungen der neuen Normenausgaben."
The designated product is in conformity with the following european directives. One or more of the associated listed in the Type Examination Certificate SIQ 17 ATEX 008 X standards have been replaced by new editions. The manufacturer for the above product also compliance with the requirements of the new standard editions.
Le produit décrit est conforme aux directives européennes suivantes. Une ou plusieurs des normes énumérées dans l'attestation de type concernant SIQ 17 ATEX 008 X étaient replacées par des nouvelles éditions. Le producteur déclare pour le produit décrit ci-dessus la conformité aux exigences des nouvelles éditions des normes.

		Europäische Norm	Ausgabedatum
(2014/30/EU)	**EMC Directive**	ÖVE/ÖNORM EN61326-1	2013-08
(2014/35/EU)	**LVD Directive**	ÖVE/ÖNORM EN61010-1	2011-08
(2014/53/EU)	**RED Directive**	ÖVE/ÖNORM EN300328 V1.9.1	2015-05
(2014/34/EU)	**ATEX Directive**	ÖVE/ÖNORM EN 60079-0 ÖVE/ÖNORM EN 60079-11	2014-07 2012-07
(2011/65/EU)	**RoHS Directive**	ÖVE/ÖNORM EN 50581	2013-03
	Kennzeichnung/ Markings/ Marquage CE 0123 Ex II 2 G Ex ib IIB T4 Gb		

Ruprechtshofen, den 17.03.2017

Ort und Datum der Ausstellung
Place and date of issue
Lieu et date d'établissement

Andreas Mitterlehner , Ex-Schutzbeauftragter
Unterschrift
name and signature of authorised person
Nom et signature de la personne autorisée

Hans-Peter Buber, Managing Director
Unterschrift
name and signature of authorised person
Nom et signature de la personne autorisée

Chapter 3 Technical data

Voltage supply	Battery: 2 x Li-SOCl2 cells with a total of 25,74Ah
Housing	Material: Noryl GTX 973 / PC (housing/lid and H2S 7H Sensor module) Weight: 690g (incl. H2S 7H Sensor module) Degree of protection: IP66 Dimensions (WHD): 106 x 169 x 61mm (with protective armour)
Operating temperature	-20...+50°C
Air humidity	15...90%rH non-condensing
Storage and transport temperature	-20...+50°C
Display	1,5 " OLED display with a resolution of 128 x 128 pixels and the ability to display 262.144 different colours
Operation	Solenoid switch for activating the display and triggering setup mode
Antenna connector	FME-M
H2S sensor	Measurement range: 0-200ppm Max. overflow: 1000ppm Resolution: 0,25ppm Pressure range: Atmospheric +/-10% T_{90} response time: <=35s Calibration cycle: 6 months Max. service life: 2 years Repeat accuracy: 1%
Temperature sensor	Measurement range: -20...+50°C Resolution: 0,1°C
Data memory	Internal flash memory for up to 82.776 measurement cycles
Data type	H2S concentration: s32 (32Bit signed) Temperature: s16 (16Bit signed)
Data transmission	Bluetooth Low Energy: Range: 20m (depending on the environmental conditions) Transmission rate: 120 data records/sec. 2G/3G modem (Europe): 2G GPRS 900MHz / 1800MHz UMTS B1, B8
SIM	Integrated SIM chip

Monthly data volume	Approx. 2MB at one-minute measurement cycle and four-hour transmission cycle
Device operating time	Approx. 2 years at one-minute measurement cycle and four-hour transmission cycle

Chapter 4 General specifications

The information in this manual has been compiled with great care and to the best of our knowledge. The manufacturer, however, assumes no liability for any incorrect specifications that may be provided in this manual. The manufacturer is not responsible for direct, indirect, accidental or consequential damages which arise from errors or omissions in this manual even if advised of the possibility of such damages. In the interest of continuous product development, the manufacturer reserves the right to make improvements to this manual and the products described in it at any time and without prior notification or obligation.

> ***Note:*** *The specifications in this manual are valid as of the versions listed on the front page. Revised versions of this manual, as well as software and driver updates are available in the service area of the myDatanet server.*

4.1 Translation

For deliveries to countries in the European Economic Area, the manual must be translated into the language of the respective country. If there are any discrepancies in the translated text, the original manual (German) must be referenced or the manufacturer contacted for clarification.

4.2 Copyright

The copying and distribution of this document as well as the utilisation and communication of its contents to others without express authorisation is prohibited. Contraventions are liable to compensation. All rights reserved.

4.3 General descriptive names

The use of general descriptive names, trade names, trademarks and the like in this manual does not entitle the reader to assume they may be used freely by everyone. They are often protected registered trademarks even if not marked as such.

4.4 Safety instructions

For the connection, commissioning and operation of the myDatasensH2S1000 BLE & 3G , the following information and higher legal regulations of the country (e.g. ÖVE), such as valid EX regulations as well as the applicable safety and accident prevention regulations for the respective application case must be observed.

Read this manual completely before unpacking, setting up or operating this device. Observe all hazard, danger and warning information. Non-observance can lead to serious injuries to the operator and/or damage to the device.

Ensure that the safety equipment of this measurement instrument is not impaired. Install and use the measurement system only in the manner and method described in this manual.

Important note: *The manufacturer's products that are designed for use outdoors include extensive protection against penetrating moisture and dust.*

4.4.1 Use of the hazard warnings

DANGER:
Indicates a potential or threatening hazardous situation that will result in death or serious injuries if not avoided.

WARNING:
Indicates a potential or threatening hazardous situation that can result in death or serious injuries if not avoided.

CAUTION:
Indicates a potential hazardous situation that can result in minor or moderate injuries or damage to this instrument.

Important note: *Indicates a situation that can result in damages to this instrument if it is not avoided. Information that must be particularly emphasised.*

Note: *Indicates a situation that does not result in any injury to persons.*

Note: *Information that supplements the specifications in the main text.*

4.4.2 General safety instructions

WARNING:
Never use this device in areas where the use of wireless equipment is prohibited. The device must not be used in hospitals and/or in the vicinity of medical equipment, such as heart pacemakers or hearing aids, as their functionality could be compromised by the GSM/GPRS modem contained in the device.

WARNING:
Never use this device in potentially explosive atmospheres and in the vicinity of highly combustible areas (storage areas for combustible material, chemical plants and detonation sites) or in the vicinity of flammable gases, vapours or dust.

4.4.3 Safety and preventative measures for handling GSM/GPRS modems

The following safety and preventative measures must be observed during all phases of installation, operation, maintenance or repair of a GSM/GPRS modem . The manufacturer is not liable if the customer disregards these preventative measures.

CAUTION:
The GSM/GPRS modem connection must not be used in hazardous environments.

No guarantee of any kind, whether implicit or explicit, is given by the manufacturer and its suppliers for the use with high risk activities.

In addition to the following safety considerations, all directives of the country in which the device is installed must be complied with.

> ***Important note:*** *No liability shall be assumed at any time and under no circumstances for connections via a GSM/GPRS modem for which wireless signals and networks are utilized. The GSM/GPRS modem must be switched on and operated in an area where sufficient signal strength is present.*

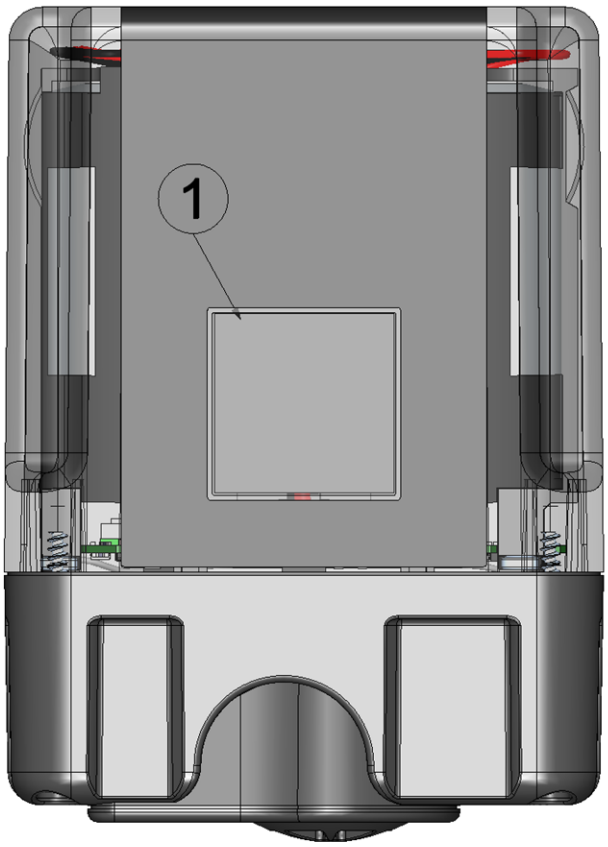
4.4.3.1 Safety and precautionary measures for the GSM/GPRS modem installation

- This device must only be installed by a trained technician who applies the recognised installation practices for a wireless frequency transmitter including the correct grounding of external antennas.
- The device must not be operated in hospitals and/or in the vicinity of medical equipment such as heart pacemakers or hearing aids.
- The device must not be subjected to strong vibrations or impacts.
- The GSM/GPRS modem can cause interferences if it is located in the vicinity of television sets, radios or computers.
- Do not open the GSM/GPRS modem . Any modification to the device is prohibited and will result in the operating licence being revoked.
- The use of GSM services (SMS messages/data communication/GPRS, etc.) may incur additional costs. The user alone is responsible for any resulting damages and costs.
- Do not install the device in any other way to the one described in the operating instructions. Improper use will invalidate the warranty.

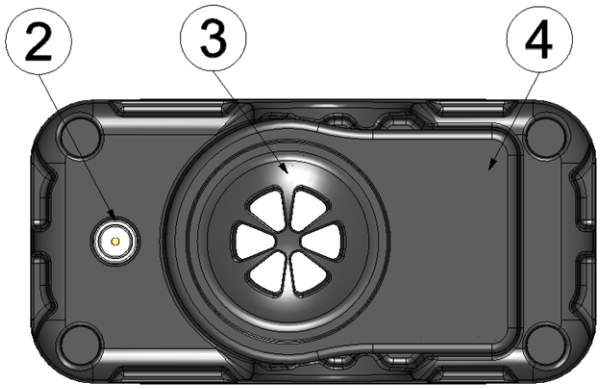
4.4.3.2 Safety measures for installing the antenna

- Only use antennas that are recommended or supplied by the manufacturer.
- The antenna must be installed at a distance of at least 20 cm from individuals.
- The antenna must not protrude beyond the lightning protected area of buildings and must be protected against lightning strikes!

4.5 Overview



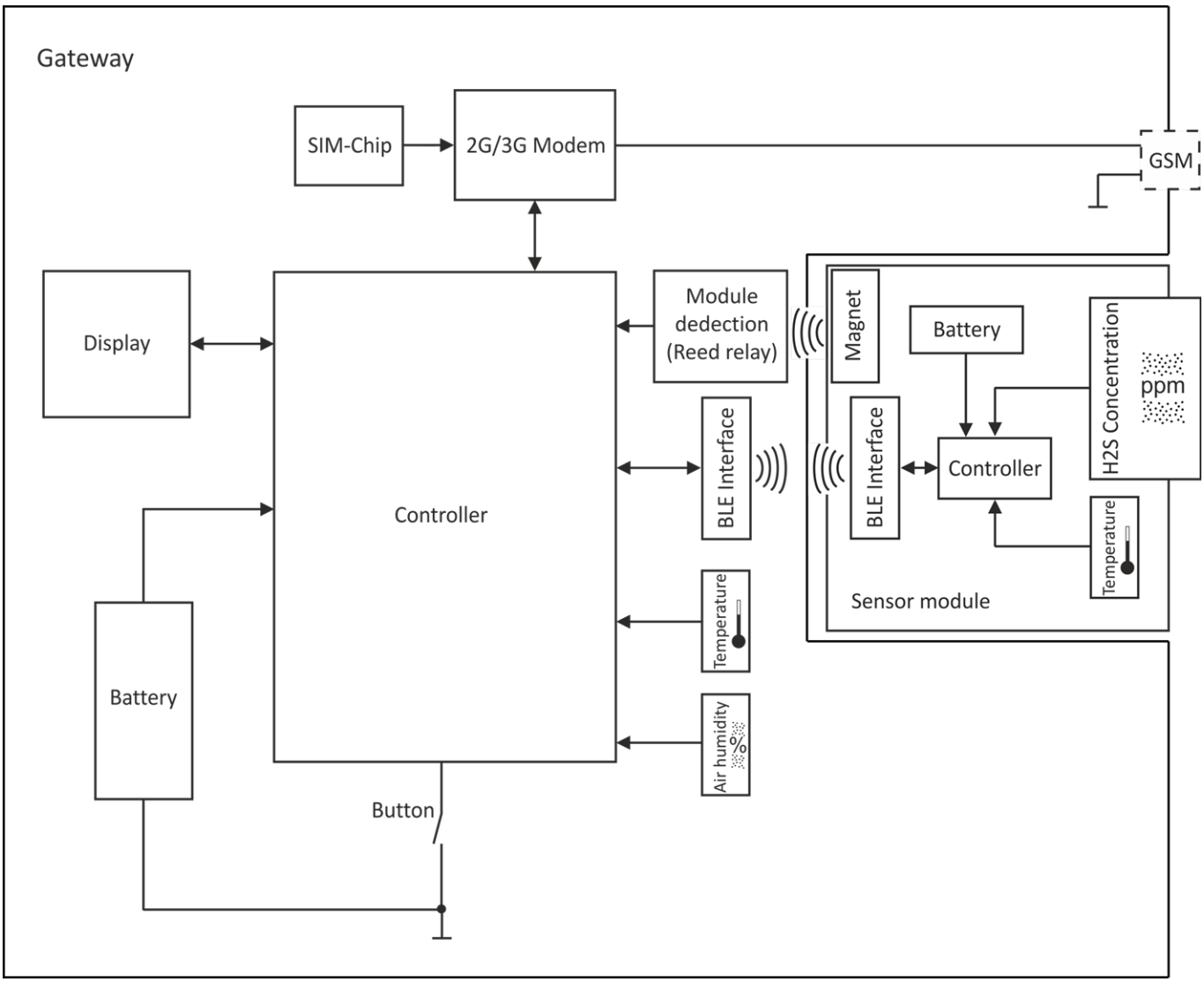
Front of the myDatasensH2S1000 BLE & 3G
(view without protective armour)



Bottom of the myDatasensH2S1000 BLE & 3G
(view without protective armour)

1 Display	3 H2S sensor
2 Antenna connector	4 Replaceable H2S 7H Sensor module

4.5.1 Block diagram



Block diagram of the myDatasensH2S1000 BLE & 3G

4.6 Intended use

The portable measurement instrument is used to record H2S concentrations. The device is battery-operated. The measured and recorded data is stored on a non-volatile memory medium. The saved data can either be sent to a central server via the mobile network for further processing or transferred to a PC via a Bluetooth connection (Bluetooth Low Energy). Using the software provided by the manufacturer, the data can then be transferred from the PC to a central server. The device is equipped with an integrated SIM chip for establishing a mobile connection. The maximum permissible limit values (specified in chapter "Technical data" on page 11) must be observed. The manufacturer shall not be liable for any operational cases that deviate from these limit values and have not been approved by the manufacturer in writing.

Note: This device is exclusively intended to be used for the purposes as described above. Any other use or use beyond what is specified or a modification of the device shall be deemed to be not for the intended purpose and is not permitted without the express written consent of the manufacturer. The manufacturer shall not be held liable for any damages that may result from such unauthorised use or modification. The operator alone bears the associated risk.

Note: The manufacturer is not liable for data loss of any kind if the device is damaged and data is not able to be stored correctly.

Note: The integrated SIM chip provides a mobile communications connection to a variety of international service providers. In order to be able to utilise all functions of the device, you must ensure that the device is located in the service area of one of these service providers. You can find a list of all supported countries and associated service providers under www.microtronics.at/footprint. A Managed Service contract with Microtronics Engineering GmbH is required for use of the mobile data transmission (see www.microtronics.at/managedservice). This includes the provisioning of the mobile communications connection via the network of the service provider included in the above-mentioned list.

4.7 General product information

The device is a compact, portable device designed to be operated in wastewater systems to record and transfer H2S concentrations. For this purpose, the myDatasensH2S1000 BLE & 3G is equipped with a replaceable sensor module in which an electrochemical sensor is integrated. The sensor is subject to wear and must therefore be calibrated every 6 months. Depending on the application, the service life of the sensor can be up to 2 years. In addition to the H2S concentration, the internal measurement values "SOC" (state of charge), "Battery", "Int. Temp", "rH" (air humidity in the housing), "GSM" (GSM level), "Abrasion" (sensor wear), "PowerOn Flag" (sensor status), "Battery Sensor" and "Sensor Temp." are determined (see "Internal channels" on page 62). The measurement data is recorded at an adjustable interval (see "Basic setting" on page 65) and is temporarily saved in an internal data memory. The recorded data can be read out locally via a Bluetooth connection (Bluetooth Low Energy) or transferred automatically at a freely selected interval to a central myDatanet server via a mobile connection. The device is equipped with an integrated SIM chip for this purpose. The DeviceConfig configuration program (see "DeviceConfig " on page 69) provided by the manufacturer and the USB BLE-Adapter (300676) included in the scope of delivery or a Bluetooth Low Energy compatible smartphone and the "GasBuster" smartphone app are required to read out the data via a Bluetooth connection. In addition to local processing of the data on the PC, the DeviceConfig configuration program also provides the option of transmitting the data to a central myDatanet server. This server provides a variety of options for managing and displaying the data. In addition to displaying the current measurement values, the "GasBuster" smartphone app also provides the option of transmitting the data to a central myDatanet server. The device is configured via the interface of the relevant myDatanet server. More information is provided in the server manual ("myDatanet Server Manual " 805002).

The myDatasensH2S1000 BLE & 3G has a 1,5" OLED display to show the current measurement values (H2S concentration and temperature) and a variety of status information (e.g. remaining time

until the next calibration, remaining time until the next general overhaul, etc.). The display is either activated via the solenoid switch or by inserting the sensor module. Detailed information on this is provided in chapter "Display" on page 56.

4.8 Device labelling

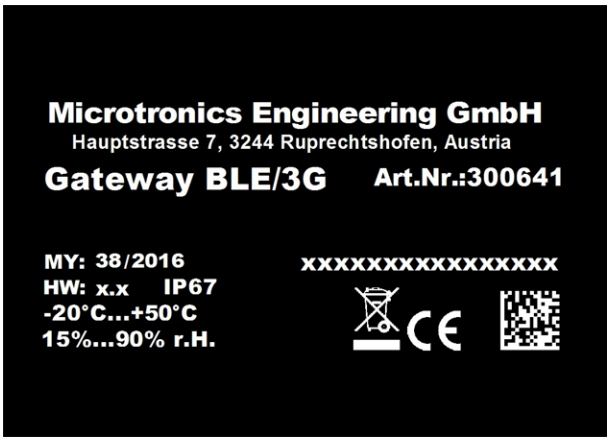
The information in this user manual applies exclusively to the myDatasensH2S1000 BLE & 3G that is made up of the following components:

- "myDatasens" application script
- BLE & 3G Gateway
- H2S 7H Sensor module

> *Important note: Please note that when it comes to the protection class for the complete system, the lower one of the two components is decisive, i.e. the one for the H2S 7H Sensor module (IP66).*

The type plate of the BLE & 3G Gateway is located on the rear side of the device and contains the following information:

- Name and address of the manufacturer
- Type designation
- Item number
- Hardware revision
- Week and year of production
- Serial number
- Protection class
- Environmental conditions during operation
- CE marking
- Logo for the EU WEEE Directive
- Country list profile of the SIM chip



Type plate BLE & 3G Gateway

The type plate of the H2S 7H Sensor module is located on the bottom of the module and contains the following specifications:

- Type designation
- Serial number
- Week and year of production
- Hardware revision
- Item number
- Ex protection designation as specified in chapter"Declaration of conformity" on page 9
- Environmental conditions during operation
- Protection class
- Chemical composition of the installed batteries
- Logo for the EU WEEE Directive
- CE marking
- Name and address of the manufacturer

Type plate H2S 7H Sensor module

The correct specification of the type designation and serial number is important for all queries and spare part orders. Only then can we process requests promptly and properly.

Note: This symbol indicates the country list profile (see www.microtronics.at/footprint) of the SIM chip installed in the device.

Note: These operating instructions are part of the device and must be available to the user at all times. The safety instructions contained therein must be observed.

DANGER:
It is strictly prohibited to disable the safety equipment or modify its mode of operation.

4.9 Installation of spare and wear parts

Please be advised that spare and accessory parts that have not been supplied by the manufacturer have also not been inspected or approved by the manufacturer. The installation and/or use of such products can possibly have a negative impact on the specified constructional properties of the device. The manufacturer shall not be liable for any damages that arise from the use of non-original parts and non-original accessory parts.

4.10 Storage of the product

To store the myDatasensH2S1000 BLE & 3G , activate transport mode by removing the sensor module from the sensor recess in the device. As part of this process, a connection to the myDatanet server will first be established so that any data that has not yet been transferred to the server at this point in time is transmitted. The data transmission and measurement are then deactivated. The antenna can be removed as soon as the GPRS connection has been terminated - indicated by "Transport mode, no sensor module inserted" being shown on the display (see "Display" on page 56). You may need to activate the display again by briefly pressing (approx. 1 sec.) the solenoid switch again (see "Solenoid switch" on page 56). Store the myDatasensH2S1000 BLE & 3G and the sensor module in the original packaging. Do not remove the protective armour during this process.

The myDatasensH2S1000 BLE & 3G is placed in a very energy-saving mode by activating transport mode. However, it may still occur that the batteries are fully discharged if the device is stored for very long periods. Although the configuration and the most recently recorded data are always retained. Transport mode is deactivated again by re-inserting the sensor module and the myDatasensH2S1000 BLE & 3G resumes operation according to the configuration. A connection to the myDatanet server is established as part of this process, so that any changes to the configuration made via the server interface are transmitted to the device.

4.11 Obligation of the operator

WARNING:
In the EEA (European Economic Area), the national implementation of the framework directive (89/391/EEC) as well as the associated specific directives and from these in particular, the directive (89/655/EEC) about the minimum safety and health requirements for use of work equipment by workers at work, each in their respective version are to be complied with.

The operator must obtain the local operating licence and the associated documents.

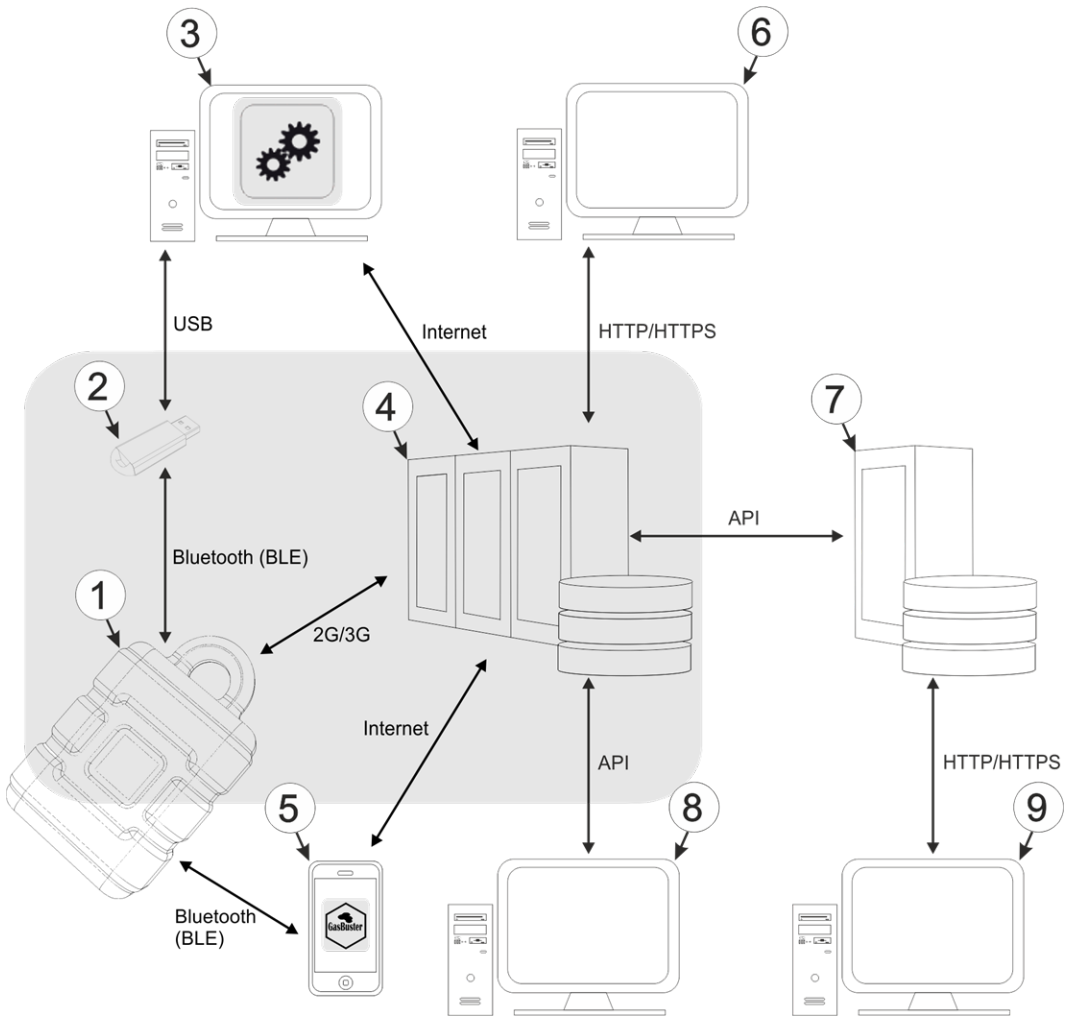
In addition, the operator must comply with the local legal requirements for

- the safety of the personnel (accident prevention measures)
- the safety of the equipment (protective equipment and maintenance)
- the product disposal (waste disposal law)
- the material disposal (waste disposal law)
- the cleaning (cleaning agents and disposal)
- and the environmental protection amendments.

Before commissioning, the operator must ensure that the installation and commissioning – provided these were performed by the operator himself – are in compliance with the local regulations.

Chapter 5 Functional principle

In the graphic below, all of the components that are part of the myDatanet are illustrated in grey. All of the other components must be provided/created by the customer.



Functional principle

1	myDatasensH2S1000 BLE & 3G with integrated managed service SIM chip
2	USB BLE-Adapter (Bluetooth Low Energy to USB converter)
3	PC with the DeviceConfig configuration program installed
4	myDatanet server to which the data is transferred
5	Smartphone with "GasBuster" smartphone app installed
6	Client that accesses the interface of the myDatanet server via the web browser
7	Customer-specific server that provides clients with their own interface. The customer-specific server obtains the data via the API interface of the myDatanet server (see "API" on page 121).
8	Client, on which a PC program is running, that obtains its data via the API interface of the myDatanet server (see "API" on page 121)
9	Client that accesses the interface of the customer-specific server via the web browser

As illustrated in the previous figures (see "Functional principle" on page 23), there are 3 options for transferring the data from myDatasensH2S1000 BLE & 3G to the myDatanet server:

- Directly via 2G/3G mobile connection
- Indirectly, by initially reading the data from the device via the DeviceConfig configuration program using the Bluetooth connection (BLE) and then using the PC's Internet connection to transfer the data to the server
- Indirectly, by reading the data from the device via the "GasBuster" smartphone app using the Bluetooth connection (BLE) and using the smartphone's Internet connection to transfer the data to the myDatanet server

Functions and components provided by myDatanet :

- myDatasensH2S1000 BLE & 3G

  The device is a portable measurement instrument for recording H2S concentrations. The saved data can either be sent to a central server via the mobile network (2G/3G) for further processing or transferred to a PC via a Bluetooth connection (Bluetooth Low Energy).

- USB BLE-Adapter (included in the scope of delivery of the myDatasensH2S1000 BLE & 3G)

  This hardware module is connected directly to the USB interface of the PC. The required drivers are included in the installation package of the DeviceConfig configuration program. Detailed information on this is provided in chapter "Installing the drivers for the USB radio transmitter " on page 73.

- DeviceConfig configuration program (optional)

  The DeviceConfig configuration program is required to read out the data from the myDatasensH2S1000 BLE & 3G via the Bluetooth connection (Bluetooth Low Energy). In addition to local processing, the configuration program also provides the option of transferring the data to a central myDatanet server. An Internet connection is required for this purpose. The DeviceConfig configuration program uses port 51241 to transfer data.

- "GasBuster" smartphone app(optional)

  When combined with a Bluetooth Low Energy compatible smartphone, the "GasBuster" smartphone app provides the option of reading the data from the myDatasensH2S1000 BLE & 3G via the Bluetooth connection (Bluetooth Low Energy) and transferring it to the central myDatanet server in addition to displaying the current measurement values.

- Managed Service

  Managed Service is the basis for operating your devices and provides you with a wide range of services. Managed Service includes updates for device firmware, mobile data transmission on a global scale and free support - providing you with one contact person for the entire solution.

- myDatanet server

  Database for saving the measurement data and configurations. Data is either accessed via the API of the server (see "API" on page 121) or web interface of the server.

Functions and components provided by the customer:

- Customer-specific server with web interface for the clients (optional)

  It is therefore possible to create an individual web interface for the clients. Using this method, the data is read out of the myDatanet server via the API interface (see "API" on page 121) by the customer-specific server.

5.1 Determining the H2S concentration

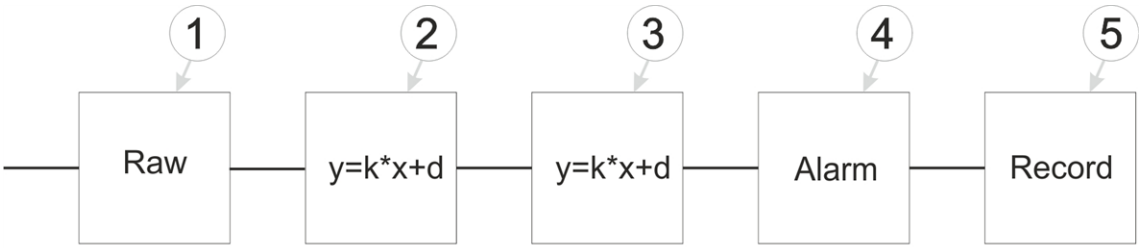


Diagram of how the "Gas" measurement value is generated (see "Measurement channels " on page 60)

1	Determining the raw value (see "Determining the raw value" on page 25)	4	Monitoring of the alarm limits (see "Alarm module" on page 27)
2	Conversion of the raw value to the calibrated H2S measurement value (see "Calculation of the calibrated H2S measurement value" on page 26)	5	Recording of the measurement values (see "Record module" on page 28)
3	Conversion of the calibrated H2S measurement value to the trimmed H2S measurement value (see "Calculation of the trimmed H2S measurement value" on page 26)		

5.1.1 Determining the raw value

The following table specifies the relevant parameter for the module:

Configuration section	Parameter	Explanation
Basic setting	Record interval	Time between measurement data recordings

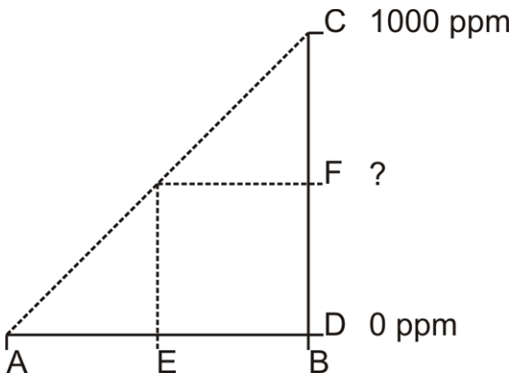
> ***Note:*** *The record interval cannot be adjusted if you want to operate the device without a server, i.e. only process the measurement data locally on the PC using the DeviceConfig configuration program. In this case, the standard record interval of 1min. is used.*

5.1.2 Calculation of the calibrated H2S measurement value

The raw value determined during the previous step is converted into the H2S measurement value by means of the slope and offset determined during the calibration (see "Calibration process" on page 128).

Min. raw value	A
Max. raw value	B
End of the measuring range	C
Start of the measuring range	D
Raw value	E
Corresponding H2S measurement value for the raw value	F

Slope determined during the calibration (see "Calibration process" on page 128)	k_{Calib}
Offset determined during the calibration (see "Calibration process" on page 128)	d_{Calib}



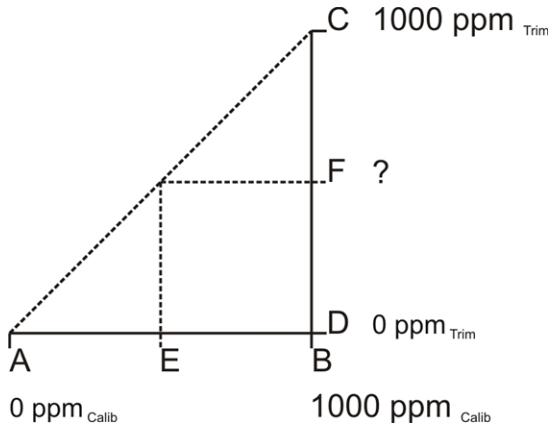
$$F = k_{Calib} * E + d_{Calib}$$

5.1.3 Calculation of the trimmed H2S measurement value

The calibrated H2S measurement value determined during the previous step can also be slightly adjusted (trimmed) during this step. For this purpose, the determined slope and offset are used for the trimming process (see "Trimming" on page 134). This step can be deactivated via DeviceConfig . The zero-point alignment does not change the slope (see "Zero point adjustment" on page 138), although the offset is set. In any case, this slope and offset are independent of those determined during the calibration. The basic calibration of the device is not changed by the trimming process or zero-point alignment.

Min. calibrated H2S measurement value	A
Max. calibrated H2S measurement value	B
Min. trimmed H2S measurement value	C
Max. trimmed H2S measurement value	D
Calibrated H2S measurement value	E
Calibrated H2S measurement value assigned to the trimmed H2S measurement value	F

Slope determined during trimming process (see "Trimming" on page 134)	k_{Trim}
Offset determined during trimming process (see "Trimming" on page 134)	d_{Trim}



$$F = k_{Trim} * E + d_{Trim}$$

5.1.4 Alarm module

This module monitors the alarm limits and creates an entry in the alarm list if necessary. An immediate transmission is triggered in the event of a warning or alarm.

The following table specifies the relevant parameters for the module:

Configuration section	Parameter		Explanation
Measurement channels - ›Alarms	Warning	Value low	A warning is triggered, if the measurement value drops to or below this value.
		Value high	A warning is triggered, if the measurement value meets or exceeds this value.
	Alarm	Value low	An alarm is triggered, if the measurement value drops to or below this value.
		Value high	An alarm is triggered, if the measurement value meets or exceeds this value.
	Hyst %		Hysteresis for all-clear in event of alarm/warning (e.g. hyst = 5%, alarm or warning at 100 -› all-clear at 95)

Note: *The alarm limits cannot be configured and the alarm module is therefore not active, if you want to operate the device without a server, i.e. only process the measurement data locally on the PC using the DeviceConfig configuration program.*

5.1.5 Record module

The record module records the measurement values.

The following table specifies the relevant parameter for the module:

Configuration section	Parameter	Explanation
Basic setting	Record interval	Time between measurement data recordings

Note: *The record interval cannot be adjusted if you want to operate the device without a server, i.e. only process the measurement data locally on the PC using the DeviceConfig configuration program. In this case, the standard record interval of 1min. is used.*

5.2 Functionality of the internal data memory

Structure	Circular buffer
Total size	82.776 measurement cycles
Number of sectors	8
Sector size	10.347 measurement cycles

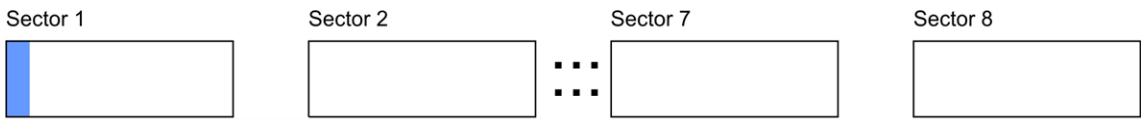
The internal data memory of the myDatasensH2S1000 BLE & 3G is designed as a circular buffer with 8 sectors. If the maximum number of data records (82.776) is achieved, the sector with the oldest data is deleted fully before new data can be saved in this sector again. This means that the internal data memory at the very least contains the measurement values of the last 72.429 cycles, however at most the measurement values of the last 82.776 cycles.

For this reason, it is recommended to coordinate the transmission cycle and record interval in such a way that a maximum of 72.429 measurement cycles have to be recorded between two transmissions. Please note, that if the measurement cycle is shorter than the record interval, the record interval still has to be used for the calculation. In this case, the reason for this is that although the measurement is completed in the measurement cycle, the determined data is saved in the data memory in the record interval. If it can be expected that individual transmissions fail due to poor network coverage, this must also be taken into consideration when calculating the measurement cycles that are to be saved.

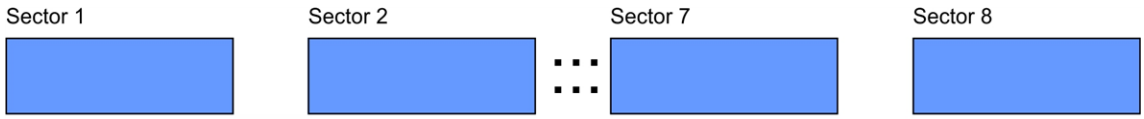
Note:

Additional explanation regarding the functionality of the circular buffer

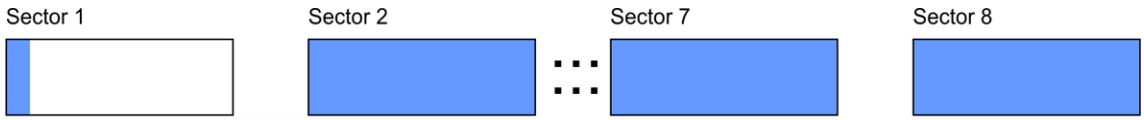
Data memory after the first measurement cycle:



Data memory after 82.776 measurement cycles:



Data memory after 82.776 +1 measurement cycles:



5.3 Procedure in case of connection aborts

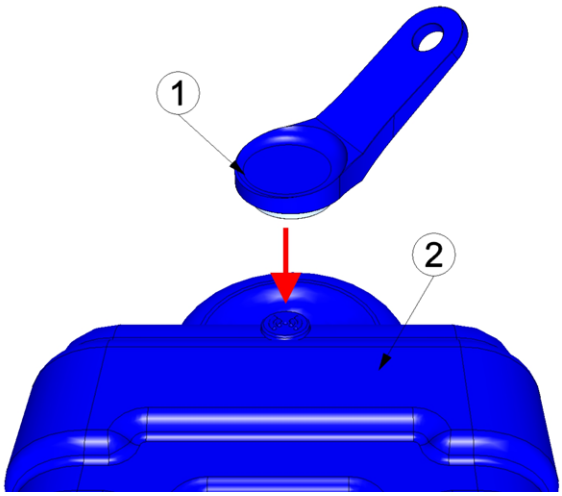
If the connection is aborted, another attempt to establish a connection is made after 2min . The connection is attempted up to 2 times.

5.4 Setup mode

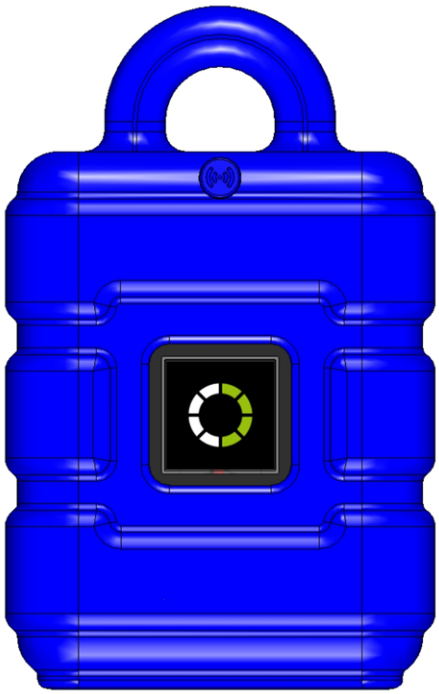
Setup mode is an operating mode specifically developed for testing the GSM signal quality in the final installation position of the myDatasensH2S1000 BLE & 3G . Setup mode is activated by pressing the solenoid switch for at least three seconds. (see "Solenoid switch" on page 56). A connection to the myDatanet server is thus initially established to inform it about setup mode being activated. A speech bubble with the title "Setup" is then displayed for the relevant site in the list of sites (see ""Site" area at customer level" on page 116). The myDatasensH2S1000 BLE & 3G then

terminates the connection to the server again and starts to measure the GSM level for a period of up to 3min. . The remaining time until the measurement is terminated is shown on the display of the device and in the "Setup data" configuration section (see "Setup data" on page 60). Once the time has elapsed, the myDatasensH2S1000 BLE & 3G establishes another connection with the myDatanet server to transfer the determined values. These are then displayed in the "Setup data" configuration section. The background colour of the speech bubble with the "Setup" inscription changes from white to red if a new connection cannot be established within the timeout of 5min. , as, for example, the GSM signal quality deteriorates too much when the cover of the sewer, in which the device is located, is closed. In this case, the note "Setup mode failed (enhance antenna position)" is shown above the GSM level display in the "Setup data" configuration section.

1. Place the device and the antenna in the final installation position (with the shaft lid open).
2. Activate setup mode by pressing the solenoid switch for at least three seconds. (see "Solenoid switch" on page 56). The time for which the solenoid switch was pressed is visualised by a circle on the display in which the segments change from white to green. Setup mode is activated once all of the segments have switched from white to green.



Activating setup mode



Visualisation of the time for which the solenoid switch was pressed

1 MDN Magnet (206.803)	2 myDatasensH2S1000 BLE & 3G

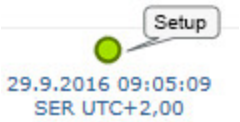
The first of the two connections to the myDatanet server are completed as part of setup mode. The connection establishment and then the data synchronisation are indicated on the display of the device by means of the relevant graphics.

> ***Note:*** *To check the current operating state, you may need to activate the display again by briefly pressing (approx. 1 sec.) the solenoid switch (see "Solenoid switch" on page 56).*

Connection establishment

Data synchronisation

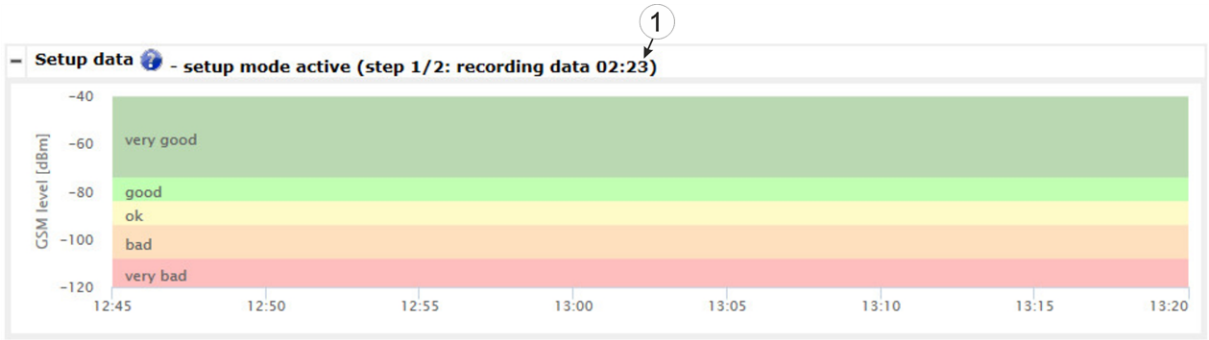
3. Wait until it is indicated in the list of measurement instruments that the device is in setup mode. This is indicated by a speech bubble with the "Setup" inscription.



The myDatasensH2S1000 BLE & 3G terminates the connection to the server and starts to measure the GSM level for a period of up to 3min. . The speech bubble with the "Setup" inscription continues to be displayed during this process. The remaining time until the second connection to the server completed as part of setup mode is shown on the display of the device and in the "Setup data" configuration section.

> ***Note:*** *You must first open the site settings to access the "Setup data" configuration section (see "Site configuration" on page 59).*

Current GSM level and remaining duration of the GSM level measurement

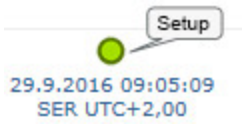


"Setup data" configuration section: Setup mode phase 1 (GSM level measurement)

1	Remaining duration of the GSM level measurement

4. Close the shaft lid.

5. Either wait until the speech bubble is hidden again (setup mode completed successfully) or until the background colour of the speech bubble changes from white to red (problem detected). In both cases, this can take up to 8min. . If a problem is detected, it is advisable to improve the position of the antenna (see "Optimum antenna positioning for assembly in a shaft" on page 41) and to start setup mode again.



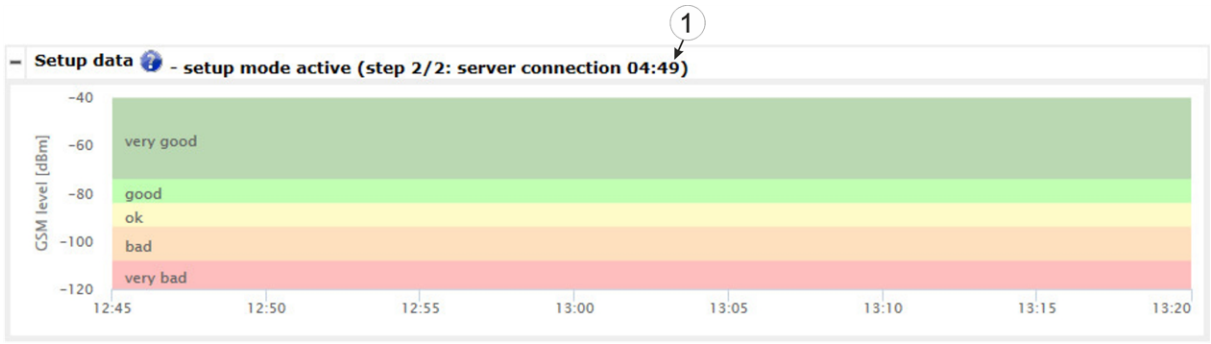
Setup mode active

Setup mode completed successfully

Problem detected

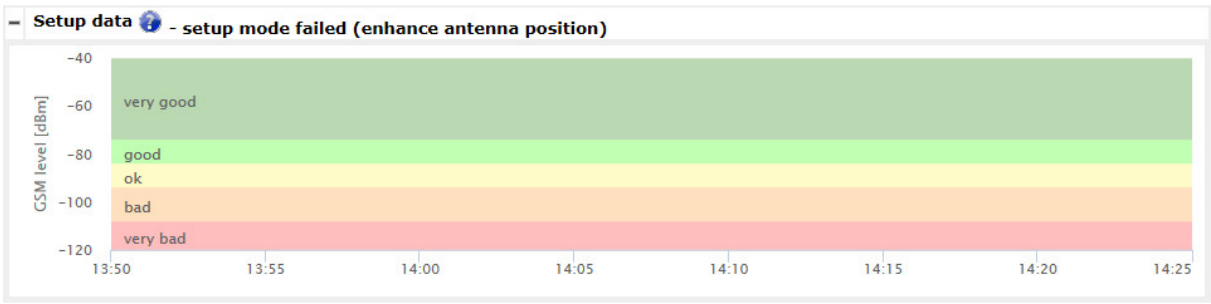
Once the GSM level measurement has been completed, another connection is established to transmit the measurement results to the myDatanet server. The background colour of the speech bubble with the "Setup" inscription changes from white to red and the note "Setup mode failed (enhance antenna position)" is shown in the "Setup data" configuration section if a new connection cannot be established within the timeout of 5min. . In this case, setup mode should be activated again once the position of the antenna has been improved.

> ***Note:*** *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 41.*



"Setup data" configuration section: Setup mode phase 2 (wait for new connection to be established)

1	Remaining time during which a new connection must be established

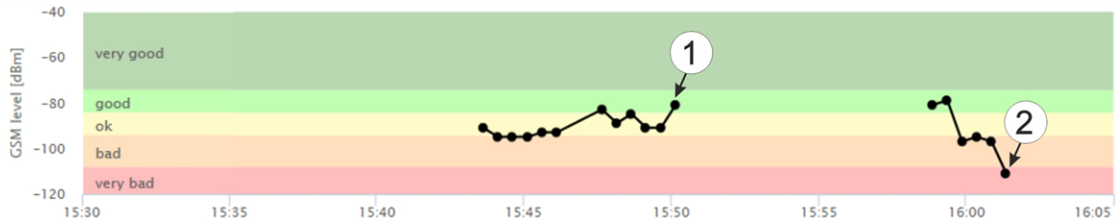


"Setup data" configuration section: Problem detected

6. Open the site settings (see "Site configuration" on page 59) and click on "Setup data" to display the GSM level determined during setup mode.

7. Evaluate the result of setup mode. If setup mode was completed successfully, the determined values for the GSM level are illustrated by the black dots that are connected by a line. If the measurement values are not in the green (very good or good) or yellow (OK) area, we recommend improving the position of the antenna and activating setup mode again. If a problem is detected, the note "Setup mode failed (enhance antenna position)" is shown above the GSM level display.

   Note: *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 41.*



Display of the GSM level determined during setup mode

1 Position of antenna is OK	**2** Position of antenna should be improved

5.5 Automatic selection of the GSM network

The GSM network to which the device should register must be selected, as the myDatasensH2S1000 BLE & 3G is equipped with a SIM chip that provides a mobile connection via a variety of international service providers (see www.microtronics.at/footprint). This is completed automatically by the device.

Chapter 6 Storage, delivery and transport

6.1 Inspection of incoming deliveries

Check the shipment immediately upon receipt to ensure it is complete and intact. Immediately report any discovered transport damages to the delivering carrier. Also notify Microtronics Engineering GmbHin writing about this without delay. Report any incompleteness of the delivery to the responsible representative or directly to the company headquarters of the manufacturer within two weeks (see "Contact information" on page 157).

> ***Note:*** *Any claims received thereafter will not be accepted.*

6.2 Scope of delivery

The standard scope of delivery of the myDatasensH2S1000 BLE & 3G (300656) includes:

- myDatasensH2S1000 BLE & 3G with pre-installed "myDatasens" application script
- H2S 7H Sensor module (300644)
- Flat antenna Smart Disc Multi Band FME-F 2m (300629)
- BLE Gateway MDN Protection casing (300662)
- USB BLE-Adapter (300676)
- MDN Magnet (206.803)
- Quick Guide

Check additional accessories depending on the order and against the delivery slip.

6.3 Storage

The following storage conditions must be adhered to:

myDatasensH2S1000 BLE & 3G	Storage temperature	-20...+70°C
	Humidity	15...90%rH
H2S 7H Sensor module	Storage temperature	-20...+50°C
	Humidity	15...90%rH

> ***Note:*** *The batteries remain in the myDatasensH2S1000 BLE & 3G during storage.*
>
> ***Important note:*** *The storage conditions listed in the table only apply when the myDatasensH2S1000 BLE & 3G and H2S 7H Sensor module are stored separately.*

Store the device so that it is protected against corrosive or organic solvent vapours, radioactive emissions as well as strong electromagnetic radiation.

6.4 Transport

Protect the myDatasensH2S1000 BLE & 3G against heavy shocks, bumps, impacts or vibrations. The original packaging must always be used for transport.

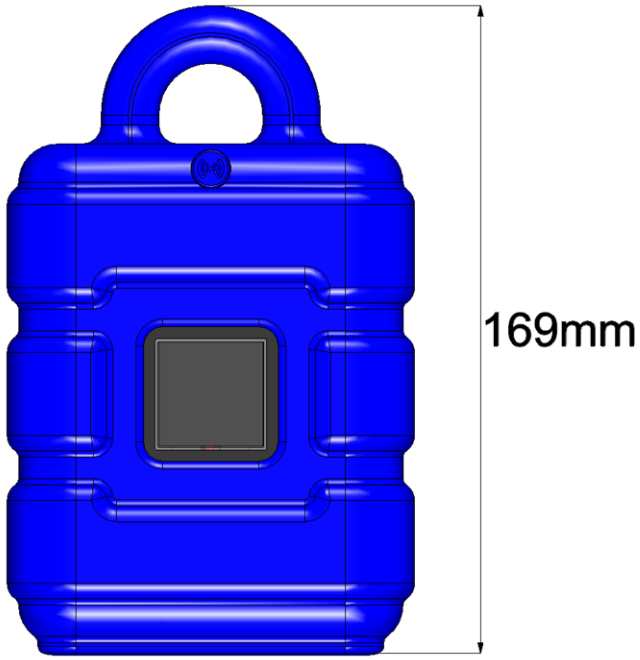
6.5 Return

Every return must be accompanied by a fully field-out return form. This return form is available in the service area of the myDatanet-Server. An RMA number is mandatory for any returns and can be obtained from the Support & Service Centre (see "Contact information" on page 157). The return shipment of the myDatasensH2S1000 BLE & 3G must occur in the original packaging and with freight and insurance paid to Microtronics Engineering GmbH (see "Contact information" on page 157). Insufficiently cleared return shipments will otherwise not be accepted!

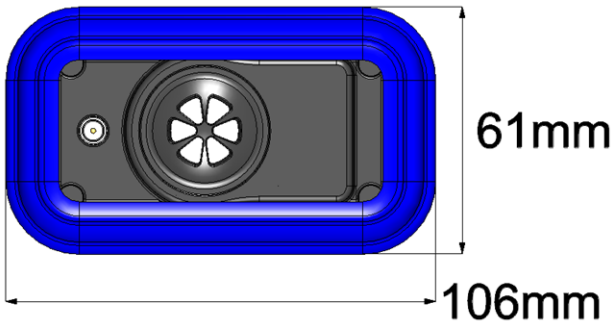
Chapter 7 Installation

Important note: *To prevent any damage to the device, the work described in this section of the instructions must only be performed by qualified personnel.*

7.1 Dimensions



Dimensions: Height
(view with protective armour)



Dimensions: Width and depth
(view with protective armour)

7.2 Installing the myDatasensH2S1000 BLE & 3G

Important note:

- *Ensure installation is completed correctly.*
- *Comply with existing legal and/or operational directives.*
- *Improper handling can cause injuries and/or damage to the devices.*
- *The myDatasensH2S1000 BLE & 3G must not be operated in the field without a protective armour.*

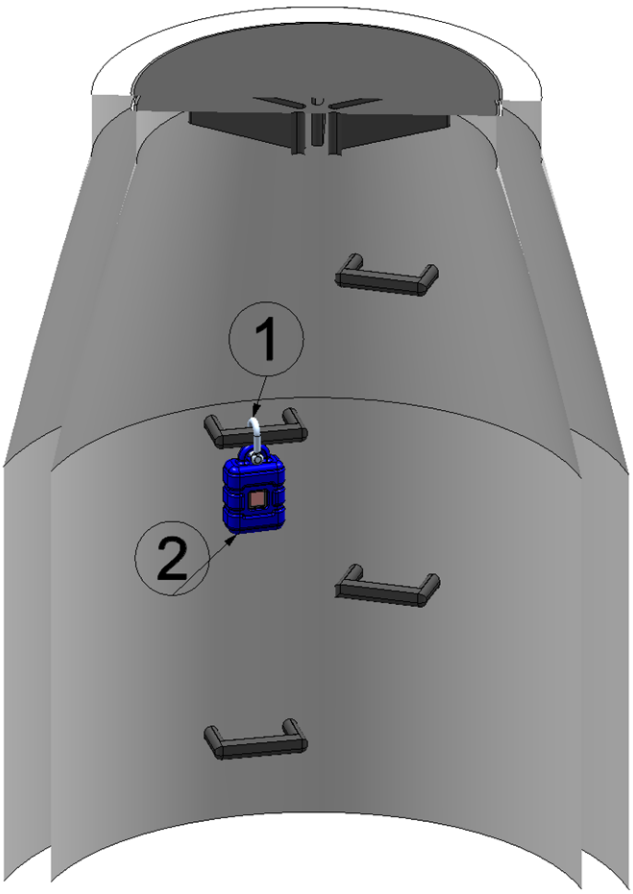
The installation site must be selected according to specific criteria. The following conditions must be avoided in any case:

- Direct sunlight
- Direct influence of weather (rain, snow, ...)
- Objects that radiate intense heat (maximum ambient temperature: -20...+50°C)
- Objects with a strong electromagnetic field (frequency converter or similar)
- Corrosive chemicals or gases (with the exception of H2S that is to be measured)
- Mechanical impacts
- Direct installation on paths or roads
- Vibrations
- Radioactive emissions

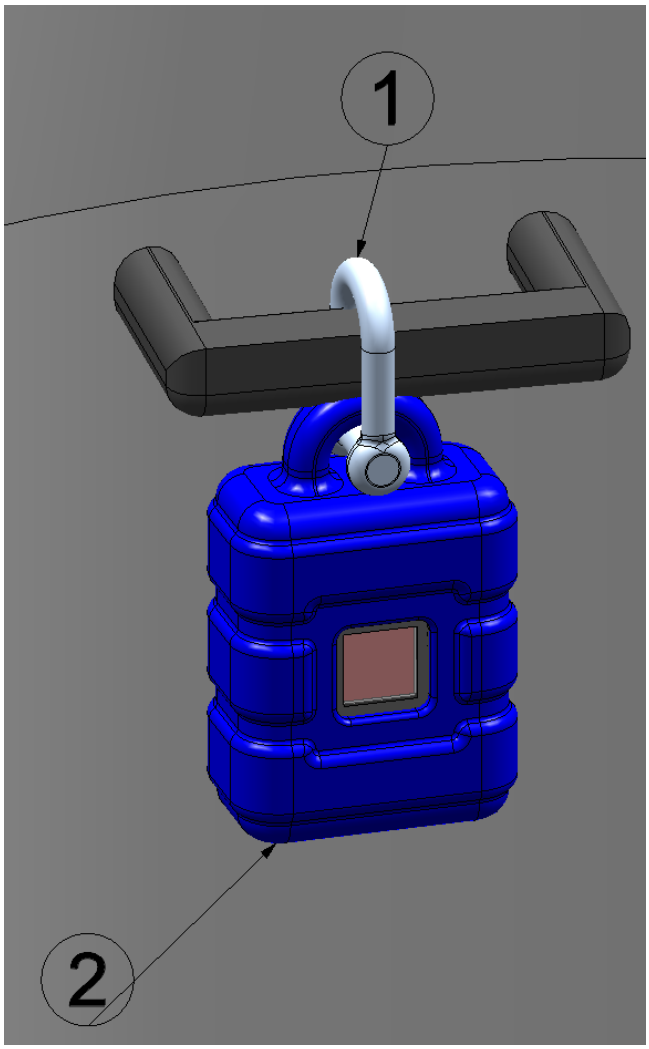
> ***Note:*** *Leave sufficient space at the lower end to mount the antenna. The space required depends on the antenna used. Generally, a space of approx. 15 cm must be left beneath the device. Further information regarding the installation dimensions can be found in the relevant sub-chapter.*

7.2.1 Suspended installation

The optional "Niro shackle (206.325)" equipment is required for suspended installations.



Suspended installation



Detailed view of a suspended installation

1 Niro shackle (206.325)	2 myDatasensH2S1000 BLE & 3G

1. Use the Niro shackle (206.325), to attach the myDatasensH2S1000 BLE & 3G to a rung of the channel ladder or a similar fastening point in accordance with the figure "Detailed view of a suspended installation " on page 39.

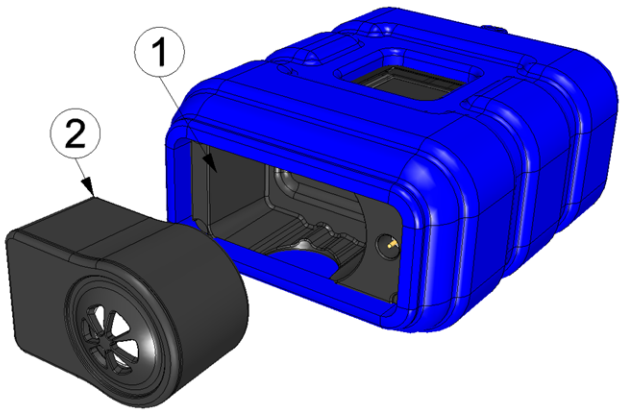
7.3 Electrical installation

Important note: *Only qualified personnel should undertake the installation described in this chapter of the operating instructions to avoid any damage to the device.*

7.3.1 Inserting the sensor module

> ***Note:*** *Transport mode is terminated when inserting the sensor module, i.e. the measurement and cyclical data transmission are activated. It is therefore recommended that the sensor module is only permanently inserted as part of the commissioning process (see "Placing the system into operation" on page 45). However, briefly inserting the sensor module in the office, to check its functionality, is still advisable. Storage with the sensor module inserted is not recommended due to the significantly increased power consumption when transport mode is deactivated.*

The sensor module is inserted in the sensor recess of the myDatasensH2S1000 BLE & 3G , as illustrated in the following figure. It is designed in such a way that it cannot be inserted incorrectly.



Inserting the sensor module

1 Sensor module	**2** Sensor holding fixture of the myDatasensH2S1000 BLE & 3G

Transport mode is deactivated, the display is activated and the following actions are executed when the sensor module is inserted:

> ***Note:*** *To check the current operating state, you may need to activate the display again by briefly pressing (approx. 1 sec.) the solenoid switch (see "Solenoid switch" on page 56).*

1. The BLE connection between the sensor module and the myDatasensH2S1000 BLE & 3G is established.

2. A connection to the myDatasensH2S1000 BLE & 3G server is established if the BLE pairing between the sensor module and myDatanetwas successful.

3. The data is synchronised with the myDatanet server.

7.3.2 Connecting the GSM antenna

> ***Important note:*** *To ensure the correct functionality, only use antennas that are supplied by the manufacturer.*

The standard antenna is directly connected to the antenna connector (see "Overview" on page 16) of the myDatasensH2S1000 BLE & 3G .

1. Connect the connection cable of the antenna directly to the antenna connector of the myDatasensH2S1000 BLE & 3G (see "Overview" on page 16).

The following step is not mandatory.

2. Check whether the connection to the myDatanet has worked correctly (see "Testing communication with the device" on page 50).

7.3.2.1 Optimum antenna positioning for assembly in a shaft

7.3.2.1.1 Typical influences on the signal quality

Signal losses compared to the reference measurement

Steel cover	up to -30dBm
Concrete cover	approx. -10dBm
Environmental influences	up to -15dBm
Installation height of the antenna	approx. -5dBm/depth of 15 cm
Vertical/horizontal alignment	approx. -10dBm
Horizontal alignment	up to -15dBm
Centre/edge of the shaft	approx. -10dBm
Other influences	Transmission power of the network operator

Note: *Practical example:*

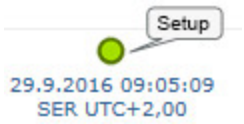
	GSM level	*Position*
	-67dBm	*Reference measurement outside the shaft*
	-103 dBm	*Measurement at a depth of 1.20 m*
	-95dBm	*Vertically on the edge of the shaft at a depth of approx. 15 cm*
	-83dBm	*Centre of the shaft, horizontal on the steel fitting*
	-89dBm	*Antenna turned by 90°*
	-78dBm	*Centre of the shaft, vertical*
	-75dBm	*Plastic pipe used instead of steel fitting*

7.3.2.1.2 Possibilities for improving the signal quality

- Drill a duct for the connection cable of the antenna into the concrete ring on the shaft to avoid the steel cover
- Insert the connection cable of the antenna in an existing ventilation or supply pipe
- Use special types of antennas

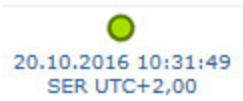
7.3.2.1.3 Procedure for determining the optimum position of the antenna

1. Install the myDatasensH2S1000 BLE & 3G as described in chapter "Installing the myDatasensH2S1000 BLE & 3G " on page 37. During this process, also observe the notes regarding the influences on the signal quality (see "Typical influences on the signal quality" on page 41).
2. Activate setup mode (see "Setup mode" on page 29).
3. Wait until it is indicated in the list of measurement instruments that the device is in setup mode. This is indicated by a speech bubble with the "Setup" inscription.



Setup mode active

4. Either wait until the speech bubble is hidden again (setup mode completed successfully) or until the background colour of the speech bubble changes from white to red (problem detected). In both cases, this can take up to 8min. .



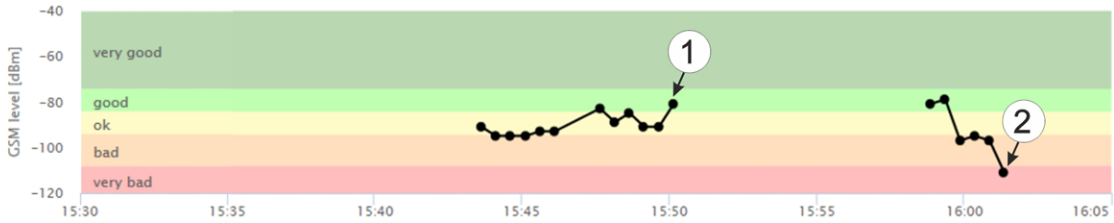
Setup mode completed successfully

Problem detected

5. Open the site settings (see "Site configuration" on page 59) and click on "Setup data" to display the GSM level determined during setup mode.

6. Evaluate the result of setup mode. If setup mode was completed successfully, the determined values for the GSM level are illustrated by the black dots that are connected by a line. If the measurement values are not in the green (very good or good) or yellow (OK) area, we recommend improving the position of the antenna and activating setup mode again. If a problem is detected, the note "Setup mode failed (enhance antenna position)" is shown above the GSM level display.

   Note: *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 41.*



Display of the GSM level determined during setup mode

1 Position of antenna is OK	2 Position of antenna should be improved

7.3.3 Technical details about the Bluetooth Low Energy interface

The connection to a PC or a Bluetooth Low Energy (4.1) compatible Smartphone is established via the Bluetooth Low Energy interface. It is only designated for the communication with the DeviceConfig configuration program or the "GasBuster" smartphone app. A detailed description of the DeviceConfig configuration program is provided in chapter "DeviceConfig " on page 69. It can be downloaded free of charge from the following website:

www.microtronics.at/deviceconfig

Chapter "GasBuster" on page 107 provides a detailed explanation of the "GasBuster" smartphone app. It is available for Android and iOS devices and can be downloaded free of charge from "Google Play" (Android) or the Apple "App Store" (iOS).

Chapter 8 Initial Start-Up

8.1 User information

Before you connect the myDatasensH2S1000 BLE & 3G and place it into operation, you must observe and comply with the following user information!

This manual contains all information that is required for using the device.

Is intended for technically qualified personnel who have the relevant knowledge and experience in the area of measurement technology.

Read this manual carefully and completely in order to ensure the proper functioning of the myDatasensH2S1000 BLE & 3G .

Please contact our technical department if anything is unclear or if you encounter difficulties with regard to installation, connection or configuration (see "Contact information" on page 157).

If necessary, please also refer to the manuals of the accessory parts when commissioning the complete system. These manuals are included in the scope of delivery of the accessory parts.

8.2 General principles

The entire measurement system may only be placed into operation after completion and inspection of the installation. Study the manual thoroughly before placing into operation to prevent faulty or incorrect configuration.

Utilise the manual to familiarise yourself with the operation of the myDatasensH2S1000 BLE & 3G and the input screens of the myDatanet-Server before you begin with the configuration.

8.3 Placing the system into operation

8.3.1 Using the mobile connection (2G/3G) and the myDatanet server

> ***Note:*** *It is recommended that the myDatasensH2S1000 BLE & 3G is first placed into operation in the office before moving the device to the place of use. During this process, you should set a site for the later operation on the myDatanet server (see "myDatanet Server Manual " 805002) and determine a site setting (see "Site configuration" on page 59). Take the opportunity to get to know the functions of the device in a stable environment.*

The following work should be completed in the office before you go to the future location of the device:

1. If necessary, create a customer on the myDatanet server (see "myDatanet Server Manual " 805002).
2. Within the selected customer, use the "myDatasens" application template to create a new site/application for operation on the myDatanet server (see "Creating the site" on page 117).
3. Configure the created site/application according to your requirements (see "Site configuration" on page 59).
4. Connect the antenna (see "Connecting the GSM antenna" on page 41).
5. To establish a connection, activate setup mode (see "Setup mode" on page 29) using the solenoid switch.
6. Move the myDatasensH2S1000 BLE & 3G from the pool to the desired customer (see "Assigning a device to the customer" on page 119).
7. Link the myDatasensH2S1000 BLE & 3G with the created site/application (see "Site" on page 59 or "Creating the site" on page 117).
8. Initiate another connection establishment by activating setup mode again (see "Setup mode" on page 29) so that the site configuration is transferred to the myDatasensH2S1000 BLE & 3G .

   Note: *You can also skip this step, as a connection should be established during the installation on site, which transfers the configuration to the myDatasensH2S1000 BLE & 3G at the same time.*

9. Remove the antenna again.

The following work is completed directly at the location of the device:

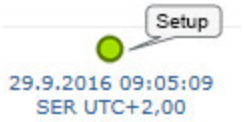
10. Insert the sensor module in the sensor recess of the myDatasensH2S1000 BLE & 3G (see "Inserting the sensor module" on page 40).
11. If you intend to install the myDatasensH2S1000 BLE & 3G in a shaft, you must check that the device can also establish a GPRS connection in the final installation position when the shaft lid is closed before you leave the place of use.

    Proceed as follows during this process:

    1. Place the device and the antenna in the final installation position (with the shaft lid open).
    2. Activate setup mode using the solenoid switch (see "Setup mode" on page 29).
    3. Wait until the symbol for the connection establishment is displayed on the device.

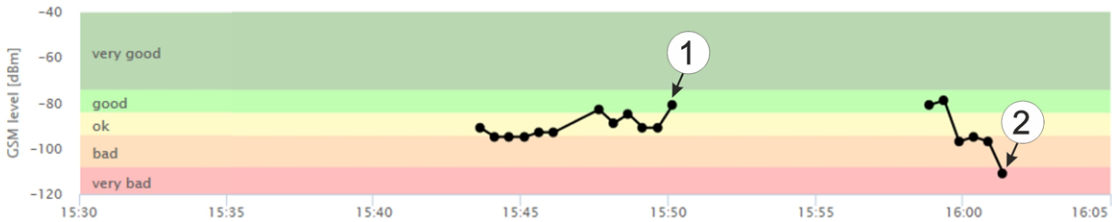
    4. Close the shaft lid.

5. Wait until it is indicated in the list of measurement instruments that the device is in setup mode. This is indicated by a speech bubble with the "Setup" inscription. The speech bubble is hidden again if setup mode was completed successfully. The background colour of the speech bubble changes from white to red if a problem is detected. In both cases, this can take up to 8min. .



6. Open the site settings (see "Site configuration" on page 59) and click on "Setup data" to display the GSM level determined during setup mode.
7. Evaluate the result of setup mode. If setup mode was completed successfully, the determined values for the GSM level are illustrated by the black dots that are connected by a line. If the measurement values are not in the green (very good or good) or yellow (OK) area, we recommend improving the position of the antenna and activating setup mode again. If a problem is detected, the note "Setup mode failed (enhance antenna position)" is shown above the GSM level display.

   Note: *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 41.*



Display of the GSM level determined during setup mode

1 Position of antenna is OK	**2** Position of antenna should be improved

8.3.2 Using the Bluetooth connection (BLE) and the myDatanet server

Important note: *Check the time and date settings (incl. time zone setting) on your PC, as these are used to synchronise the system time of the myDatasensH2S1000 BLE & 3G .*

You will need the myDatasensH2S1000 BLE & 3G configuration program (minimum version DeviceConfig) to commission the 4.16.51 . It can be downloaded free of charge from the following website:

www.microtronics.at/deviceconfig

Detailed instructions on using the DeviceConfig configuration program are provided in the chapter "DeviceConfig " on page 69 and in "myDatanetDeviceConfig Manual " 805004).

Note: It is recommended that the myDatasensH2S1000 BLE & 3G is first placed into operation in the office before moving the device to the place of use. If you are considering transferring the data to a central myDatanet server in addition to processing data locally on your PC, you should create a site on the myDatanet server (see "myDatanet Server Manual " 805002) and determine the site settings (see "Site configuration" on page 59). Take the opportunity to get to know the functions of the device in a stable environment.

The following work should be completed in the office before you go to the future location of the device:

1. If necessary, create a customer on the myDatanet server (see "myDatanet Server Manual " 805002).
2. Within the selected customer, use the "myDatasens" application template to create a new site/application for operation on the myDatanet server (see "Creating the site" on page 117).
3. Configure the created site/application according to your requirements (see "Site configuration" on page 59).
4. Use the DeviceConfig configuration program to establish a Bluetooth connection (Bluetooth Low Energy) between the myDatasensH2S1000 BLE & 3G and your PC (see "Establishing a connection to a device with Bluetooth Low Energy interface" on page 76).

The following step is only necessary if you do not require the data generated up to the current point in time.

5. Delete the data generated up to the current point in time by pressing the "Delete Measurement Data" button that is located on the "Data" tab of the DeviceConfig configuration program (see ""Data" tab" on page 84).

   Important note: By clicking on the "Delete Measurement Data" button, all of the data in the device memory and the measurement data assigned to the device on the PC are deleted.

6. Activate the synchronisation between the myDatasensH2S1000 BLE & 3G , DeviceConfig and the myDatanet server. To do so, initially select the "Sync with server" checkbox and then click on the button illustrated below. The checkbox and button are both located on the "Sync" tab of the DeviceConfig configuration program (see ""Sync" tab" on page 82). The measurement instrument is created in the pool of the myDatanet server during the first synchronisation process (see "myDatanet Server Manual " 805002).

   Note: The "Sync with server" checkbox is only displayed if your PC is already connected to the Internet.

7. Move the myDatasensH2S1000 BLE & 3G from the pool to the desired customer (see "Assigning a device to the customer" on page 119).

8. Link the myDatasensH2S1000 BLE & 3G with the created site/application (see "Site" on page 59 or "Creating the site" on page 117).
9. Activate the synchronisation again so that the configuration of the site is transferred to the myDatasensH2S1000 BLE & 3G .

The following work is completed directly at the location of the device:

10. Insert the sensor module in the sensor recess of the myDatasensH2S1000 BLE & 3G (see "Inserting the sensor module" on page 40).

8.3.3 Using the Bluetooth connection (BLE) and the DeviceConfig configuration program

> ***Important note:*** *Check the time and date settings (incl. time zone setting) on your PC, as these are used to synchronise the system time of the myDatasensH2S1000 BLE & 3G .*

You will need the DeviceConfig configuration program (minimum version 4.16.51) to commission the myDatasensH2S1000 BLE & 3G . It can be downloaded free of charge from the following website:

www.microtronics.at/deviceconfig

Detailed instructions on using the DeviceConfig configuration program are provided in the chapter "DeviceConfig " on page 69 and in "myDatanetDeviceConfig Manual " 805004).

> ***Note:*** *It is recommended that the myDatasensH2S1000 BLE & 3G is first placed into operation in the office before moving the device to the place of use. Take the opportunity to get to know the functions of the device in a stable environment.*

The following work should be completed in the office before you go to the future location of the device:

1. Use the DeviceConfig configuration program to establish a Bluetooth connection (Bluetooth Low Energy) between the myDatasensH2S1000 BLE & 3G and your PC (see "Establishing a connection to a device with Bluetooth Low Energy interface" on page 76).

The following step is only necessary if you do not require the data generated up to the current point in time.

2. Delete the data generated up to the current point in time by pressing the "Delete Measurement Data" button that is located on the "Data" tab of the DeviceConfig configuration program (see ""Data" tab" on page 84).

> ***Important note:*** *By clicking on the "Delete Measurement Data" button, all of the data in the device memory and the measurement data assigned to the device on the PC are deleted.*

3. Activate the synchronisation between the myDatasensH2S1000 BLE & 3G and the DeviceConfig configuration program. To do so, initially deselect the "Sync with server" checkbox and then click on the button illustrated below. The checkbox and button are both located on the "Sync" tab of the DeviceConfig configuration program (see ""Sync" tab" on page 82).

   Note: *The "Sync with server" checkbox is only displayed if your PC is already connected to the Internet.*

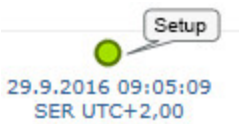
The following work is completed directly at the location of the device:

4. Insert the sensor module in the sensor recess of the myDatasensH2S1000 BLE & 3G (see "Inserting the sensor module" on page 40).

8.4 Testing communication with the device

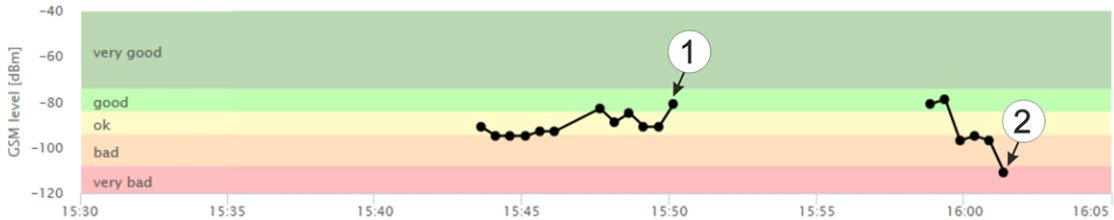
8.4.1 Testing communication between the myDatasensH2S1000 BLE & 3G and the myDatanet server (mobile connection)

1. Within the selected customer, use the "myDatasens" application template to create a new site/application for operation on the myDatanet server (see "Creating the site" on page 117).
2. Configure the created site/application according to your requirements (see "Site configuration" on page 59).
3. Link the myDatasensH2S1000 BLE & 3G with the created site (see "Site" on page 59 or "Creating the site" on page 117).
4. Connect the antenna (see "Connecting the GSM antenna" on page 41).
5. Insert the sensor module in the sensor recess of the myDatasensH2S1000 BLE & 3G (see "Inserting the sensor module" on page 40).
6. To establish a connection, activate setup mode (see "Setup mode" on page 29) using the solenoid switch.
7. Wait until it is indicated in the list of measurement instruments that the device is in setup mode. This is indicated by a speech bubble with the "Setup" inscription.



8. Either wait until the speech bubble is hidden again (setup mode completed successfully) or until the background colour of the speech bubble changes from white to red (problem detected). In both cases, this can take up to 8min. .
9. Open the site settings (see "Site configuration" on page 59) and click on "Setup data" to display the GSM level determined during setup mode.
10. Evaluate the result of setup mode. If setup mode was completed successfully, the determined values for the GSM level are illustrated by the black dots that are connected by a line. If the measurement values are not in the green (very good or good) or yellow (OK) area, we recommend improving the position of the antenna and activating setup mode again. If a problem is detected, the note "Setup mode failed (enhance antenna position)" is shown above the GSM level display.

    Note: *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 41.*



Display of the GSM level determined during setup mode

1 Position of antenna is OK	2 Position of antenna should be improved

11. Close the site settings again.
12. Click on the "Direct Report" symbol in the measurement instrument list to display the data saved on the myDatanet server.

13. Check whether all of the data up to the point of the synchronisation is present and plausible (especially the "Sensor Temp" measurement value).

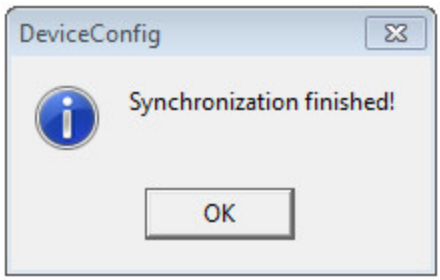
8.4.2 Testing communication between the myDatasensH2S1000 BLE & 3G and the myDatanet server (Bluetooth connection)

1. Within the selected customer, use the "myDatasens" application template to create a new site/application for operation on the myDatanet server (see "Creating the site" on page 117).
2. Configure the created site/application according to your requirements (see "Site configuration" on page 59).
3. Link the myDatasensH2S1000 BLE & 3G with the created site (see "Site" on page 59 or "Creating the site" on page 117).

4. Insert the sensor module in the sensor recess of the myDatasensH2S1000 BLE & 3G (see "Inserting the sensor module" on page 40).
5. Wait approx. five minutes so the device can complete some measurements.
6. Activate the synchronisation between the myDatasensH2S1000 BLE & 3G , DeviceConfig and the myDatanet server. To do so, initially select the "Sync with server" checkbox and then click on the button illustrated below. The checkbox and button are both located on the "Sync" tab of the DeviceConfig configuration program (see ""Sync" tab" on page 82).

   Note: *The "Sync with server" checkbox is only displayed if your PC is already connected to the Internet.*

7. Wait until the DeviceConfig configuration program indicates that the synchronisation process is complete.

   Synchronisation completed

8. Click on the "Direct Report" symbol in the measurement instrument list to display the data saved on the myDatanet server.

9. Check whether all of the data up to the point of the synchronisation is present and plausible (especially the "Sensor Temp" measurement value).

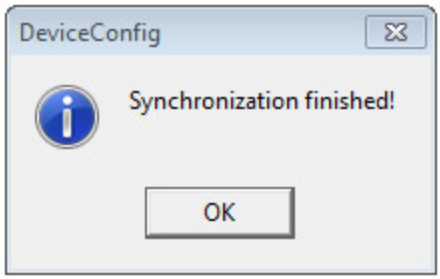
8.4.3 Testing communication between myDatasensH2S1000 BLE & 3G and DeviceConfig

1. Insert the sensor module in the sensor recess of the myDatasensH2S1000 BLE & 3G (see "Inserting the sensor module" on page 40).
2. Wait approx. five minutes so the device can complete some measurements.

3. Activate the synchronisation between the myDatasensH2S1000 BLE & 3G and the DeviceConfig configuration program. To do so, initially deselect the "Sync with server" checkbox and then click on the button illustrated below. The checkbox and button are both located on the "Sync" tab of the DeviceConfig configuration program (see ""Sync" tab" on page 82).

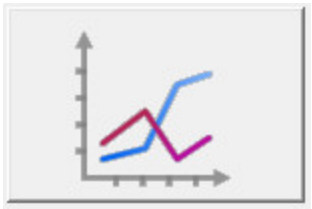
   Note: *The "Sync with server" checkbox is only displayed if your PC is already connected to the Internet.*

4. Wait until the DeviceConfig configuration program indicates that the synchronisation process is complete.



Synchronisation completed

5. Click on the measurement value graphic symbol located in the "Data" tab of the DeviceConfig configuration program to display the data saved locally on your PC.



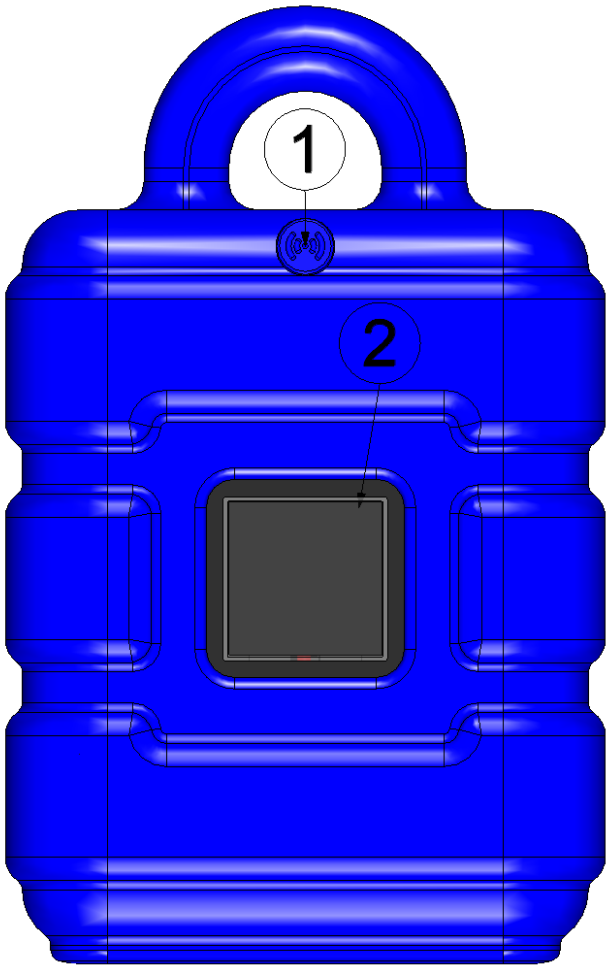
6. Check whether all of the data up to the point of the synchronisation is present and plausible (especially the "Temp." measurement value).

Chapter 9 User interfaces

The configuration of the myDatasensH2S1000 BLE & 3G is carried out via the web interface on the myDatanet server (see "User interface on the myDatanet-Server" on page 59); for which the web address is available from your responsible sales partner. The configuration cannot be adjusted if you want to operate the device without a server, i.e. only process the measurement data locally on the PC using the DeviceConfig configuration program. In this case, the standard record interval of 1min. is used.

9.1 User interface on the myDatasensH2S1000 BLE & 3G

9.1.1 Operating elements



Operating elements

1 Solenoid switch	2 Display

9.1.1.1 Solenoid switch

The MDN Magnet (206.803) included in the scope of delivery is required for operating the solenoid switch. The solenoid switch can be used to activate setup mode or to switch on the display of the myDatasensH2S1000 BLE & 3G for 20sec. .

Operation by the user	Device response	Operation after releasing the solenoid switch
Press briefly (approx. one second)	Display is activated for 20sec.	Current operating state is shown on the display (see "Display" on page 56)
Press and hold for three seconds	Setup mode is activated	---

The display of the myDatasensH2S1000 BLE & 3G is activated as soon as the solenoid switch is pressed. The time for which the solenoid switch was pressed is visualised by a circle in which the segments change from white to green. Setup mode is activated once all of the segments have switched from white to green, i.e. the solenoid switch has been pressed for at least three seconds (see "Setup mode" on page 29).

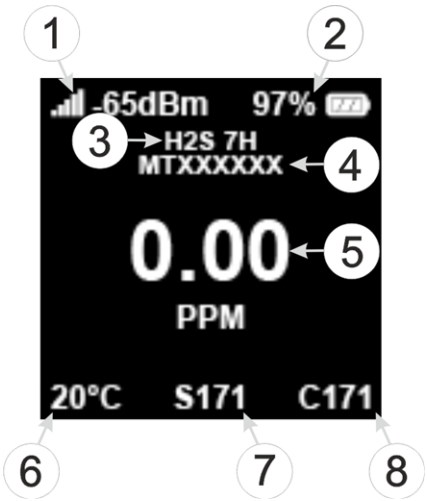
Visualisation of the time for which the solenoid switch was pressed

9.1.1.2 Display

Important note:

- *Do not touch the display with a sharp object, such as the tip of a pen.*
- *Do not stand or place any objects on the display as this could scratch it.*

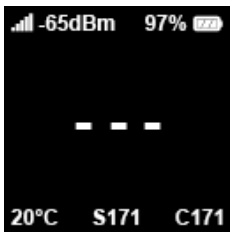
The display of the myDatasensH2S1000 BLE & 3G is only designed to show the current measurement values (H2S concentration and temperature) and various status information. The device cannot be operated via the display. The display is activated by briefly pressing (approx. 1 sec.) the solenoid switch (see "Solenoid switch" on page 56) or by inserting the sensor module. The display then remains active for 20sec. and shows the current operating state.

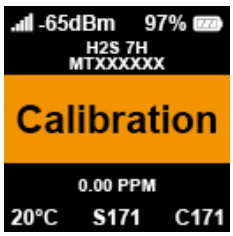


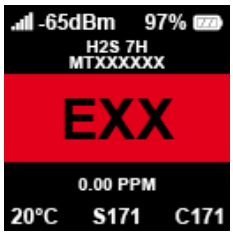
Status indication during normal operation

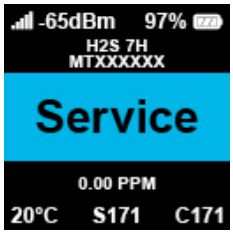
1	GSM level during last connection	5	H2S concentration in ppm
2	Current state of charge in % (SOC)	6	Temperature in °C
3	Type designation of inserted sensor module	7	Remaining days until the batteries for the device need to be replaced
4	Serial number of the inserted sensor module	8	Remaining days until the next calibration of the sensor module

The following operating states are shown on the display in addition to the status indication during normal operation (described in detail above):

Display	Explanation
	Transport mode, no sensor module inserted
	Solenoid switch activated
	Establishing BLE connection between sensor module and myDatasensH2S1000 BLE & 3G
	Establishing connection to the myDatanet server

Display	Explanation
	Data synchronisation with the myDatanet server in progress
	In the event of a connection abort, wait until the next connection is established
	Setup mode, the current GSM level and remaining duration of the GSM level measurement
	Calibration of the sensor module is due

	Error
	• E02 ... last connection failed
	• E03 ... last measurement failed
	  • BLE-Pairing of sensor module and myDatasensH2S1000 BLE & 3G faulty
	  • Sensor module battery is depleted ("PowerOn Flag" set)
	• E13 ... Unambiguous selection of the sensor module for BLE pairing not possible (several sensors in range)
	• E14 ... Charge state of the internal rechargeable buffer battery is too low to establish a 2G/3G connection (automatic recharge can take up to 4 hours)

	Batteries of the myDatasensH2S1000 BLE & 3G need to be replaced

9.2 User interface on the myDatanet-Server

9.2.1 Site configuration

> ***Note:*** *Several of the configuration fields in the following sub chapters may possibly be hidden depending on the respective user level. In this case, please contact the myDatanet-Server administrator.*

Click on the name of the site in the list of sites to get to the input screen for configuring the site (see "myDatanet Server Manual " 805002).

9.2.1.1 Site

Customer
Specifies to which customer the site is assigned.

symbol
Assign site to another customer

Name
Site designation (not relevant for the device or data assignment) [2-50 characters]

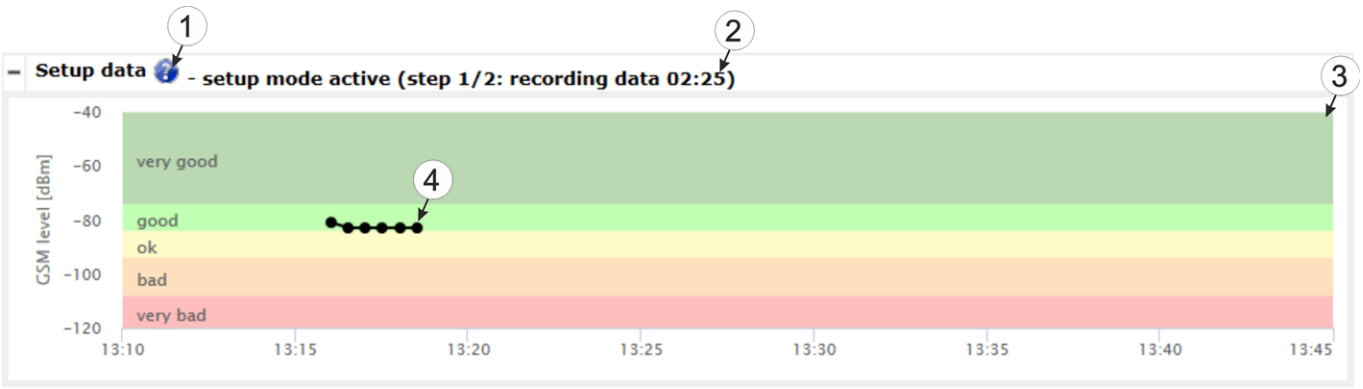
Instrument S/N
Serial number of the device that is linked to the site (device assignment!)

Application template
Name of the application template from which the site was created

Tags
List of tags that are already assigned to the site. This assignment can be cancelled by clicking on the cross next to the title of the tag. The input screen for assigning tags can be opened by clicking on the plus symbol.

Sensor
Type designation and serial number of the sensor module inserted in the myDatasensH2S1000 BLE & 3G .

9.2.1.2 Setup data



"Setup data" configuration section

1	Opens an illustration to explain the progress of setup mode
2	Status information on the currently active or last executed setup mode
3	Visualisation of the GSM level values measured in the last 35 minutes. The graph may therefore contain the results of several executed setup modes.
4	Visualisation of the GSM level values measured during a single setup mode

9.2.1.3 Comments

Comments

Free comment field (is also displayed below the device type in the site list)

9.2.1.4 Measurement channels

9.2.1.4.1 Basis

Gas

Gas	Freely selectable channel title for the measurement value of the H2S concentration
Unit	String that is used as a measurement unit by all of the server display elements [0-16 characters] (read only)

Note: *The H2S sensor used indicates a certain cross sensitivity to other gases (see "Cross sensitivity of the H2S sensor" on page 61).*

9.2.1.4.2 Alarms

Warning	Value low	A warning is triggered, if the measurement value drops to or below this value.
	Value high	A warning is triggered, if the measurement value meets or exceeds this value.
Alarm	Value low	An alarm is triggered, if the measurement value drops to or below this value.
	Value high	An alarm is triggered, if the measurement value meets or exceeds this value.
Hyst %	Hysteresis for all-clear in event of alarm/warning (e.g. hyst = 5%, alarm or warning at 100 -› all-clear at 95)	

9.2.1.4.3 Cross sensitivity of the H2S sensor

Gas	Concentration	Measurement value on the H2S sensor
Carbon monoxide	300ppm	6ppm
Hydrogen	10,000ppm	‹15ppm
Sulphur dioxide	5ppm	‹1ppm
Hydrogen cyanide	10ppm	-1.4ppm to -0.5ppm
Nitric oxide	35ppm	oppm
Hydrochloric acid	5ppm	oppm
Nitrogen dioxide	5ppm	-1ppm
Chlorine	1ppm	-0.05ppm to +0.04ppm
Ethylene	100ppm	oppm

9.2.1.5 Internal channels

9.2.1.5.1 Basis

SOC title	Freely selectable channel title for the state of charge of the internal battery of the myDatasensH2S1000 BLE & 3G	
	Unit	String that is used as a measurement unit by all of the server display elements
Battery title	Freely selectable channel title for the internal battery voltage of the myDatasensH2S1000 BLE & 3G	
	Unit	String that is used as a measurement unit by all of the server display elements
Int. temperature title	Freely selectable channel title for the internal device temperature of the myDatasensH2S1000 BLE & 3G	
	Unit	String that is used as a measurement unit by all of the server display elements
rH title	Freely selectable channel title for the humidity in the housing of the myDatasensH2S1000 BLE & 3G	
	Unit	String that is used as a measurement unit by all of the server display elements
GSM title	Freely selectable channel title for the GSM level	
	Unit	String that is used as a measurement unit by all of the server display elements
Abrasion title	Channel title for the sensor wear	
	Unit	String that is used as a measurement unit by all of the server display elements
PowerOn Flag title	Freely selectable channel title for the sensor status	
Battery sensor title	Freely selectable channel title for the internal battery voltage of the sensor module	
	Unit	String that is used as a measurement unit by all of the server display elements
Sensor temp. title	Freely selectable channel title for the internal device temperature of the sensor module	
	Unit	String that is used as a measurement unit by all of the server display elements

9.2.1.5.2 Alarms

PowerOn Flag	Alarm	An alarm is triggered when the battery of the sensor module is depleted.	
All other channels	Warning	Value low	A warning is triggered, if the measurement value drops to or below this value.
		Value high	A warning is triggered, if the measurement value meets or exceeds this value.
	Alarm	Value low	An alarm is triggered, if the measurement value drops to or below this value.
		Value high	An alarm is triggered, if the measurement value meets or exceeds this value.
	Hyst %	Hysteresis for all-clear in event of alarm/warning (e.g. hyst = 5%, alarm or warning at 100 -› all-clear at 95)	

9.2.1.6 Alarm settings

Acknowledgement	Standard	The global server setting is used to determine whether alarms must be acknowledged automatically or manually.(siehe "myDatanet Server Manual " 805002)
	Automatic	Alarms are acknowledged automatically as soon as all of the messages have been sent. If SMS that have a tariff with a delivery confirmation function have also been sent, acknowledgement is provided after delivery confirmation.
	Manual	Alarms must be acknowledged by the user.
Offline alarm	Alarm in case the device does not respond for longer than the set number of transmission cycles. An additional tolerance of 10 min. is granted per transmission cycle to take any retries when establishing a connection into consideration. Example: Transmission cycle: 60 min; 3x transmission cycles -› Alarm after › 03:30	
Transfer volume	Standard	The setting for the transfer volume alarm is taken from the global server settings.(siehe "myDatanet Server Manual " 805002)
	Off	The transfer volume alarm is deactivated.
	Individual	The level at which the transfer volume alarm should be triggered can be entered in the adjacent field in KB.

9.2.1.7 Basic setting

Transmission cycle	Time between transmissions	
Record interval	Time between measurement data recordings	
Time zone	Regional settings (not relevant for raw measurement data as this is stored in UTC)	
Daylight saving time	Configuration for automatic time adjustment	
	Standard	The configuration for the time adjustment is adopted by the global server setting (siehe "myDatanet Server Manual " 805002).
	Off	Automatic time adjustment deactivated
	USA	Predefined setting for the American area
	EU	Predefined setting for the European area
Position cycle	Position update interval (00:00 positioning is completed with every connection)	
Default report	Selection of the report that is loaded by clicking on the device link in the maps	
	Off	The default graphic is loaded.
	"Name of a report"	The selected report is loaded.
Report template	Selection of whether the default graphic or a report template to display the data is used when clicking on the symbol to display the measurement data located in the site/application list. Only the report templates in which the site/application type of the first wild card is compatible with the site/application that is currently being edited are displayed in the dropdown list.	
	(not assigned)	The default graphic is used to display the measurement data.
	"Name of a report template"	Name of the report template used to display the measurement data

9.2.1.8 FTP export settings

Note: This configuration section is only visible if the "FTP Agent Extended" licence for the myDatanet-Server has been enabled.

FTP export profile	off	FTP export deactivated
	"Name of an FTP export profile"	List with the FTP export profiles that were created on the myDatanet server (for creating an FTP export profile, see "myDatanet Server Manual " 805002).
Settings of the selected profile	shows an overview of the most important parameters of the selected FTP export profile	
FTP directory	makes overwriting the standard directory of the selected FTP export profile possible [0-100 characters]	
Last export	Time stamp of the last FTP export	

9.2.2 Device configuration

Note: Several of the configuration fields in the following sub chapters may possibly be hidden depending on the respective user level. In this case, please contact the myDatanet-Server administrator.

You can reach the input screen for configuring the device by clicking on the serial number in the site list (see "myDatanet Server Manual " 805002) or by clicking on the device name in the device name list (see "myDatanet Server Manual " 805002).

9.2.2.1 Comments

Comments

Free comment field (is also displayed below the site name in the measurement instrument list)

9.2.2.2 Measurement instrument

Customer	Name of the customer to whom the measurement instrument is assigned
Tags	List of the tags that are already assigned to the measurement instrument. This assignment can be cancelled by clicking on the cross next to the title of the tag. The input screen for assigning the tags is opened by clicking on the plus symbol. This enables existing tags to be assigned and new tags to be created.
Serial number	Serial number of the instrument
Instrument class	The instrument class of the site and instrument must match for an instrument to be able to be connected to a site. Once the instrument has been created via the server interface, the instrument class can only be changed up until the first connection of the instrument to the server. If an instrument class, that does not match the actual class of the instrument, is selected when the instrument is created it is automatically corrected during the first connection.

Telephone number	Telephone number of the SIM card. The control SMS messages (e.g. wakeup) are sent to this number. Format: +43555837465	
Instrument flags	Additional information regarding the instrument class (for internal use)	
Firmware version	Current software version installed on the measurement controller	
Modem version	Current software version installed on the modem controller	
OS version	OS version of the modem	
Last connection	In each case, the last time stamp of the affected operation	
Last wakeup		
Last disconnection		
Last transmission error		
Last Aloha connection		
Script sync	Productive	If the application script installed on the device and saved on the server do not match, the application script saved on the server is loaded in to the device.
	Development (sync)	The application script on the device and server are synchronised. The one with the latest time stamp is transferred to the other one.
	Development (no sync)	The application script on the device and server are not synchronised.
Firmware update	Off	Firmware update is deactivated.
	On	As soon as a new version of the selected firmware type is available, this is installed immediately.
	Even if tag is missing	Firmware is also transferred to the device if the device has not transmitted the current firmware version to the server (NOT RECOMMENDED!).
	Allow downgrade	Facilitates the installation of an older firmware version than the one on the device (NOT RECOMMENDED!)
	Once	Performs a single firmware update. If no new firmware is available or the firmware was installed successfully, the firmware update is automatically switched to "OFF".
	Ignore	The firmware update is deactivated and no information is provided about available firmware updates.

Firmware type	Released	Only firmware versions that have successfully undergone internal and field testing are installed (this practically eliminates malfunctions).
	Release candidate	Only firmware versions that have successfully undergone internal testing are installed (malfunctions cannot be excluded).
	Beta release	Even firmware versions that have not successfully undergone all of the internal tests are installed (malfunctions may occur).
Hardware version	Hardware version of the myDatasensH2S1000 BLE & 3G	

9.2.2.3 GPRS

SIM tariff

Selected SIM tariff

Chapter 10 DeviceConfig

10.1 General

The DeviceConfig configuration program can be downloaded free of charge from the following website:

www.microtronics.at/deviceconfig

The tool is used for configuration, maintenance, fault analysis and synchronisation purposes. It is compatible with all myDatanet devices equipped with a USB interface, wireless M-bus interface or Bluetooth Low Energy.

The requirements regarding configuration and maintenance vary depending on the type of device. To ensure simple and intuitive operation, the user interface of the DeviceConfig therefore automatically adjusts to the relevant device that is connected. In addition to the standard functions, the tool also supports device-specific processes (e.g. calibration, zero point adjustment).
The DeviceConfig enables you to complete the following tasks:

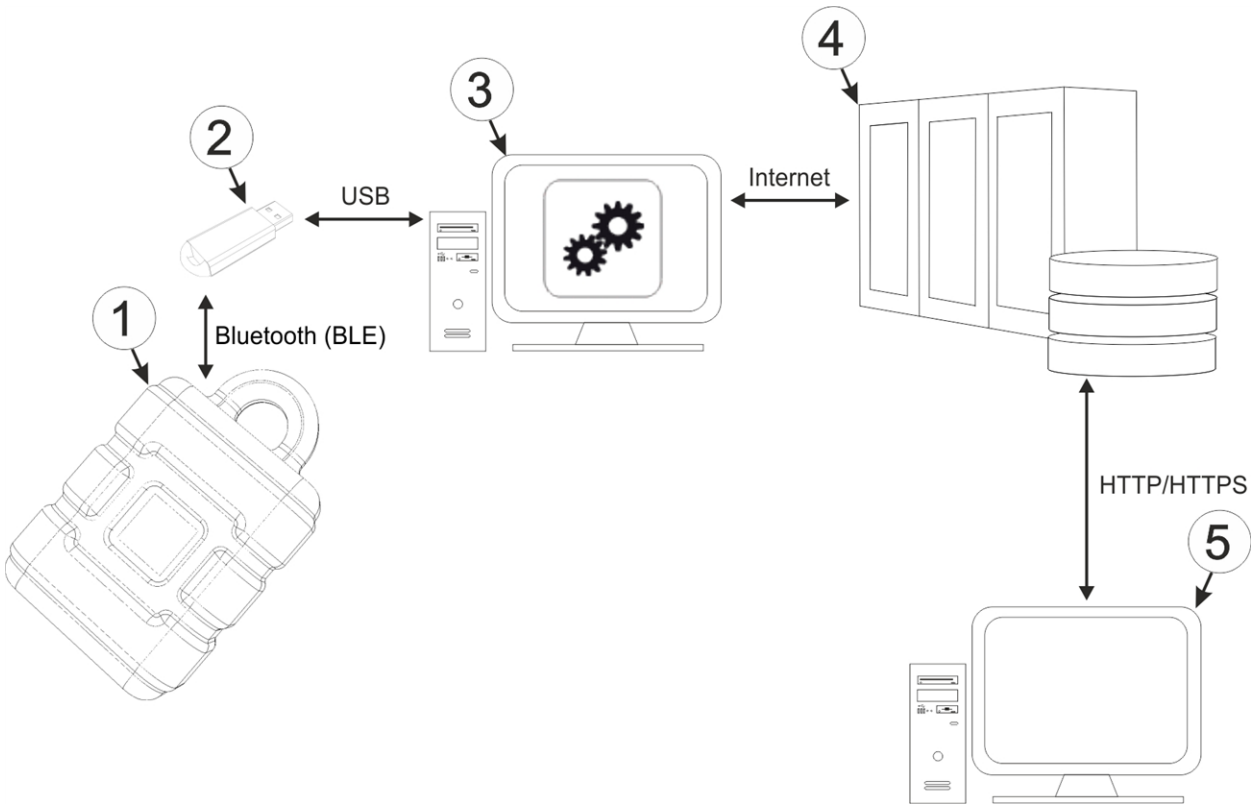
- Synchronisation of measurement data and configuration between device and server (specifically for devices without GSM/GPRS modem)
- Basic configuration of the device (e.g. measurement and transmission cycle)
- Read out and analysis of the device log
- Calibration, trimming and zero point adjustment (special knowledge and password required)
- Update the firmware

10.2 Prerequisites

Interfaces	1 x USB
Operating system	Win XP Windows Vista Windows 7 Windows 8
Internet connection	Recommended
Required disk space	approx. 50 MB

10.3 Functional principle (communication with a myDatasensH2S1000 BLE & 3G)

The following description particularly relates to the use of the DeviceConfig configuration program in conjunction with the myDatasensH2S1000 BLE & 3G .



Functional principle

1	myDatasensH2S1000 BLE & 3G	4	myDatanet server
2	USB BLE-Adapter	5	Client that accesses the interface of the myDatanet server via the web browser
3	PC with the DeviceConfig configuration program installed		

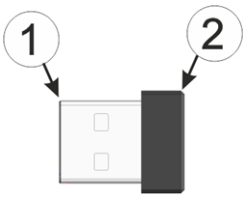
The DeviceConfig configuration program communicates wirelessly (Bluetooth Low Energy) with the myDatasensH2S1000 BLE & 3G using the USB BLE-Adapter (300676). The functions provided with the DeviceConfig configuration program include:

- Synchronisation of measurement data and configuration between device and server (see ""Sync" tab" on page 82)
- Zero point adjustment (see ""Zero" tab" on page 80)
- Rudimentary graphic display of the measurement values (see ""Data" tab" on page 84)
- Export of the locally saved data as a *.tsv file (see ""Data" tab" on page 84)

As soon as the data has been transferred to the myDatanet server, it is available via all of the server's interfaces (e.g. HTTP/HTTPS, as illustrated in the functional principle above) in the same way as the data from all of the other myDatanet devices.

10.3.1 USB BLE-Adapter

The USB BLE-Adapter (300676) is included in the scope of delivery of the myDatasensH2S1000 BLE & 3G . It is required because standard PCs and laptops often do not have a Bluetooth Low Energy interface that is necessary for communication with the myDatasensH2S1000 BLE & 3G .



USB radio transmitter

1 USB connector (type A)	2 Antenna

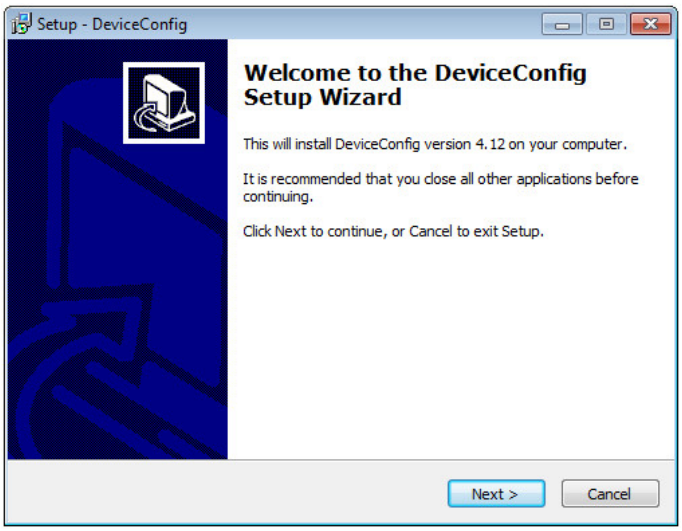
The use of USB extension cables of up to 180 cm is possible without any problems.

10.4 Installation

The following chapter describes the installation process in Windows 7.

1. Execute the *"InstDeviceConfig.exe"* file to start the installation process.

   Note: *Only connect the device or USB BLE-Adapter (300676) to your PC once the installation process has completed as the required drivers are only installed during this process.*

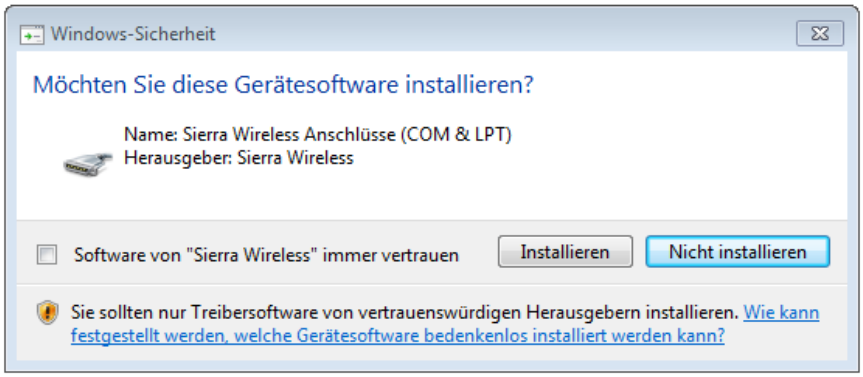


DeviceConfig setup wizard

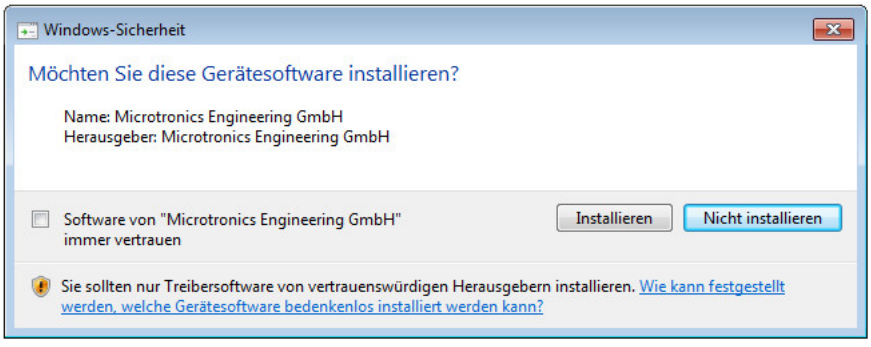
2. Follow the instructions of the setup wizard until the following screen is displayed. The following drivers must be installed to ensure correct operation.

Installation of the USB drivers for the devices

Installation of the drivers for the USB BLE-Adapter

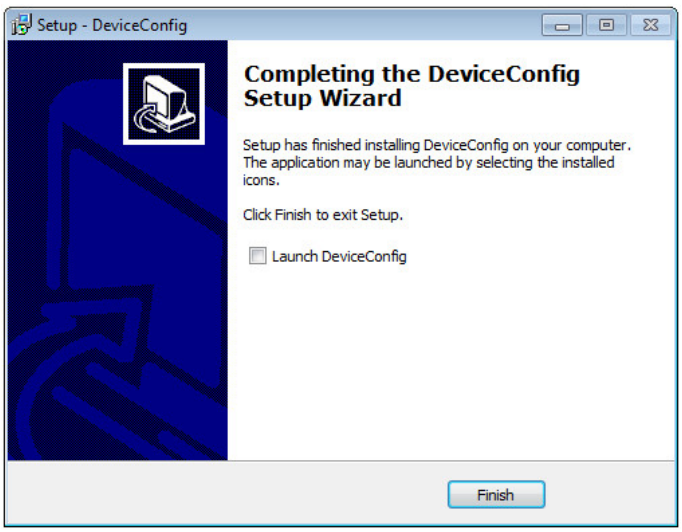


Installation of the USB drivers for the devices on a M1 basis



Installation of the USB drivers for the devices on a M2/M3 basis

3. Once the following screen is displayed, close the installation process by clicking on the *"Finish"* button.



Complete the setup

10.4.1 Installing the drivers for the USB radio transmitter

> ***Note:*** *Information on the USB BLE-Adapter (300676) is provided in chapter "USB BLE-Adapter " on page 71.*

The following chapter describes the installation process in Windows 7.

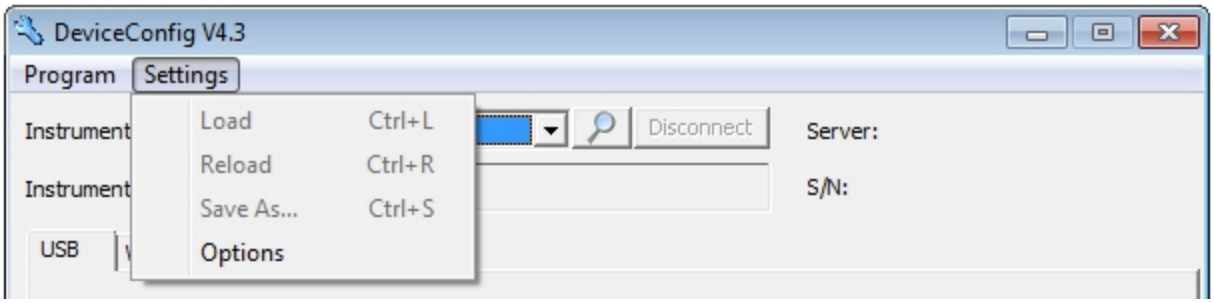
1. Complete all of the steps described in chapter "Installation" on page 71.
2. Close the DeviceConfig configuration program, if, when completing the installation, you selected the option for the program to be started following completion of the installation process.
3. Connect the USB BLE-Adapter (300676) to a free USB port on your PC. From Windows Vista onwards, the driver will be installed automatically. Instructions on installing the driver on older versions of Windows are included in the user manual for the DeviceConfig ("myDatanetDeviceConfig Manual " 805004).

   > ***Note:*** *If possible, always use the same USB port, as the driver will have to be installed for every USB port used to connect the USB BLE-Adapter to the PC for the first time.*

4. Wait until the driver installation process is complete. This can take several minutes depending on the performance of your PC.

10.5 Menu of the DeviceConfig

10.5.1 Settings

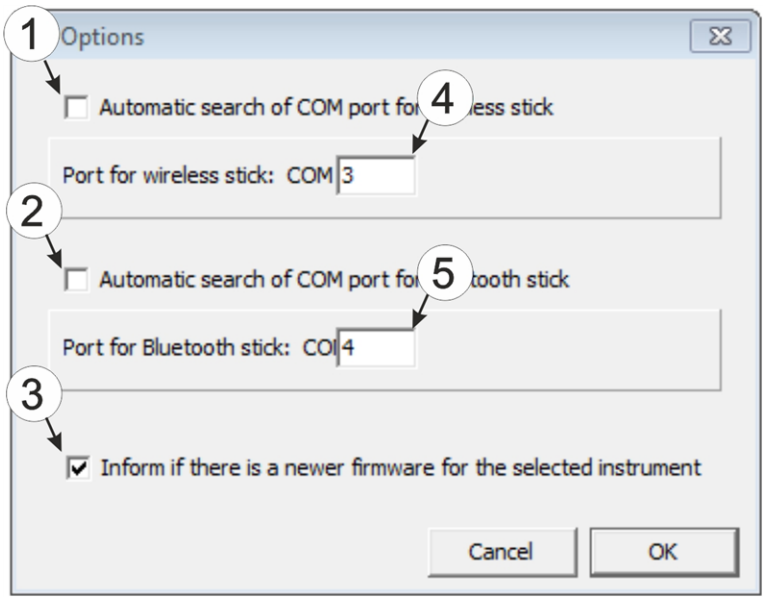


"Settings" menu item

10.5.1.1 Options

The settings for the COM ports to which the USB radio transmitter (206.657) or the USB BLE-Adapter (300676) are connected can be specified and the automatic search for the available firmware versions can be activated or deactivated via the "Settings -› Options" menu item.

The USB radio transmitter (206.657) is required for myDatanet devices that are connected to the PC via a wireless M-bus, while the USB BLE-Adapter (300676) is required for devices that are connected to the PC via Bluetooth Low Energy. Information on whether your device supports one of these connection methods is provided in the user manual for the respective device.



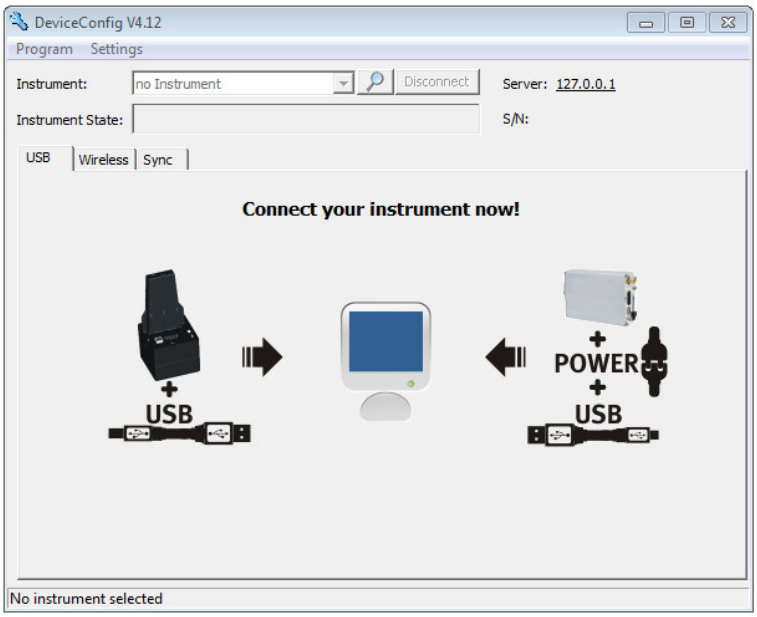
"Settings -› Options" menu item

1	Activates/deactivates the automatic search for the USB radio transmitter (206.657) on all of the available COM ports	4	COM port that is connected with the USB radio transmitter (206.657) (only visible when the automatic search is deactivated)
2	Activates/deactivates the automatic search for the USB BLE-Adapter (300676) on all of the available COM ports	5	COM port that is connected with the USB BLE-Adapter (300676) (only visible when the automatic search is deactivated)
3	Activates/deactivates the automatic search for available firmware versions		

10.6 Establishing a connection to a device with Bluetooth Low Energy interface

The USB BLE-Adapter (300676) is required to establish a connection to a device with a Bluetooth Low Energy interface. First of all complete the steps described in chapter "Installing the drivers for the USB radio transmitter " on page 73 to install the drivers required to operate the USB BLE-Adapter .

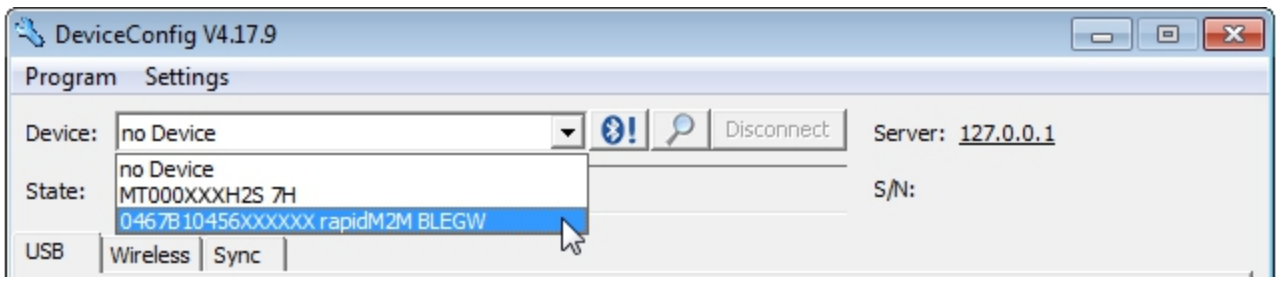
1. Connect the USB radio transmitter (206.657) to the USB interface of your PC.
2. Start the DeviceConfig configuration program.



DeviceConfig

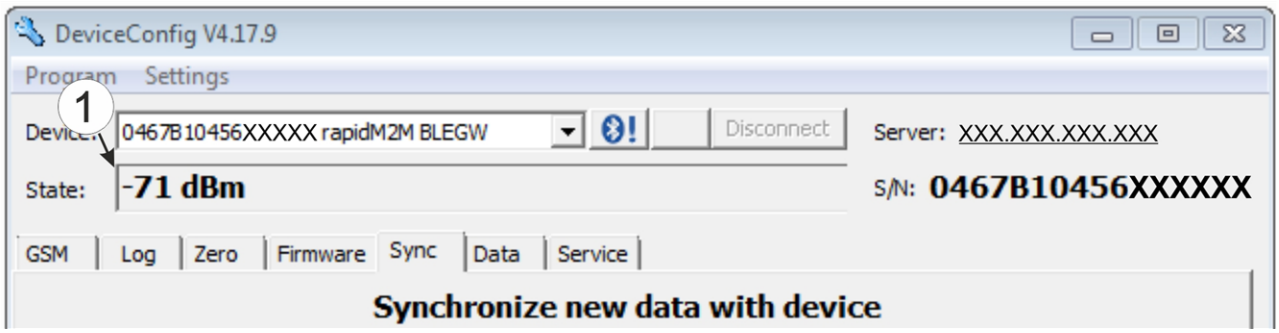
3. Select your device based on the serial number from the list of devices found.

> ***Important note:*** *Please note that, depending on the environmental conditions, the range of the radio transmitter of the myDatasensH2S1000 BLE & 3G is max. 20m .*



List of devices found

4. Wait until the DeviceConfig has received the configuration of the device. Depending on the device, additional tabs may be displayed.



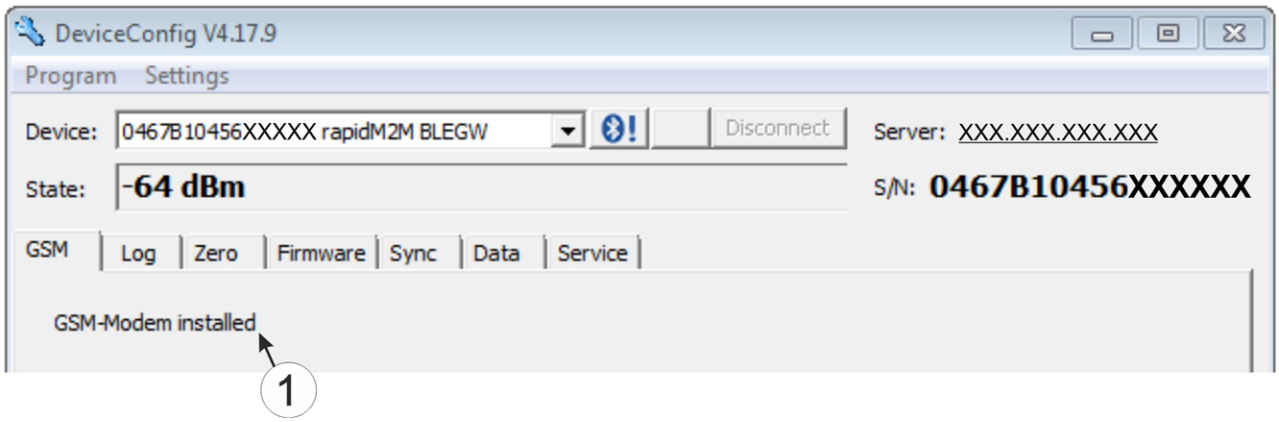
"Instrument" tab when actively connected to the myDatasensH2S1000 BLE & 3G

1	Wireless signal level [dBm]	

Note: *To ensure a stable connection, the wireless signal level should be higher than -90dBm , i.e. for example -85dBm . This is achieved by reducing the distance between the myDatasensH2S1000 BLE & 3G and USB BLE-Adapter , and avoiding obstacles such as walls and similar.*

10.7 "GSM" tab

This tab can be used to check whether the device has a mobile network modem installed.

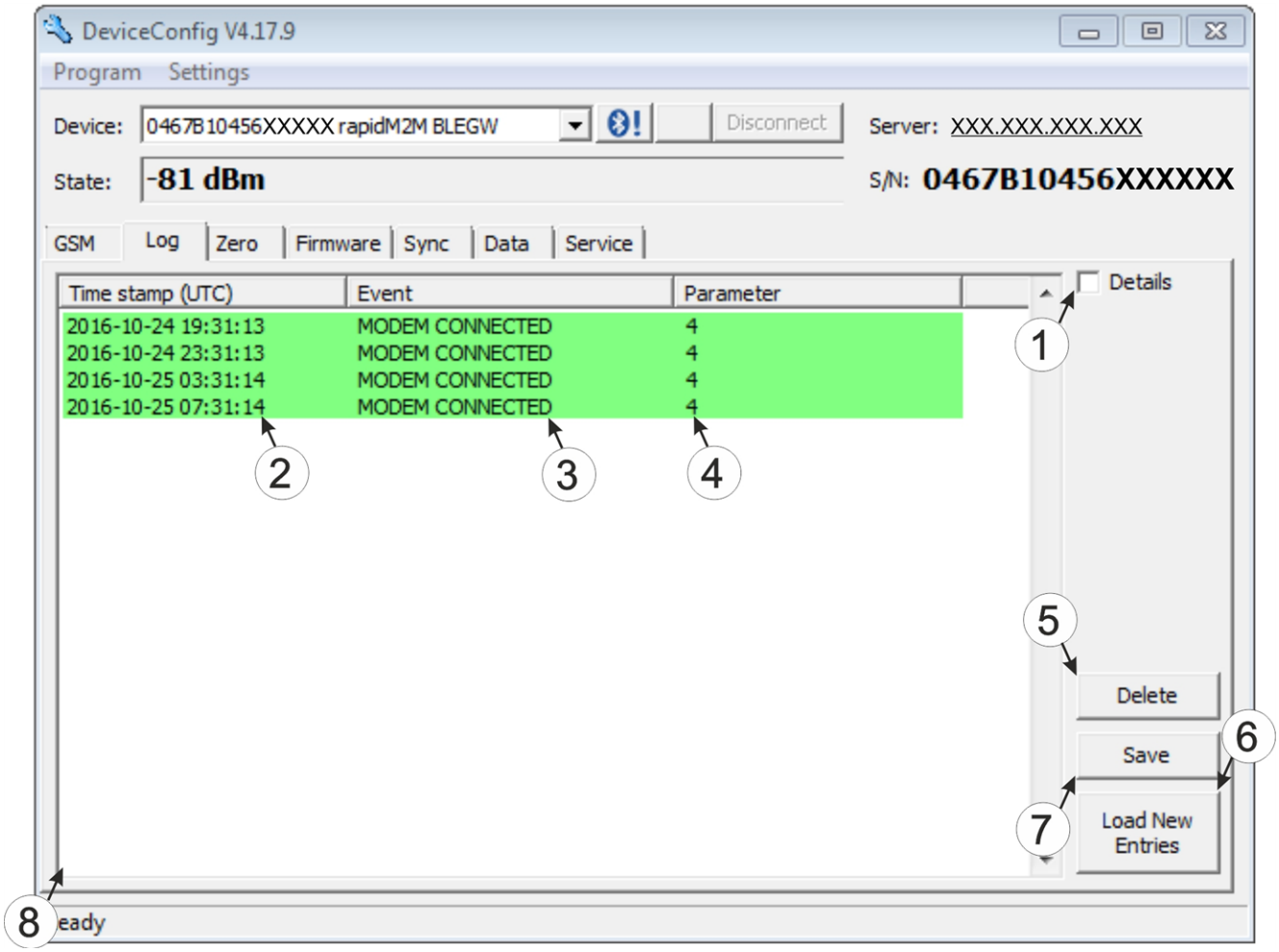


"GSM" tab

1	Indicates whether a mobile network modem is installed

10.8 "Log" tab

This tab is designed to manage log entries. It enables the entries to be loaded from the myDatasensH2S1000 BLE & 3G , to be saved as a *.tsv file and entries to be deleted from the memory of the myDatasensH2S1000 BLE & 3G .

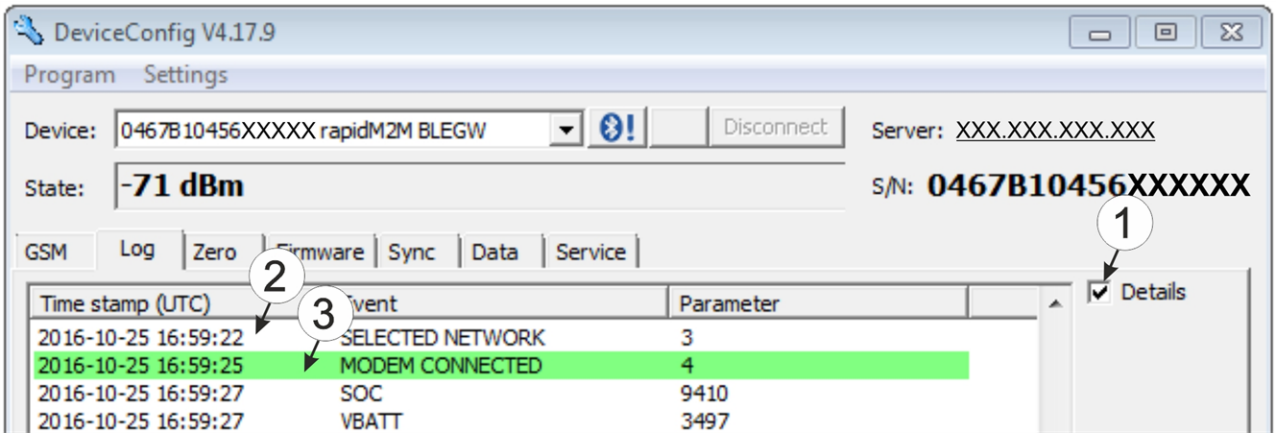


"Log" tab

1	Activates the detailed display of the log entries	5	Deletes the log entries from the memory of the device
2	Time stamp of the log entry	6	Loads the log entries from the device
3	Log entry	7	Saves the loaded log entries as a tsv file
4	Parameter of the log entry	8	Window to display the loaded log entries

The coloured highlighting indicates how crucial the log entry is. The white, informative log entries are only displayed when the detailed display of the log entries is activated (see ""Log" tab with detailed view activated" on page 79).

Colour	Evaluation
White	Information regarding the current operating state
Green	
Light blue	
Blue	
Purple	
Grey	
Yellow	Uncritical error
Red	Critical error



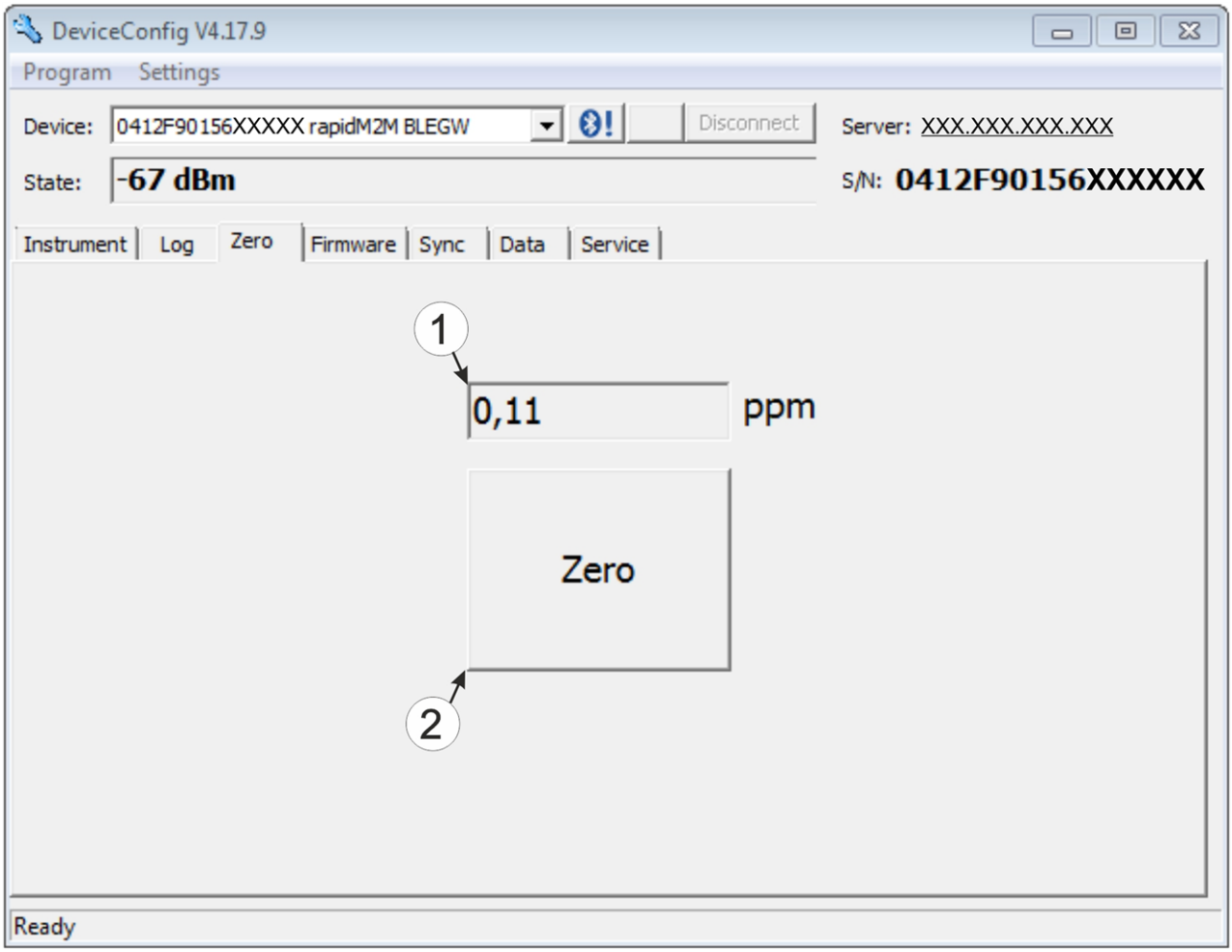
"Log" tab with detailed view activated

1	Activates the detailed display of the log entries	3	Log entry that is always displayed
2	Informative log entry that is only visible if the detailed display is activated		

10.9 "Zero" tab

This tab enables you to compensate for offsets of the zero point. The basic calibration of the sensor is not changed by the zero point adjustment.

Detailed instructions on completing the zero point adjustment are provided in chapter "Zero point adjustment" on page 138.



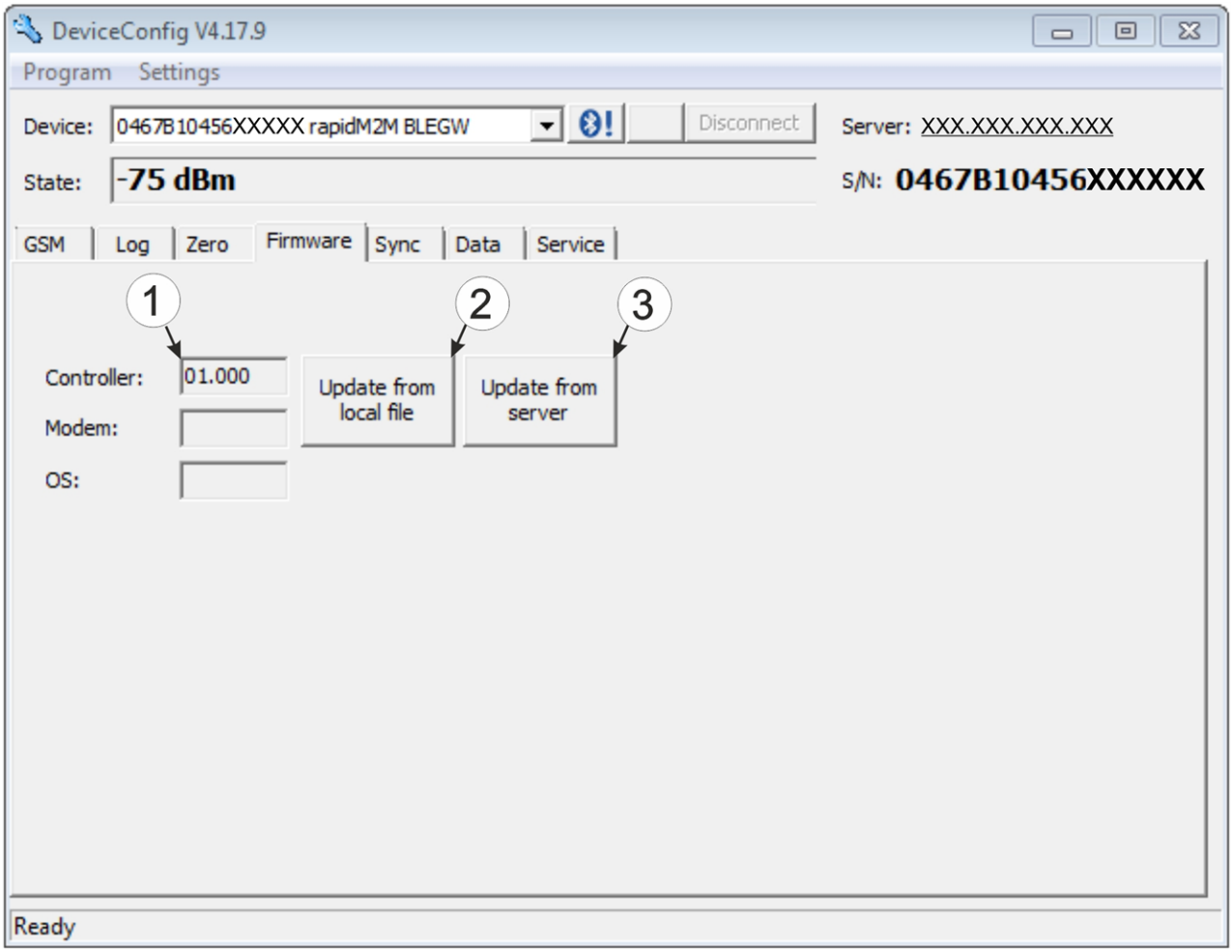
"Zero" tab

1 H2S concentration in ppm In contrast to what is shown on the display and measurement value graphics, negative values are not cut off.	2 Button to complete the zero point adjustment

10.10 "Firmware" tab

This tab enables firmware to be installed directly via the Bluetooth Low Energy interface. There are two available ways to update the firmware:

- Using a previously downloaded firmware package
- By directly loading from the myDatanet server



"Firmware" tab

1 Currently installed software version	3 The firmware is loaded directly on the server and installed on the device.
2 Button to install a previously downloaded firmware package	

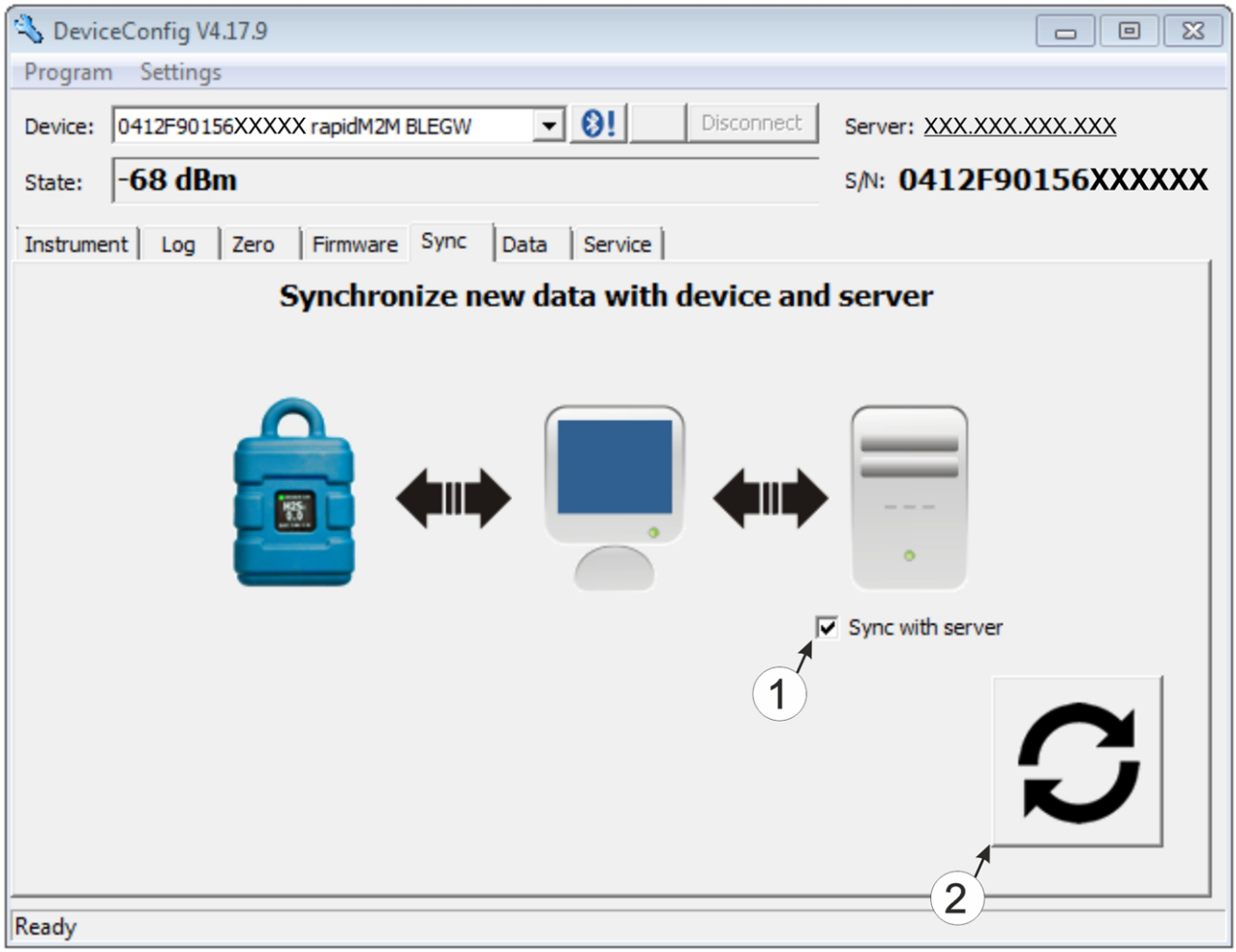
10.11 "Sync" tab

This area is designed to synchronise measurement data and configurations between myDatasensH2S1000 BLE & 3G , DeviceConfig and myDatanet server. The "Sync" tab is also available if there is no connection (USB, wireless M-bus or Bluetooth) to a device.

Detailed instructions on completing the synchronisation is provided in chapter "Synchronisation with the DeviceConfig configuration program" on page 88 and chapter "Synchronisation with the myDatanet server" on page 91.

10.11.1 Existing connection to the myDatasensH2S1000 BLE & 3G

If there is an existing connection to the myDatasensH2S1000 BLE & 3G , there is an option to only synchronise the measurement data and configurations with the DeviceConfig configuration program for local processing or to transfer them to the myDatanet server. In the event that your PC is not connected to the Internet when reading out the data, you can initially synchronise the measurement data and configurations of the myDatasensH2S1000 BLE & 3G with the DeviceConfig configuration program. As soon as your PC establishes a connection to the Internet, for example when you return to the office, you can then complete the synchronisations between the DeviceConfig and myDatanet server (see "No connection to a device" on page 84).

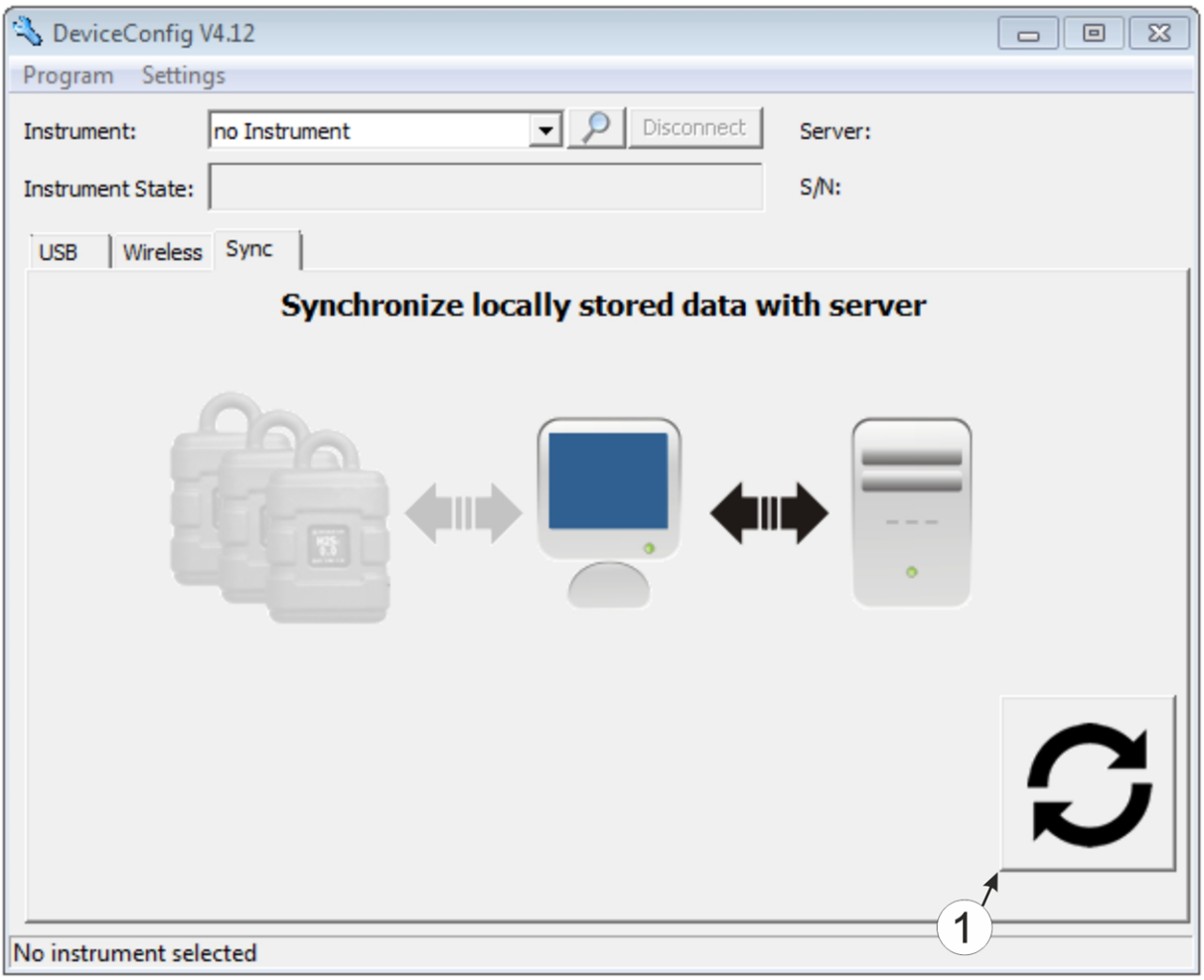


"Sync" tab when connected to the myDatasensH2S1000 BLE & 3G

1	Checkbox to determine whether the measurement data and configurations should also be synchronised with the server when clicking on the Sync button. ***Note:*** *This checkbox is only displayed if your PC is already connected to the Internet.*
2	Button to trigger synchronisation

10.11.2 No connection to a device

This option can be used to complete the synchronisation retrospectively, if no connection to the Internet was possible while reading out the measurement data and configurations from the myDatasensH2S1000 BLE & 3G .

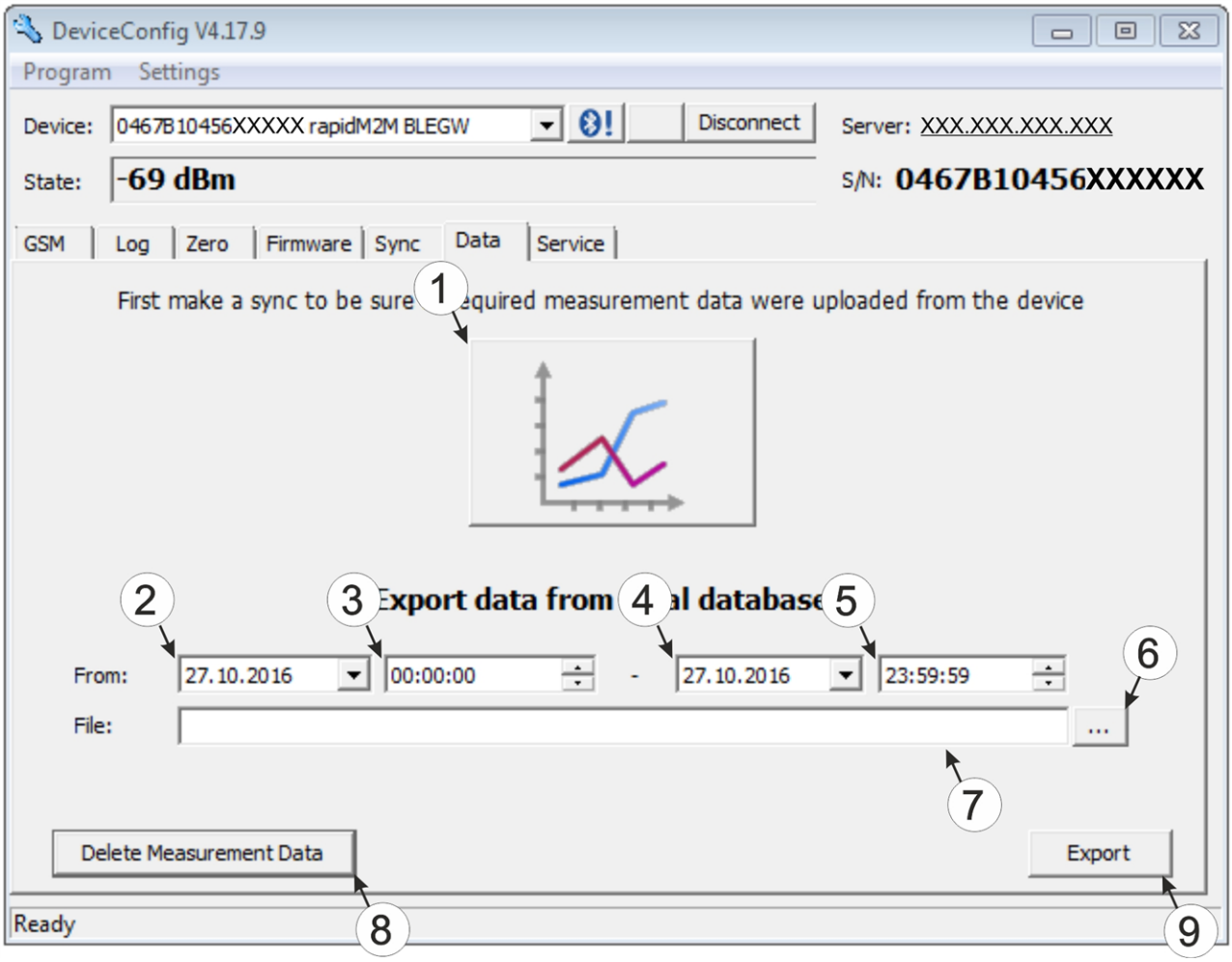


"Sync" tab without connection to a device

1	Button to trigger synchronisation During this process, the measurement data and configurations for all of the devices that the DeviceConfig configuration program has saved locally are synchronised with the myDatanet server.

10.12 "Data" tab

This area is designed to evaluate the measurement data and export the measurement data as a *.tsv file for further processing by a customer-specific system. It also enables the measurement data generated up to this point in time to be deleted from the database of the DeviceConfig configuration program and the internal memory of the myDatasensH2S1000 BLE & 3G . Only all of the data can be deleted. Selective deletion of individual data is not possible.



"Data" tab

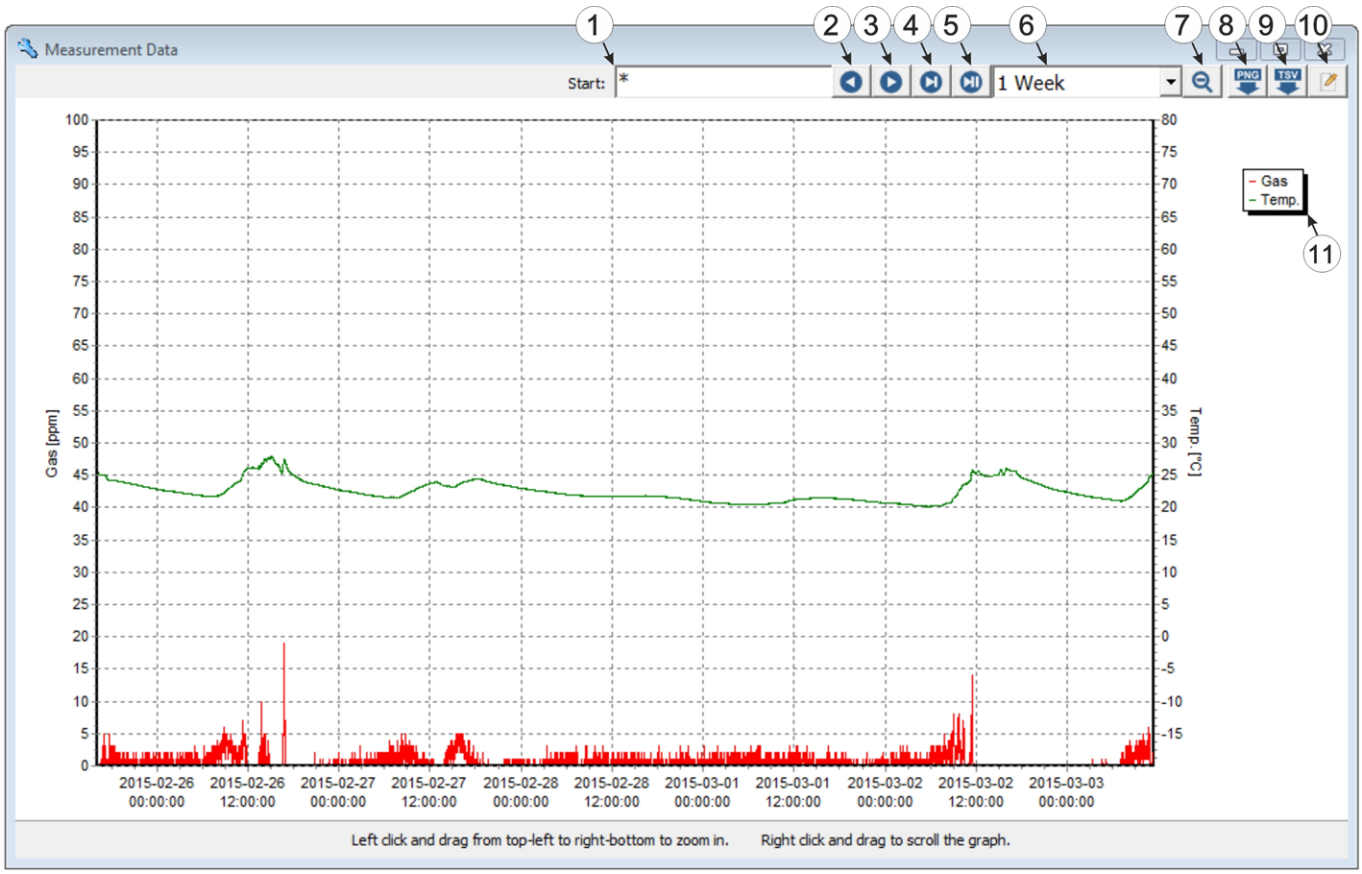
1	Button to open the window to display/evaluate the data saved locally on your PC	6	Opens the dialogue to select the file in which the measurement data should be saved
2	Start date for the data export	7	Path of the file in which the measurement data should be saved
3	Start time for the data export	8	Button to delete the measurement data generated up to this point in time from the database of the DeviceConfig configuration program and the internal memory of the myDatasensH2S1000 BLE & 3G .
4	End time for the data export	9	Button to start the data export
5	End date for the data export		

10.12.1 "Measurement Data" program window

This program window is designed to display/evaluate the data stored locally on your PC. Operation is similar to that of the measurement value graphic displays of the myDatanet server. Although only two measurement channels can be displayed simultaneously. The "Measurement Data" program

window enables you to export the visible measurement data as a *.tsv file and save the illustrated measurement value graphic as a *.png file.

You can use the "Reports" of the myDatanet server to create a more comprehensive report of the recorded measurement data (see "myDatanet Server Manual " 805002). However, this requires the measurement data and configurations to be synchronised between DeviceConfig and the myDatanet server (see "Synchronisation with the myDatanet server" on page 91).

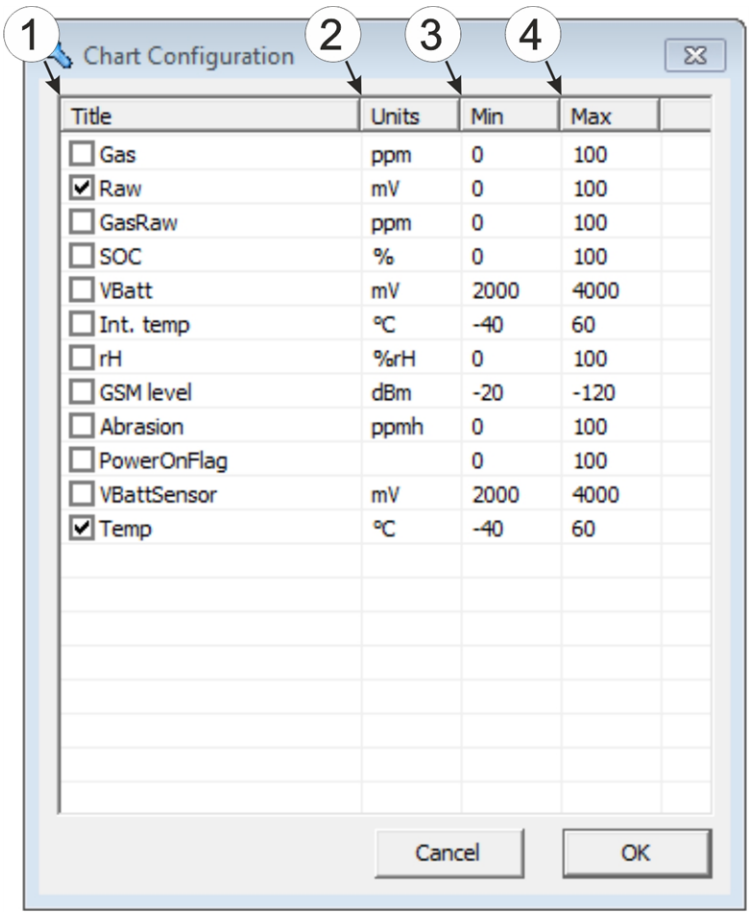


"Measurement Data" program window

1	Date/time from when the data should be displayed	7	Reduce in size or zoom out; increase the period
2	Move a period/page into the past	8	Save the measurement value graphic as a *.png file
3	Move a period/page into the future	9	Save the visible measurement data as a *.tsv file
4	Jump to the latest data record or to the end of the measurement data	10	Opens the program window to select the measurement channel that should be displayed (see ""Chart Configuration" program window" on page 87)
5	Jump to the current time	11	Legend of the titles of the displayed measurement channels
6	Duration of a period; duration that is displayed on one page		

10.12.1.1 "Chart Configuration" program window

This program window is used to select the two measurement channels for which the data should be displayed in the "Measurement Data" program window. It is not possible to change the title of the measurement channels, the measurement value unit or the minimum and maximum value for the x-axis of the diagram.



"Chart Configuration" program window

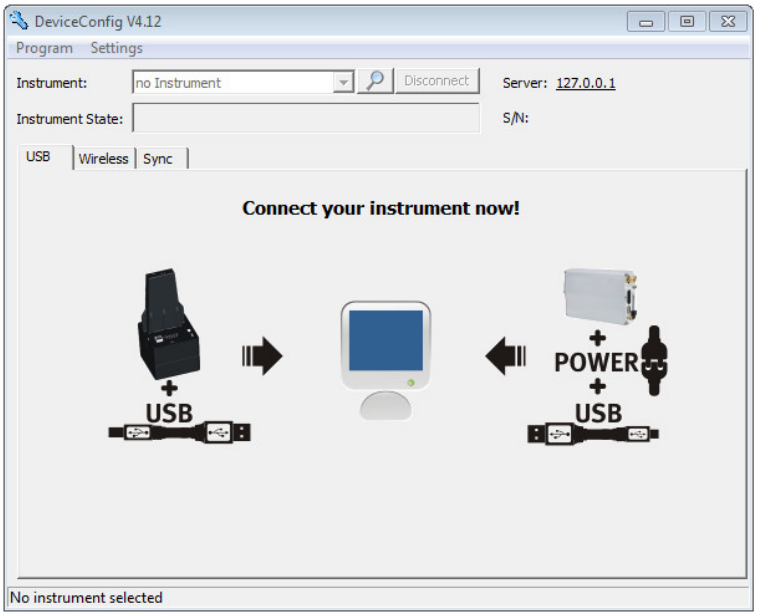
1	Titles of the measurement channel available for selection	3	Minimum value for the x-axis of the diagram
2	Measurement value unit of the channel	4	Maximum value for the x-axis of the diagram

10.13 Recommended procedure

10.13.1 Synchronisation with the DeviceConfig configuration program

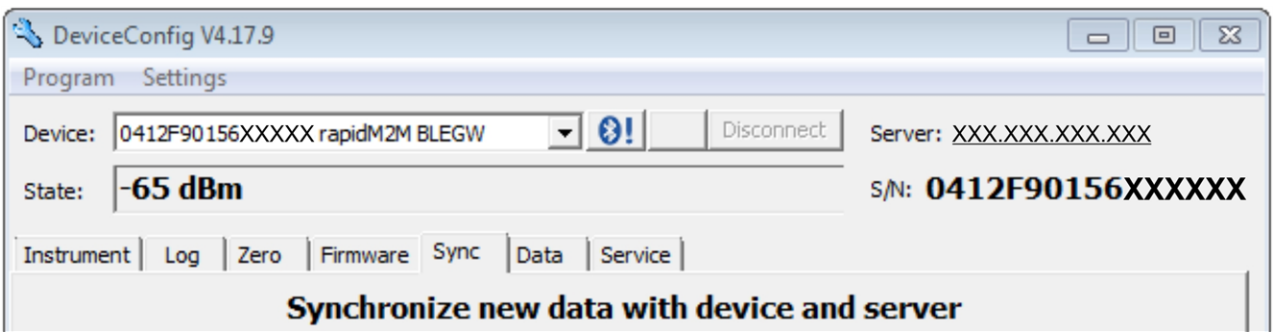
The following process describes how you can read out the data from the myDatasensH2S1000 BLE & 3G using the DeviceConfig configuration program so that it can be processed locally. If you wish to synchronise the data with the myDatanet server at a later date, this is possible at any time (see "No connection to a device" on page 84).

1. Connect the USB BLE-Adapter (300676) to the USB interface of your PC.
2. Start the DeviceConfig configuration program.



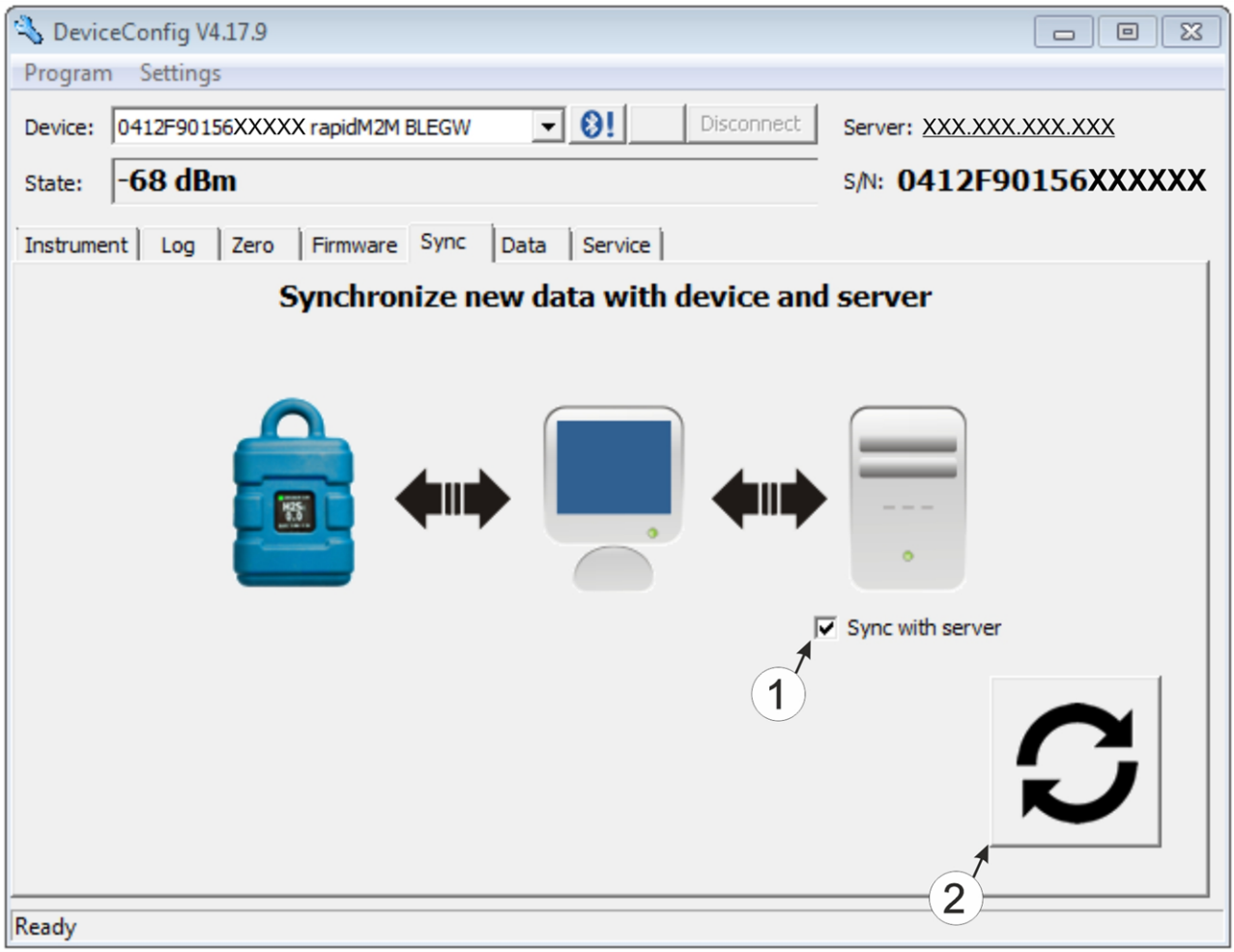
DeviceConfig

3. Connect the myDatasensH2S1000 BLE & 3G to the PC using the USB BLE-Adapter (300676) supplied (see "Establishing a connection to a device with Bluetooth Low Energy interface" on page 76).
4. Additional tabs are displayed if the connection was established successfully. Now select the "Sync" tab.



myDatasensH2S1000 BLE & 3G specific tab

5. Remove the tick in the "Sync with server" checkbox. This checkbox is only visible if your PC is currently connected to the Internet.

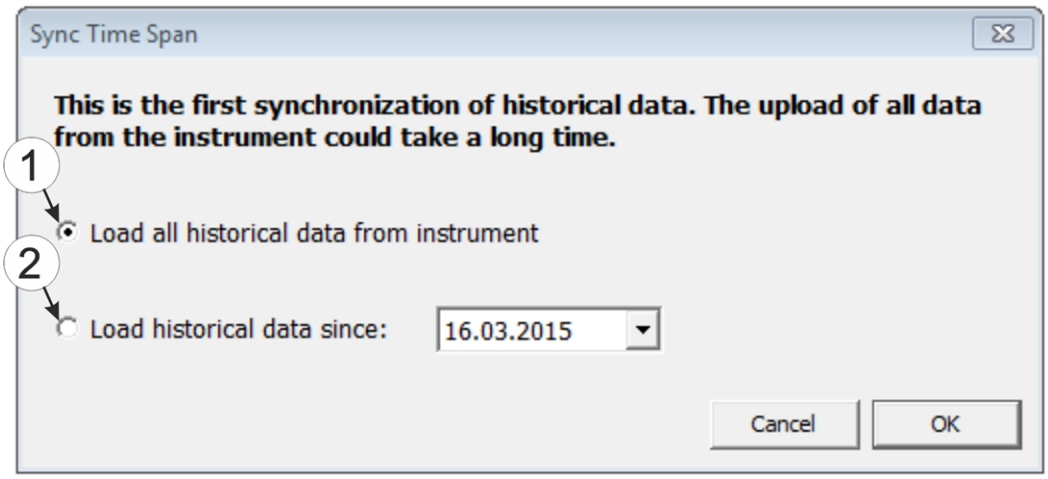


"Sync" tab when connected to the myDatasensH2S1000 BLE & 3G

1	Checkbox to determine whether the measurement data and configurations should also be synchronised with the server when clicking on the Sync button. ***Note:*** *This checkbox is only displayed if your PC is already connected to the Internet.*
2	Button to trigger synchronisation

6. Click on the button to trigger synchronisation (see ""Sync" tab when connected to the myDatasensH2S1000 BLE & 3G " on page 89).

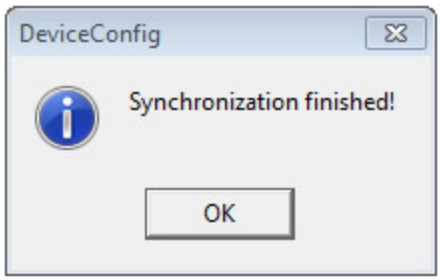
   When you read out the data for the first time from a myDatasensH2S1000 BLE & 3G , you can choose whether all of the saved data or only the data up to a certain date are read out from the myDatasensH2S1000 BLE & 3G . During the following synchronisation processes, the DeviceConfig configuration program always reads out the data from the last synchronised measurement data record.



Selecting the time period for which the data should be read out (only during first synchronisation)

1	Read out all of the saved data ***Note:*** *Reading out all of the saved data can take several hours depending on the number of saved measurement data records.*
2	Only read out the data from the selected date onwards. The data is always read out from 00:00 am of the selected day. ***Important note:*** *Following completion of the synchronisation it is no longer possible to read out data before the selected date.*

7. Wait until the DeviceConfig configuration program indicates that the synchronisation process is complete.



Synchronisation completed

10.13.2 Synchronisation with the myDatanet server

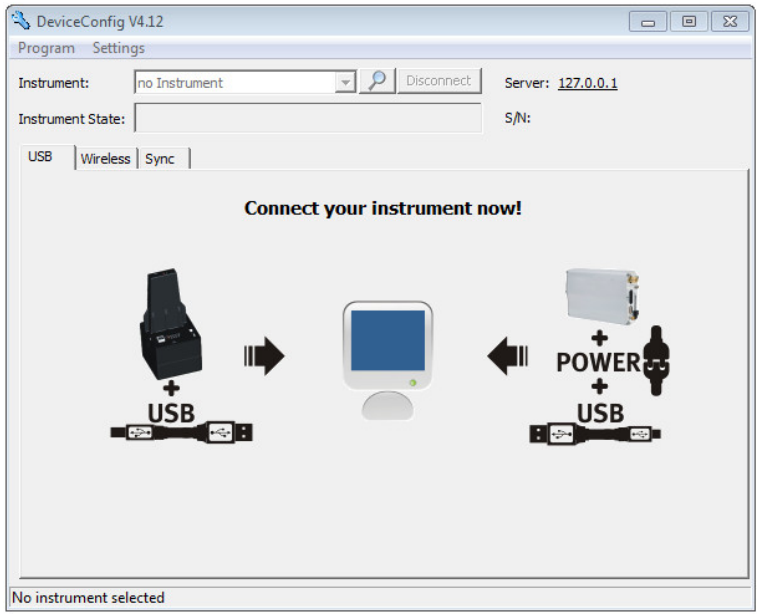
To ensure a more comprehensive management and display of the data, the DeviceConfig configuration program also provides the option of forwarding the measurement data and configurations to a central myDatanet server. The next two chapters describe the possible scenarios when reading out the data from the myDatasensH2S1000 BLE & 3G .

More information on the functions of the server is provided in the server manual ("myDatanet Server Manual " 805002).

10.13.2.1 Internet connection available when reading out the data

The following process describes how you can not only synchronise the data with the DeviceConfig configuration program but also with the myDatanet server. A site must already be assigned to the myDatasensH2S1000 BLE & 3G on the myDatanet server for this purpose. Detailed instructions are provided in chapter "Creating the site" on page 117. Another prerequisite for this is that your PC is connected to the Internet while reading out the data from the myDatasensH2S1000 BLE & 3G . If this is not possible, follow the procedure described in chapter "No Internet connection when reading out the data" on page 95.

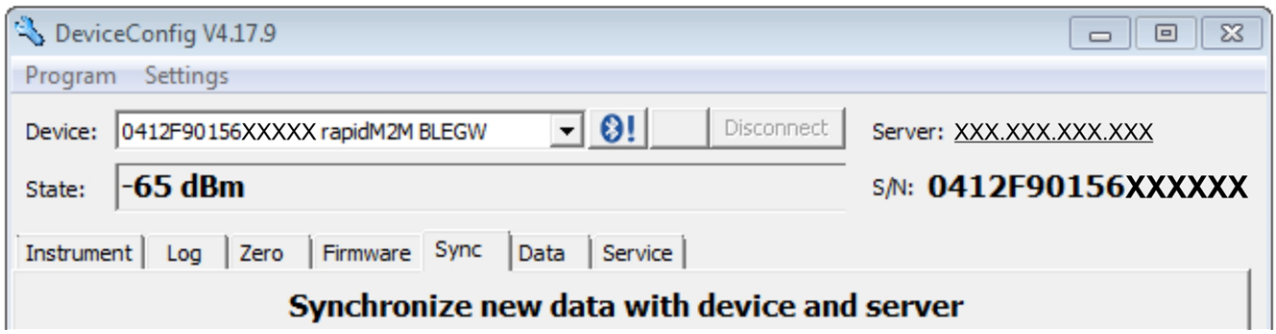
1. Connect the USB BLE-Adapter (300676) to the USB interface of your PC.
2. Start the DeviceConfig configuration program.



DeviceConfig

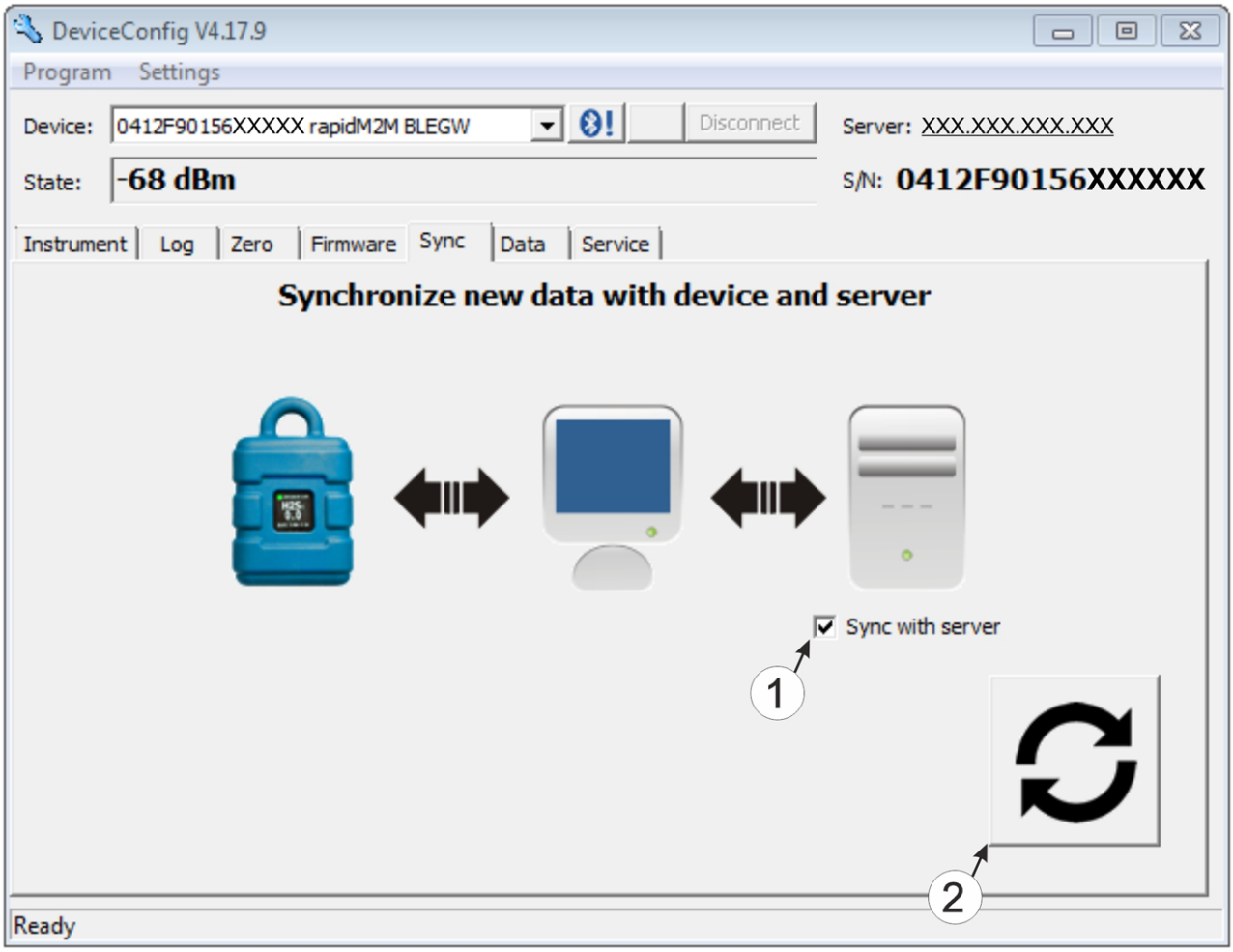
3. Connect the myDatasensH2S1000 BLE & 3G to the PC using the USB BLE-Adapter (300676) supplied (see "Establishing a connection to a device with Bluetooth Low Energy interface" on page 76).

4. Additional tabs are displayed if the connection was established successfully. Now select the "Sync" tab.



myDatasensH2S1000 BLE & 3G specific tab

5. Place a tick in the "Sync with server" checkbox. This checkbox is only visible if your PC is currently connected to the Internet.

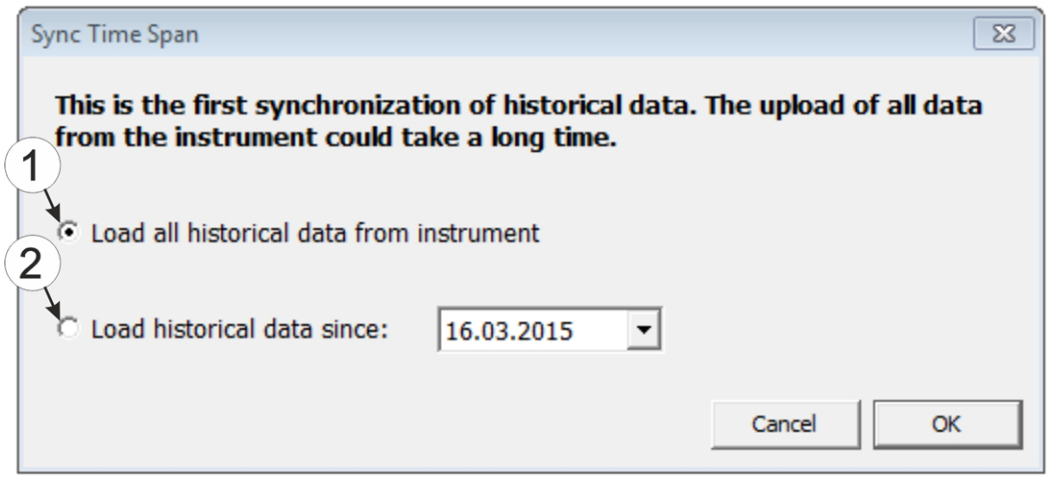


"Sync" tab when connected to the myDatasensH2S1000 BLE & 3G

1	Checkbox to determine whether the measurement data and configurations should also be synchronised with the server when clicking on the Sync button. ***Note:*** *This checkbox is only displayed if your PC is already connected to the Internet.*
2	Button to trigger synchronisation

6. Click on the button to trigger the synchronisation (see ""Sync" tab when connected to the myDatasensH2S1000 BLE & 3G " on page 92).

   When you read out the data for the first time from a myDatasensH2S1000 BLE & 3G , you can choose whether all of the saved data or only the data from a certain date onwards are read out from the myDatasensH2S1000 BLE & 3G . During the following synchronisation processes, the DeviceConfig configuration program always reads out the data from the last synchronised measurement data record onwards.

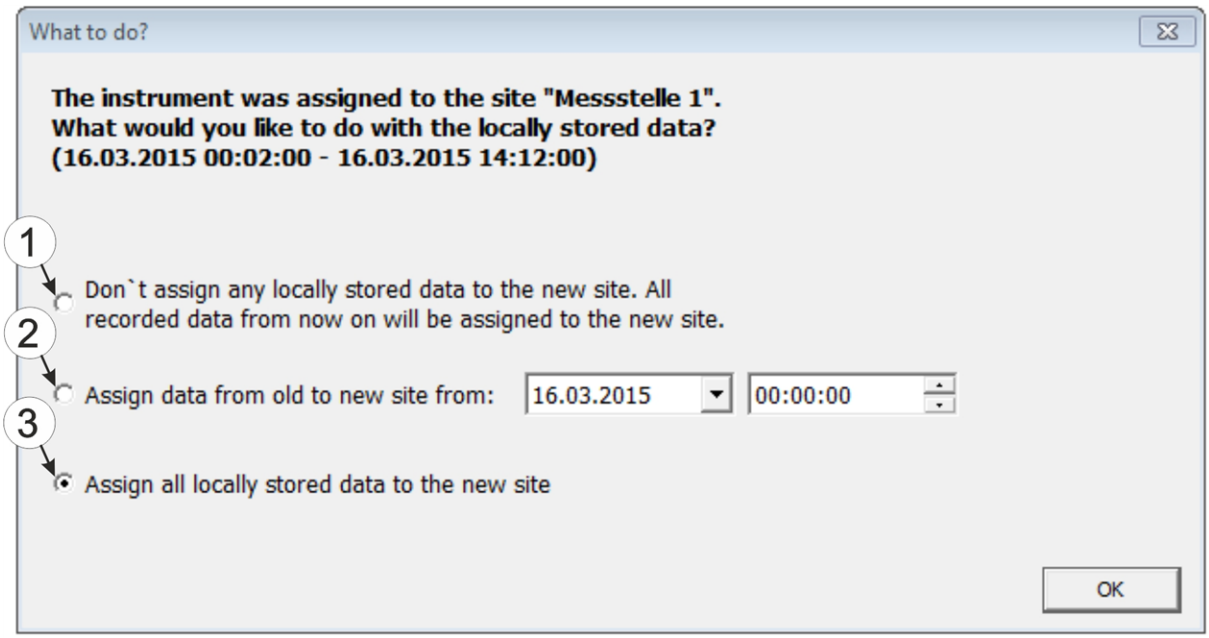


Selecting the time period for which the data should be read out (only during first synchronisation)

1	Read out all of the saved data ***Note:*** *Reading out all of the saved data can take several hours depending on the number of saved measurement data records.*
2	Only read out the data from the selected date onwards. The data is always read out from 00:00 am of the selected day. ***Important note:*** *Following completion of the synchronisation it is no longer possible to read out data before the selected date.*

   If the DeviceConfig configuration program determines that the myDatasensH2S1000 BLE & 3G has been assigned to a new or different site on the myDatanet server, you can decide what you would like to do with the data that is already saved locally. The following screenshot provides an overview of the available options that can be selected.

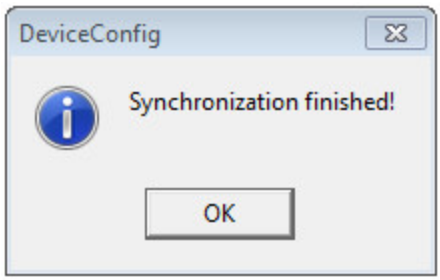
   Important note: *If a site already contains data, then only the measurement data that is newer than the current measurement data record for the site is synchronised.*



Selecting how to proceed with the locally saved data (only if the device has been assigned a new or different site)

1	The locally saved data is not assigned to the new site. Only the measurement data that is read out from the current point in time is assigned to the new site. After clicking on "OK", the option to select from which time period onwards the data should be read out opens. The measurement data is read out from the myDatasensH2S1000 BLE & 3G in accordance with the selection and assigned to the new site.
2	The locally saved data is assigned to the new site from the selected point in time onwards.
3	All locally saved data is assigned to the new site.

7. Wait until the DeviceConfig configuration program indicates that the synchronisation process is complete.



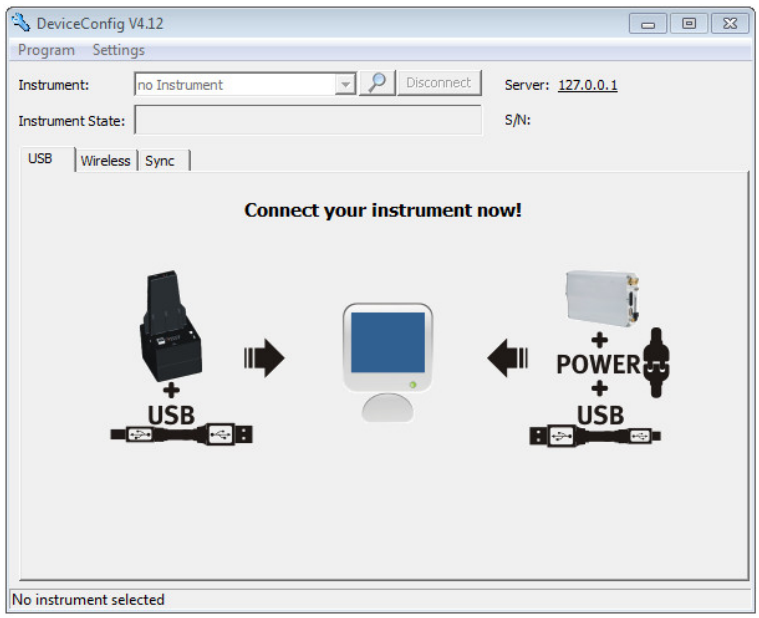
Synchronisation completed

10.13.2.2 No Internet connection when reading out the data

> ***Important note:*** *The method described in the following requires that the myDatasensH2S1000 BLE & 3G myDatanethas already been assigned a site on the myDatanet server. Detailed instructions are provided in chapter "Creating the site" on page 117.Additionally, a synchronisation must already have been completed during which the DeviceConfig configuration program simultaneously established a connection to the myDatasensH2S1000 BLE & 3G and the myDatanet server (see "Internet connection available when reading out the data" on page 91).*

This procedure is recommended, if an Internet connection cannot be established on the site while reading out the data from the myDatasensH2S1000 BLE & 3G . During this procedure, the data on the site is initially only synchronised with the DeviceConfig configuration program. The data is then transferred to the myDatanet server at a later date when your PC has re-established a connection to the Internet.

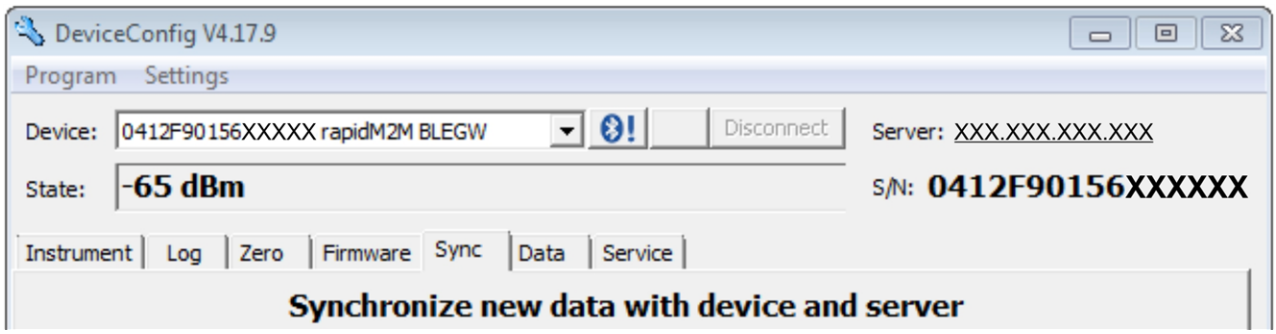
1. Connect the USB BLE-Adapter (300676) to the USB interface of your PC.
2. Start the DeviceConfig configuration program.



DeviceConfig

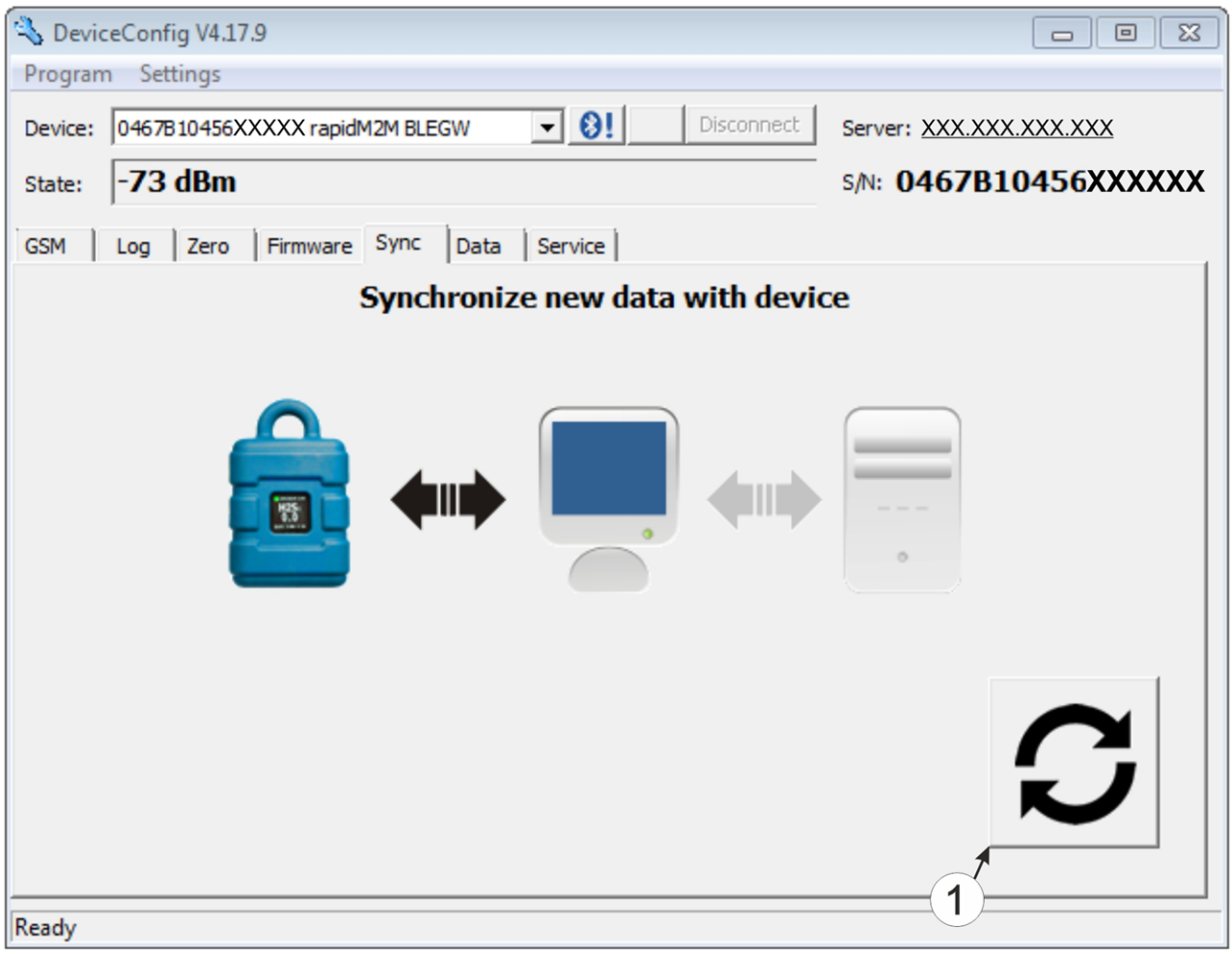
3. Connect the myDatasensH2S1000 BLE & 3G to the PC using the USB BLE-Adapter (300676) supplied (see "Establishing a connection to a device with Bluetooth Low Energy interface" on page 76).

4. Additional tabs are displayed if the connection was established successfully. Now select the "Sync" tab.



myDatasensH2S1000 BLE & 3G specific tab

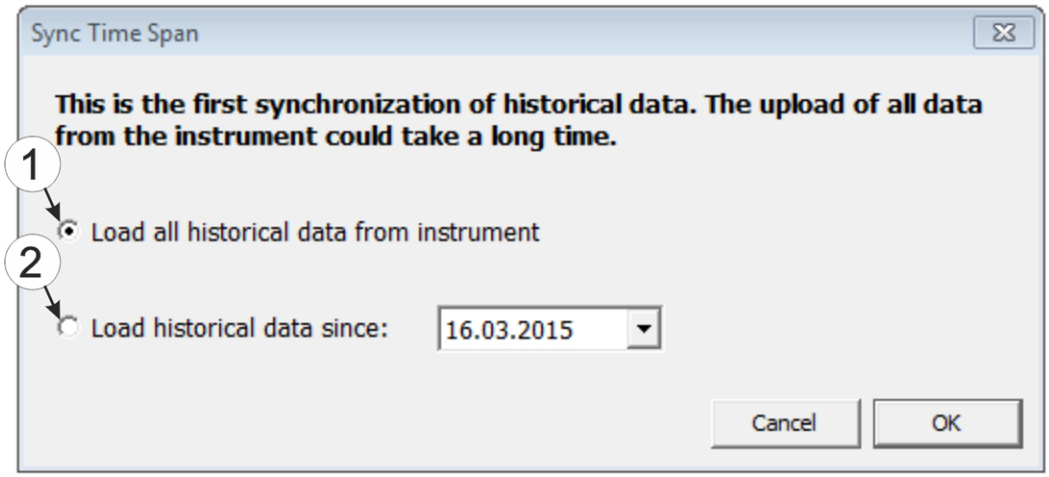
5. Click on the button to trigger synchronisation.



"Sync" tab when connected to the myDatasensH2S1000 BLE & 3G although there is no connection to the myDatanet server

1	Button to trigger synchronisation

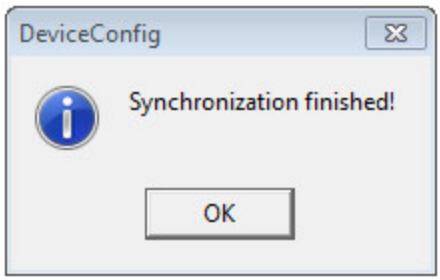
When you read out the data for the first time from a myDatasensH2S1000 BLE & 3G , you can choose whether all of the saved data or only the data up to a certain date are read out from the myDatasensH2S1000 BLE & 3G . During the following synchronisation processes, the DeviceConfig configuration program always reads out the data from the last synchronised measurement data record.



Selecting the time period for which the data should be read out (only during first synchronisation)

1	Read out all of the saved data ***Note:*** *Reading out all of the saved data can take several hours depending on the number of saved measurement data records.*
2	Only read out the data from the selected date onwards. The data is always read out from 00:00 am of the selected day. ***Important note:*** *Following completion of the synchronisation it is no longer possible to read out data before the selected date.*

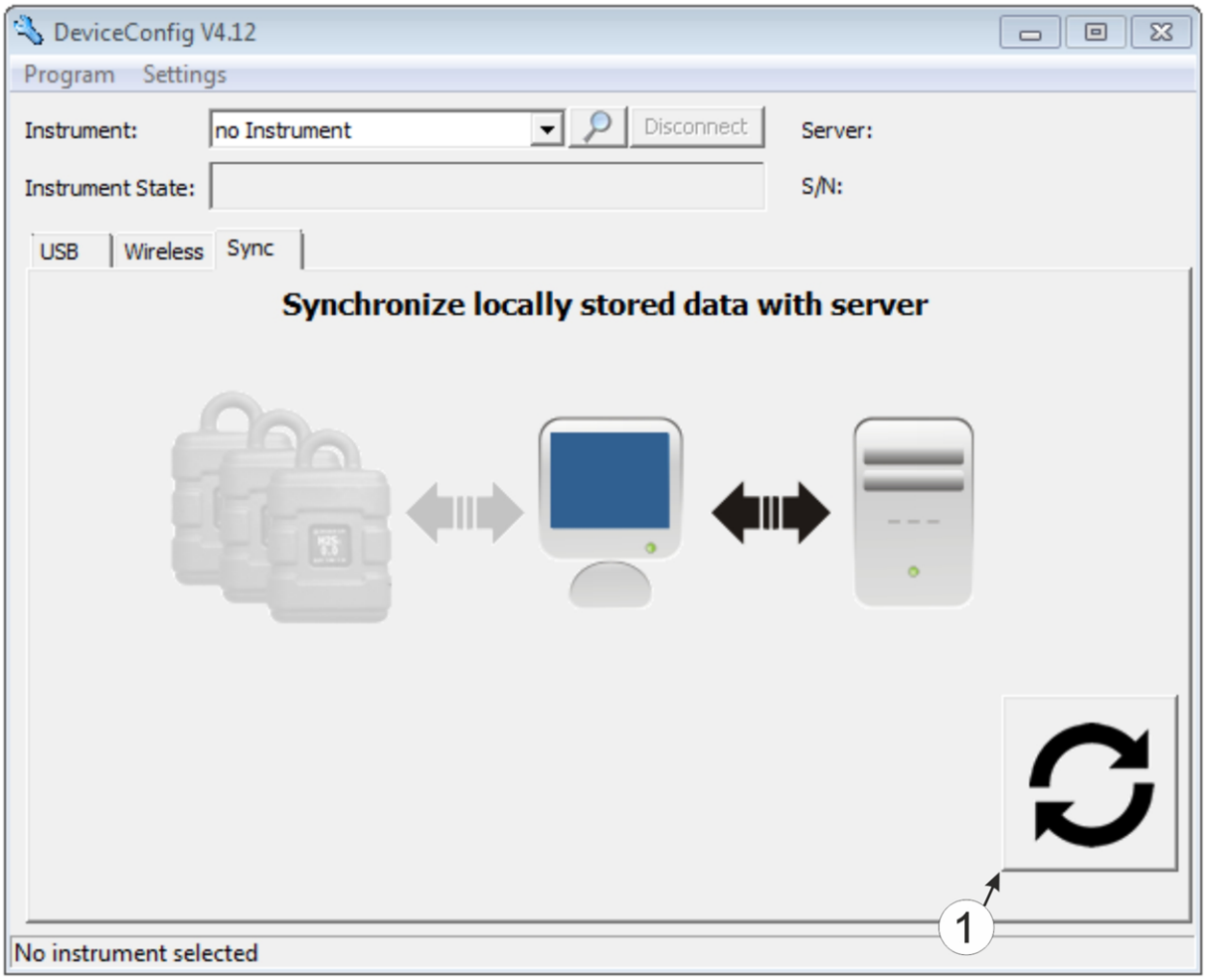
6. Wait until the DeviceConfig configuration program indicates that the synchronisation process is complete.



Synchronisation completed

7. Close the DeviceConfig configuration program.
8. Re-open the DeviceConfig configuration program as soon as your PC is connected to the Internet.

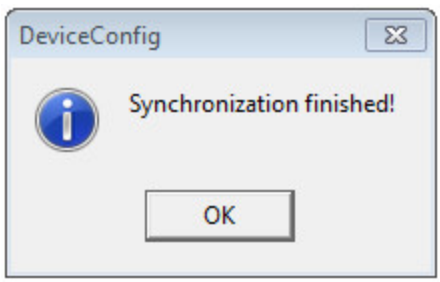
9. Select the "Sync" tab and click on the button to trigger synchronisation.



"Sync" tab without connection to a device

1	Button to trigger synchronisation During this process, the measurement data and configurations of all of the devices that the DeviceConfig configuration program has saved locally are synchronised with the myDatanet server.

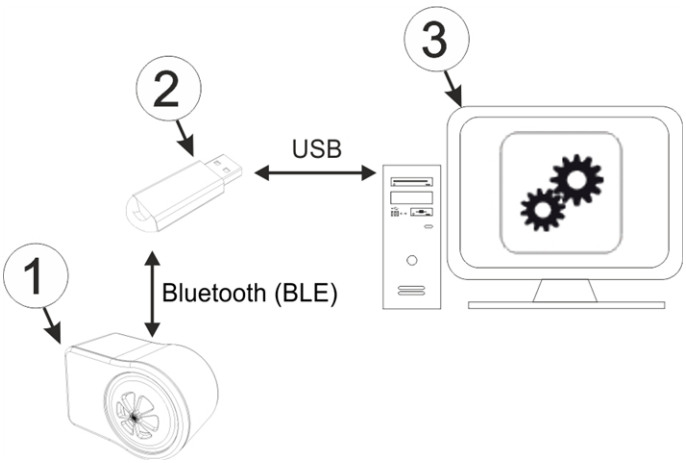
10. Wait until the DeviceConfig configuration program indicates that the synchronisation process is complete.



Synchronisation completed

10.14 Functional principle (communication with a sensor module)

The following description particularly relates to the use of the DeviceConfig configuration program in conjunction with a sensor module (e.g. H2S 7H Sensor module).



Functional principle

1 Sensor module	3 PC with the DeviceConfig configuration program installed
2 USB BLE-Adapter	

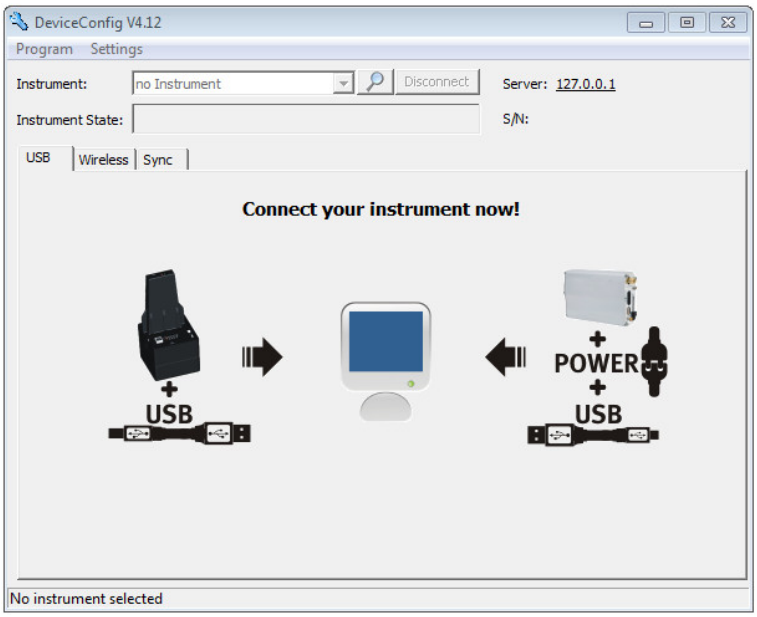
The DeviceConfig configuration program communicates wirelessly (Bluetooth Low Energy) with the sensor module using the USB BLE-Adapter (300676). The functions provided with the DeviceConfig configuration program include:

- Trimming (special knowledge and password required, see "Trimming" on page 134)
- Calibration (special knowledge and password required, see "Calibration" on page 127)

10.15 Establishing a connection to a sensor module with Bluetooth Low Energy interface

The USB BLE-Adapter (300676) is required to establish a connection to a sensor module with a Bluetooth Low Energy interface. First of all complete the steps described in chapter "Installing the drivers for the USB radio transmitter " on page 73 to install the drivers required to operate the USB BLE-Adapter .

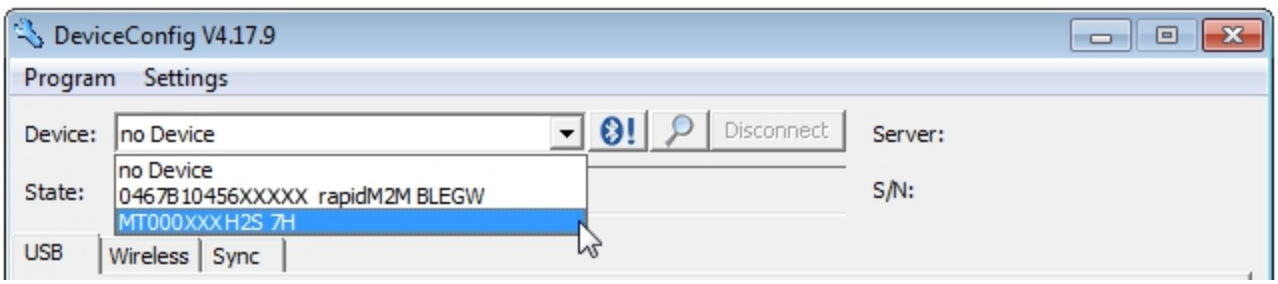
1. Connect the USB BLE-Adapter (300676) to the USB interface of your PC.
2. Start the DeviceConfig configuration program.



DeviceConfig

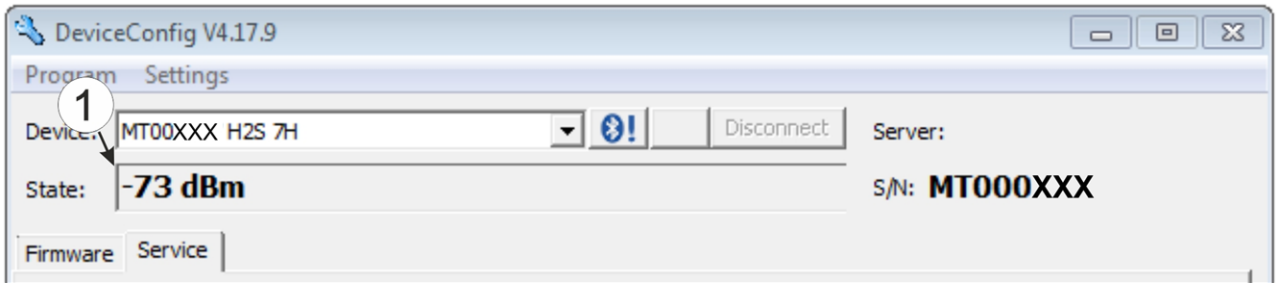
3. Select your sensor module based on the serial number from the list of devices found.

> ***Important note:*** *Sensor modules that are successfully coupled with a myDatasensH2S1000 BLE & 3G are not displayed by the DeviceConfig . Remove the sensor module from the sensor recess of the myDatasensH2S1000 BLE & 3G to disconnect an existing coupling.*



List of devices found

4. Wait until the DeviceConfig has received the configuration of the sensor module. Depending on the sensor module, additional tabs may be displayed.



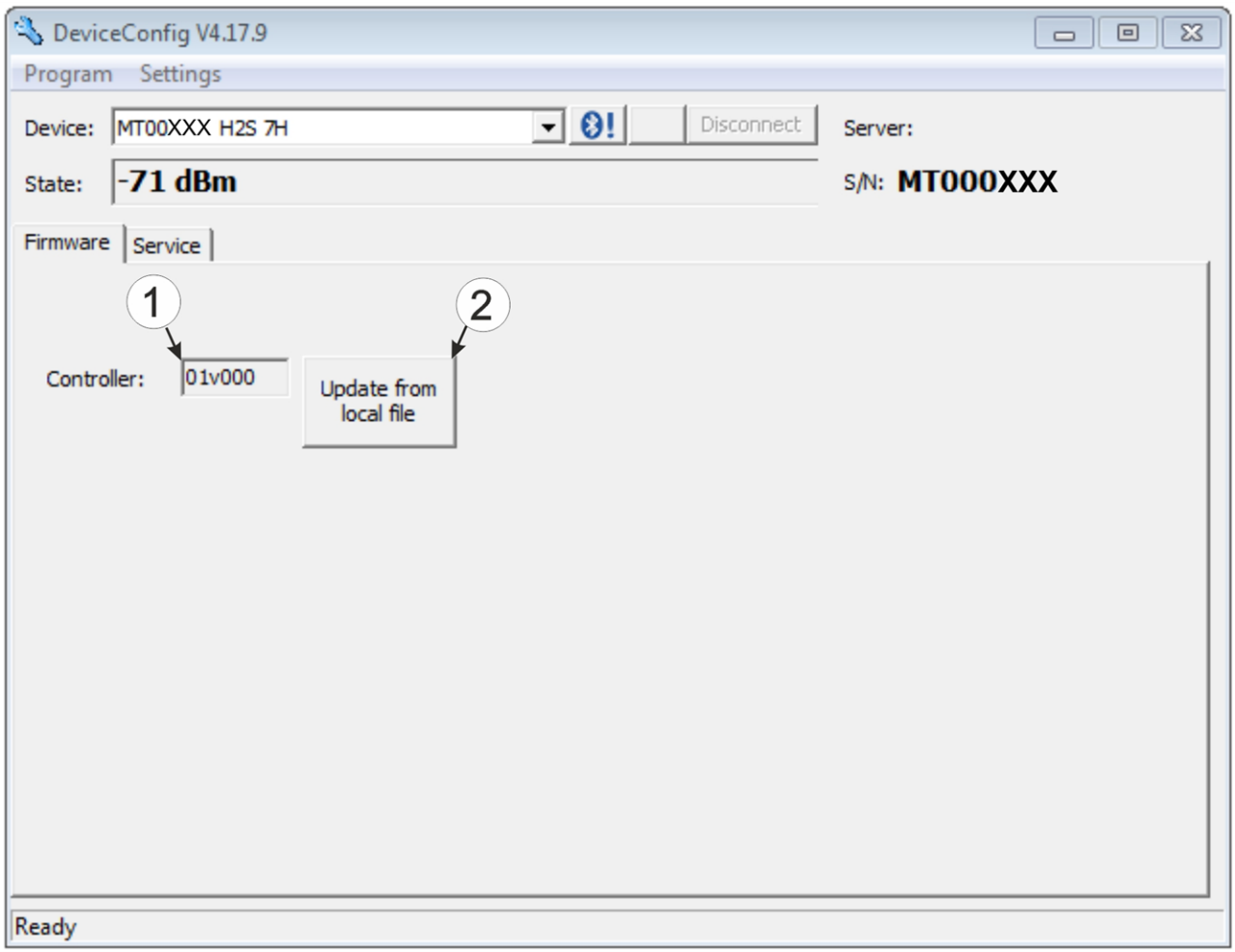
"Instrument" tab when actively connected to the sensor module

1	Radio signal strength [dBm]	

Note: *To ensure a stable connection, the wireless signal level should be higher than -90dBm , i.e. for example -85dBm . This is achieved by reducing the distance between the sensor module and the USB BLE-Adapter , and avoiding obstacles such as walls and similar.*

10.16 "Firmware" tab

This tab enables firmware to be installed directly via the Bluetooth Low Energy interface.



"Firmware" tab

1 Currently installed software version	2 Button to install a previously downloaded firmware package

10.17 "Trim" tab

DANGER:

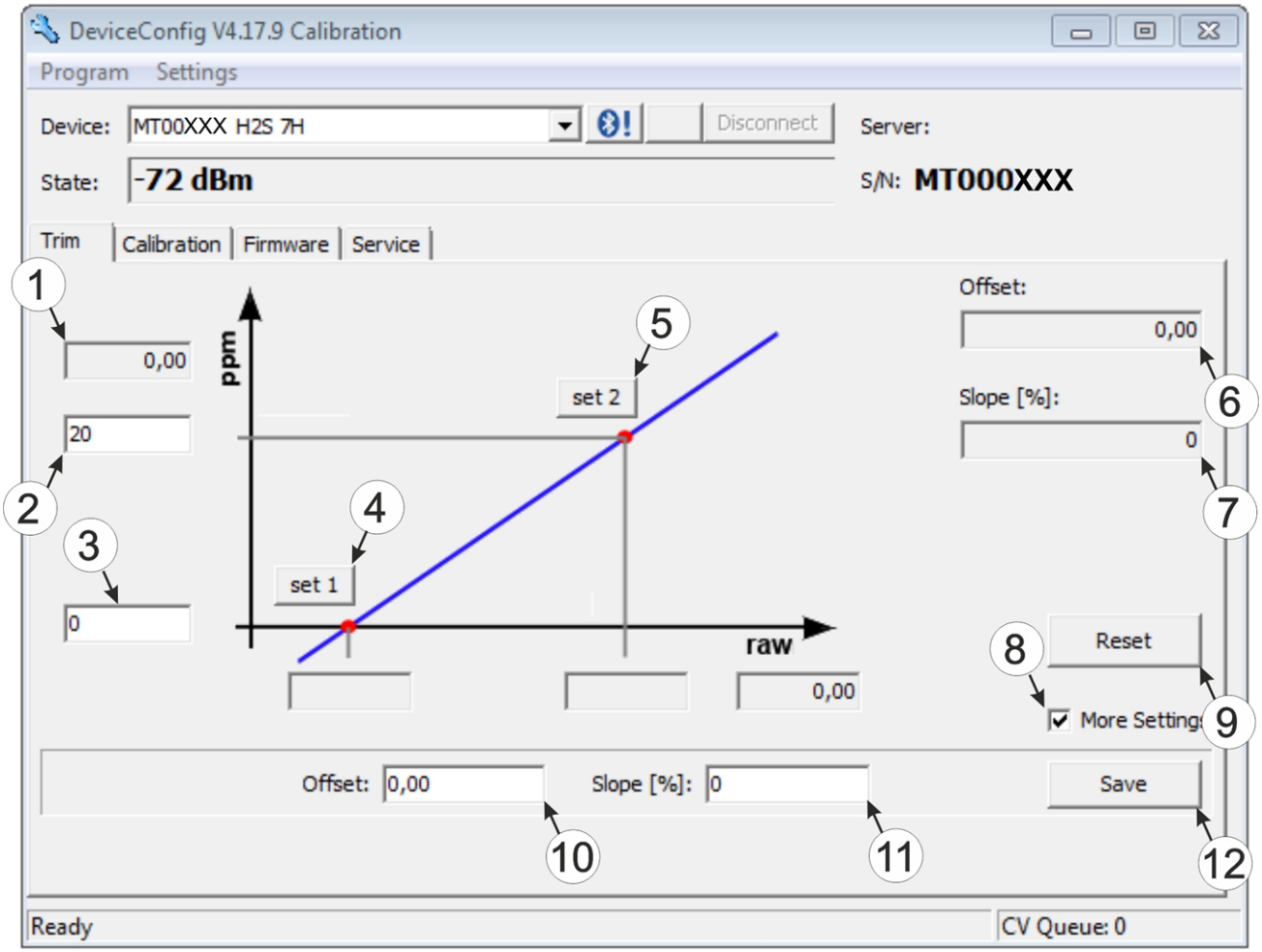
Extreme caution is required when handling calibration gases!

Hydrogen sulphide is a neurotoxic substance that can cause poisoning and even death depending on the concentration.

The optional "Calibration set H2S 30ppm (206.810)" and "Calibration adapter for BLE sensor module (300665)" accessories are recommended for implementing the trimming process. If you are under the impression that based on the operational demands, the calibration of the sensor is no longer entirely correct, this can be compensated by the trimming process. This means that the time until the next scheduled calibration can be bypassed. The trim can then be removed again during the next calibration. The basic calibration of the device is not changed by the trimming process. The trim can be removed again at any time by clicking on the "Reset" button.

Note: *The trimming process can only be completed by a restricted group of people. A password is therefore required to access this tab.*

Detailed instructions on executing the trim are provided in chapter "Trimming" on page 134.



"Trim" tab

1	H_2S measurement value (calculated with the currently valid values for the offset and slope)	7	Detected slope
2	Upper reference point (target value in ppm)	8	Checkbox to display the input fields for the manual input of the trim
3	Lower reference point (target value in ppm)	9	Button to remove the trim
4	Button for adopting the lower reference point	10	Input field for the manual entry of the offset
5	Button for adopting the upper reference point	11	Input field for the manual entry of the slope
6	Detected offset	12	Button to transfer the manually entered values for the offset and slope to the sensor module

10.18 "Calibration" tab

DANGER:

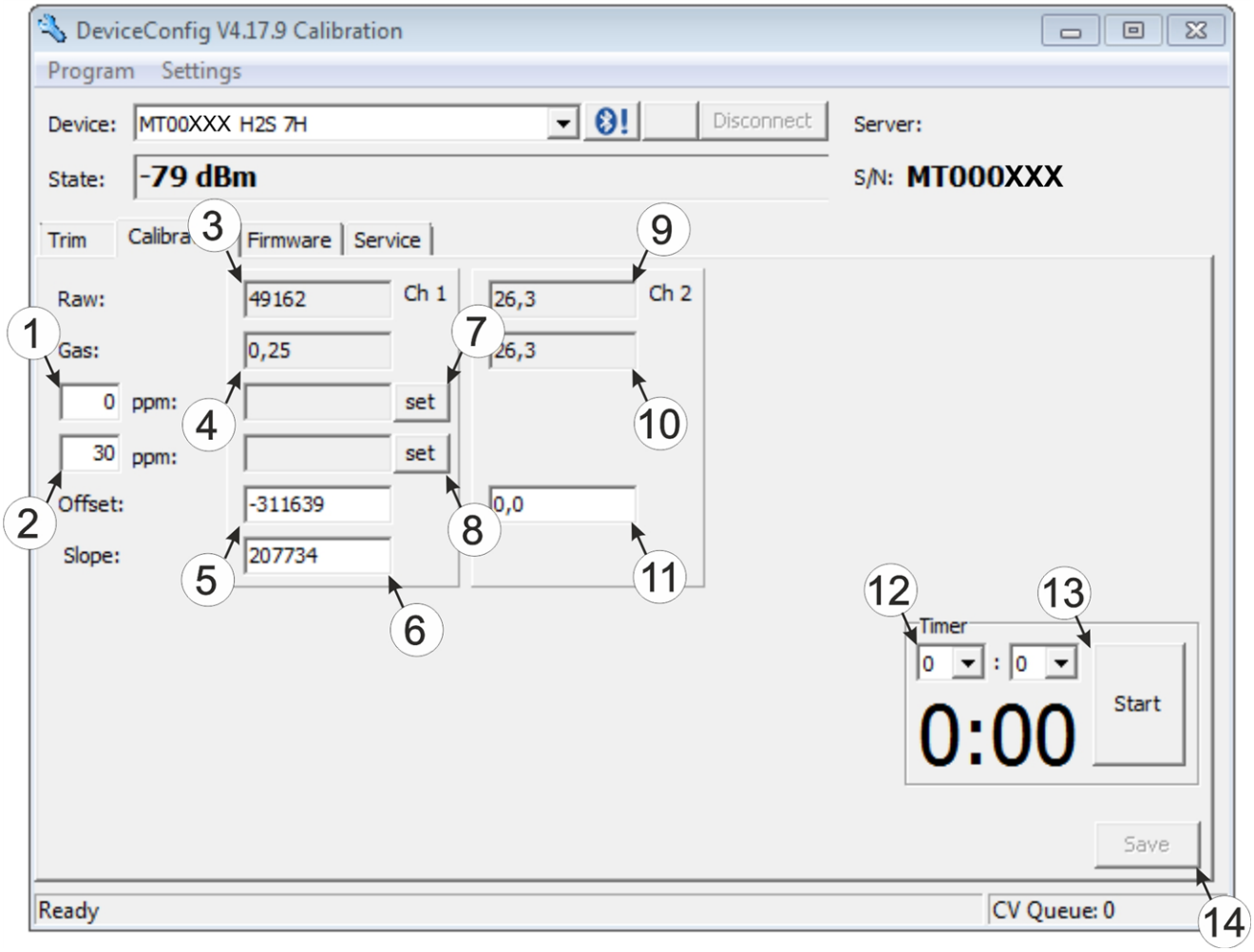
Extreme caution is required when handling calibration gases!

Hydrogen sulphide is a neurotoxic substance that can cause poisoning and even death depending on the concentration.

The "Calibration" tab enables the calibration of the sensor module that must be completed every 6 months at the latest. The display of the myDatasensH2S1000 BLE & 3G indicates the remaining days until the next calibration of the inserted sensor module is due.

Note: *The calibration must only be completed by a restricted group of people. A password is therefore required to access this tab.*

Detailed instructions on completing the calibration are provided in chapter "Calibration process" on page 128.



"Calibration" tab

1	Lower reference point (target value in ppm)	8	Button for adopting the upper reference point (H_2S)
2	Upper reference point (target value in ppm)	9	Raw value (temperature)
3	Raw value (H_2S)	10	Temperature measurement value (calculated with the currently valid values for the offset)
4	H_2S measurement value (calculated with the currently valid values for the offset and slope)	11	Offset for calculating the temperature
5	Determined offset (H_2S)	12	Timer to determine the remaining delay
6	Determined slope (H_2S)	13	Starts/stops the timer [1)]
7	Button for adopting the lower reference point (H_2S)	14	Button to transfer the values determined for the offset and slope to the sensor module

[1)] After a restart, the timer is automatically reset to the value set via the two dropdown fields.

Chapter 11 GasBuster

11.1 General

The "GasBuster" smartphone app is available for Android and iOS devices and can be downloaded free of charge from "Google Play" (Android) or the Apple "App Store" (iOS).

The tool is designed for the synchronisation of data and to display the current values. The "GasBuster" smartphone app is compatible with all variants of the myDatasensH2S1000 BLE and any sensor modules that can be combined with it (see "Sensor modules" on page 151).

The "GasBuster" smartphone app enables you to complete the following tasks:

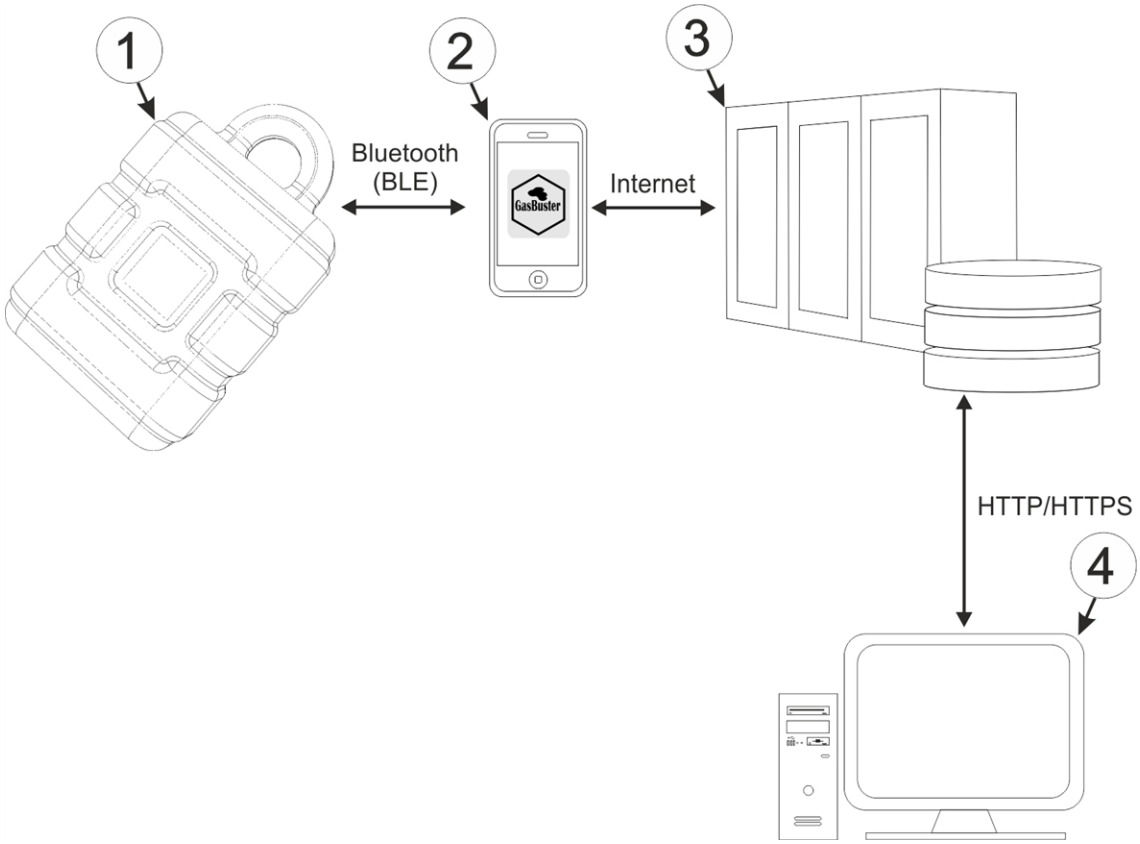
- Synchronisation of measurement data and configuration between device and server (specifically for devices without 2G/3G modem)
- Display of the current measurement values (gas concentration and temperature)
- Scanning for compatible devices and sensor modules within range

11.2 Prerequisites

Interfaces	Bluetooth Low Energy
Operating system	Apple iOS 6.0 or higher Android 4.0.3 or higher
Internet connection	Recommended
Required disk space	approx. 50 MB (iOs) approx. 50 MB (Android)

11.3 Functional principle

11.3.1 Use in conjunction with a myDatasensH2S1000 BLE & 3G



Use in conjunction with a myDatasensH2S1000 BLE & 3G

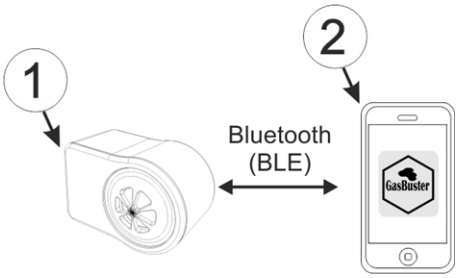
1	myDatasensH2S1000 BLE & 3G	3	myDatanet server
2	Smartphone with "GasBuster" smartphone app installed	4	Client that accesses the interface of the myDatanet server via the web browser

The "GasBuster" smartphone app communicates wirelessly (Bluetooth Low Energy) with the myDatasensH2S1000 BLE & 3G . The provided functions include:

- Synchronisation of measurement data and configuration between device and server (see "Synchronisation with the myDatanet server" on page 111)
- Scanning for compatible devices within range

As soon as the data has been transferred to the myDatanet server, it is available via all of the server's interfaces (e.g. HTTP/HTTPS, as illustrated in the functional principle above) in the same way as the data from all of the other myDatanet devices.

11.3.2 Use in conjunction with a sensor module



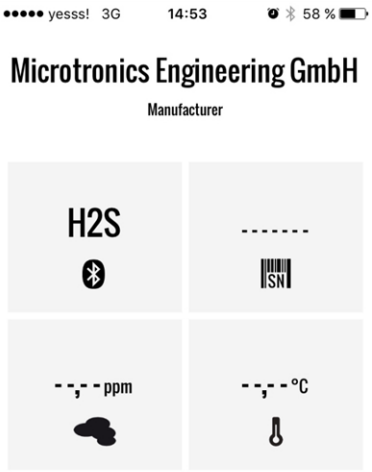
Use in conjunction with a sensor module

1 Sensor module (e.g. H2S 7H Sensor module)	2 Smartphone with "GasBuster" smartphone app installed

The "GasBuster" smartphone app communicates wirelessly (Bluetooth Low Energy) with the sensor module. The provided functions include:

- Display of the current measurement values (gas concentration and temperature)
- Scanning for compatible sensor modules within range

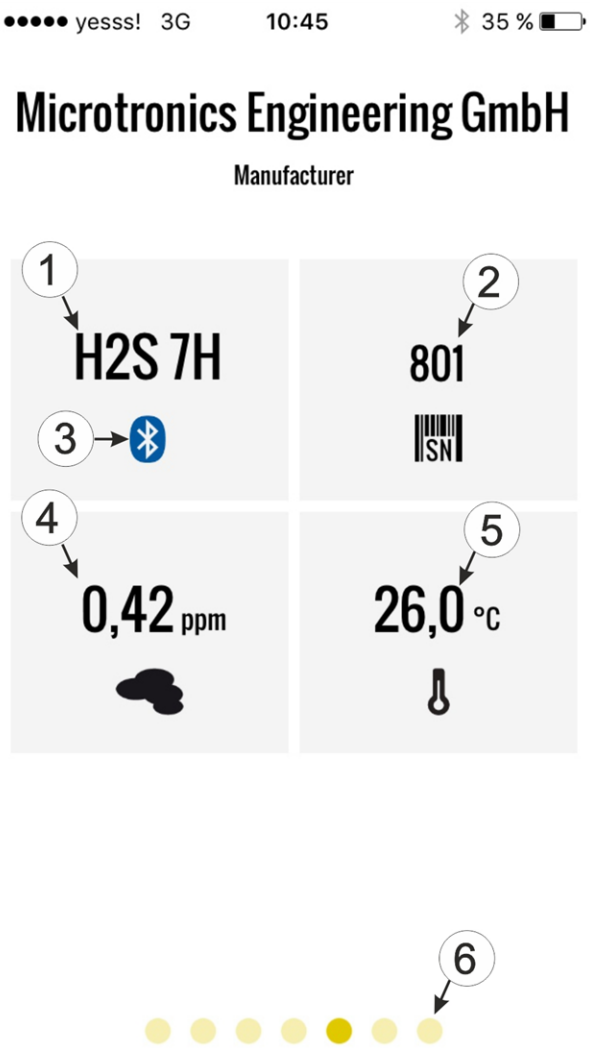
11.4 Overview



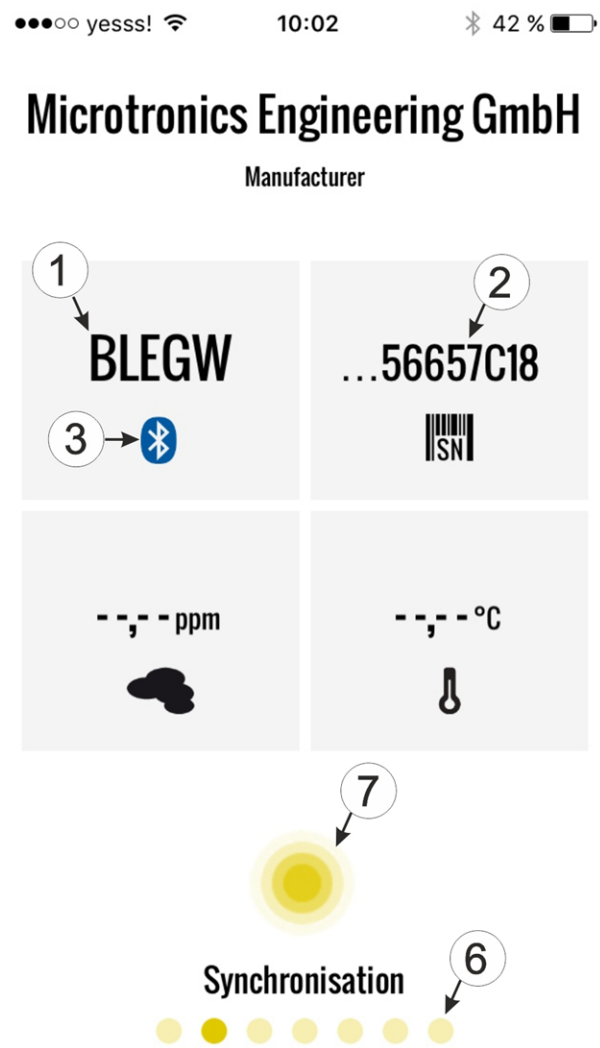
Start screen

The "GasBuster" smartphone app can be used to communicate with all variants of the myDatasensH2S1000 BLE and with their compatible sensor modules (see "Sensor modules" on page 151). "Swipe" horizontally to switch between the identified devices and sensor modules. If the connection to the currently selected device or sensor module is interrupted, the next detected device or sensor module is selected after 15 seconds. The start screen (see "Start screen" on page 109) is displayed if no other devices or sensor modules are available.

> ***Note:*** *Sensor modules that are successfully coupled with a myDatasensH2S1000 BLE & 3G are no longer displayed by the smartphone app.*



Sensor module detected



myDatasensH2S1000 BLE & 3G detected

1	Type designation of the sensor module or "BLEGW" if it is a variant of a myDatasensH2S1000 BLE	5	Current temperature (only for sensor modules)
2	Serial number of the detected device or sensor module (only the last 7 to 9 digits are displayed for devices)	6	Each point symbolises a detected device or sensor module. The current selection is represented by the dark point.
3	Indicates an active Bluetooth connection Blue: active connection Black: no connection	7	Button to trigger the synchronisation of the measurement data and the configuration between the device and server[1)]
4	Current measurement value of the gas concentration (only for sensor modules)		

[1)] To be able to complete a synchronisation, a site must first be created on the myDatanet server (see "Creating the site" on page 117).

11.5 Synchronisation with the myDatanet server

> ***Important note:*** *The following procedure requires that the myDatasensH2S1000 BLE & 3G has already been assigned a site on the myDatanet server. Detailed instructions are provided in chapter "Creating the site" on page 117.*

The measurement data and configuration can be synchronised between the myDatasensH2S1000 BLE & 3G and the myDatanet server using the "GasBuster" smartphone app. In contrast to the DeviceConfig configuration program, the smartphone app does not provide the option of saving the data temporarily, i.e. the smartphone that is used requires an active Internet connection when reading out the data on the site.

1. Open the "GasBuster" Smartphone app.
2. If several devices or sensor modules are within range, "swipe" horizontally to select the desired myDatasensH2S1000 BLE & 3G based on the displayed serial number.

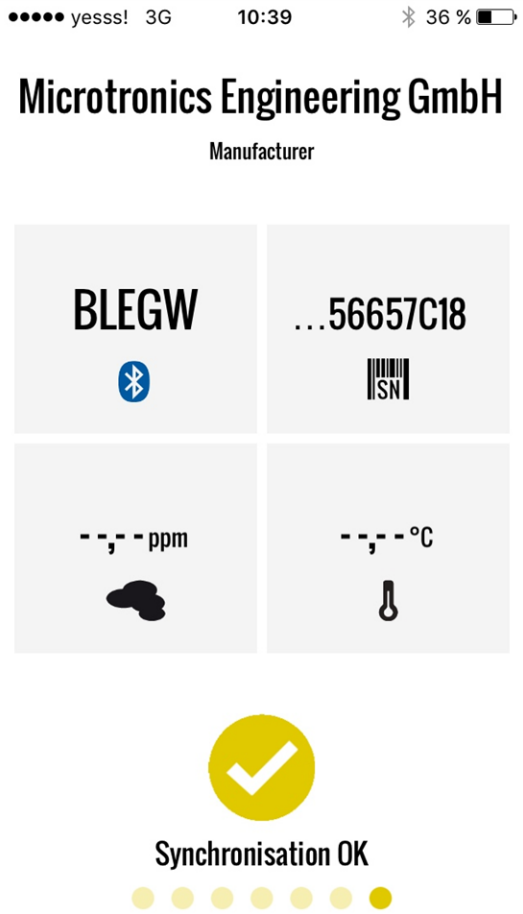
> ***Note:*** *"BLEGW" is displayed as the type designation for all variants of a myDatasensH2S1000 BLE .*

Select myDatasensH2S1000 BLE & 3G

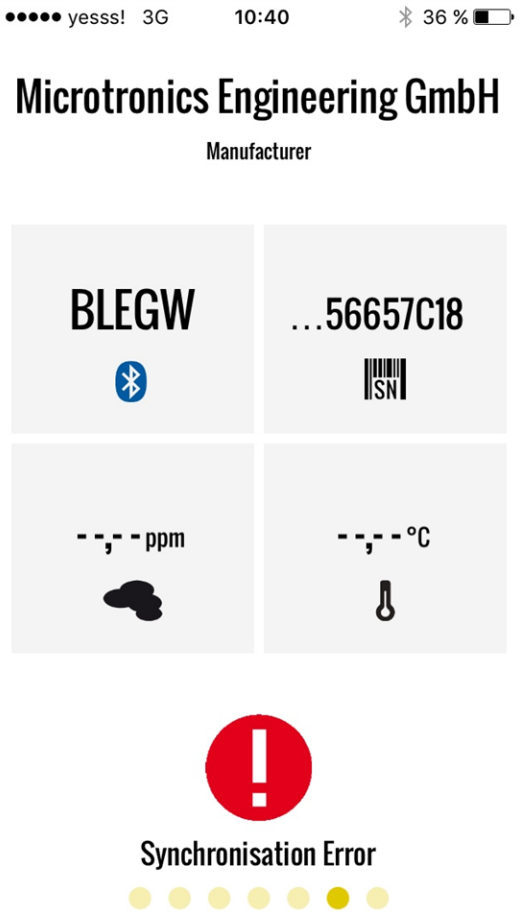
1	The text "BLEGW" indicates that the current selection is a variant of a myDatasensH2S1000 BLE .
2	Display of the last 7 to 9 digits of the serial number for the currently selected myDatasensH2S1000 BLE & 3G
3	Button to trigger the synchronisation of the measurement data and the configuration between the device and server

3. Click on the "Synchronisation" button (see "Select myDatasensH2S1000 BLE & 3G " on page 111).

4. Wait until the smartphone app indicates that the synchronisation process is complete. An active synchronisation process is indicated by the "Synchronisation" button pulsating. If the process could be completed successfully, this is indicated by a checkmark. An exclamation mark is displayed in the event of an error. In this case, restart the synchronisation process.



Synchronisation successful

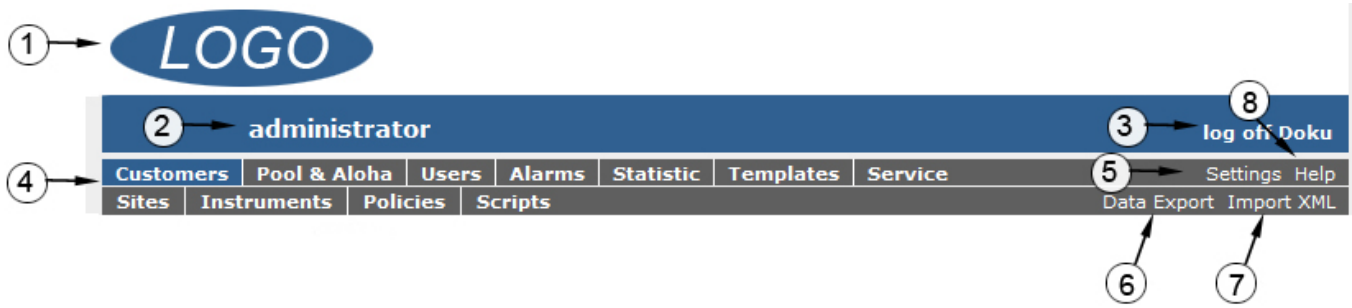


Error during the synchronisation

Chapter 12 myDatanet server

Note: All of the screenshots show version 45.12 of the myDatanet server using the standard colour scheme. Newer versions may include minor changes to the appearance of the server.

12.1 Overview



Overview of the myDatanet server

1	Freely selectable logo	5	Opens the screen to input the global settings for the server
2	User group to which the user who is currently logged in is assigned	6	Switches to the "Data exports" area to configure the data export. This tab is only visible if at least the licence for one export variant is available.
3	Logout the active user	7	Opens the input screen to upload a XML file. This tab is only visible if the licence for the XML import is available.
4	Tabs to switch between the individual server areas	8	Call up the help menu

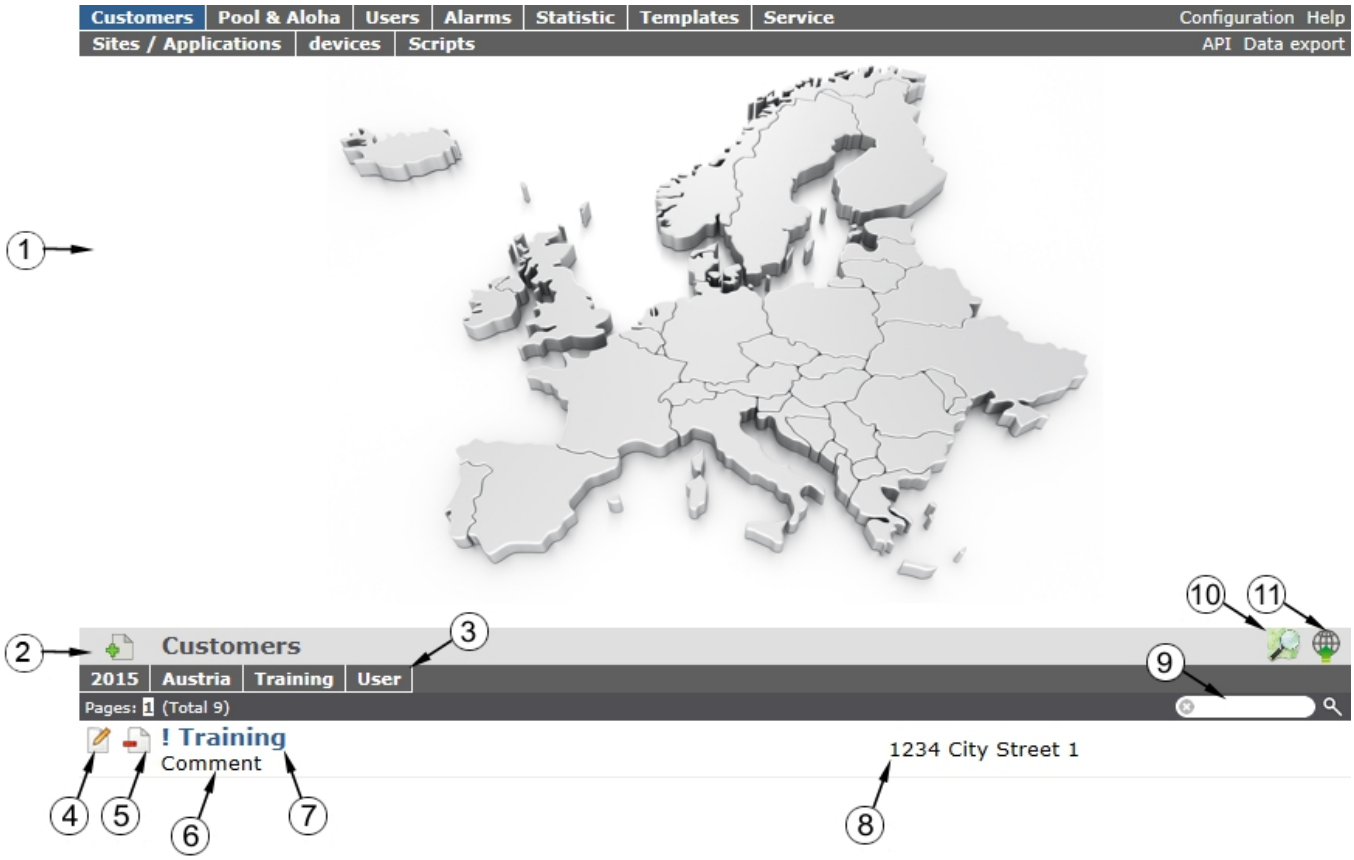
12.1.1 Explanation of the symbols

Adds a new entry to the current list (reports, sites, users, etc.).

Deletes the adjacent element (reports, sites, users, etc.) from the list.

Calls up the input screen to edit the adjacent element (reports, sites, users, etc.).

12.2 "Customer" area

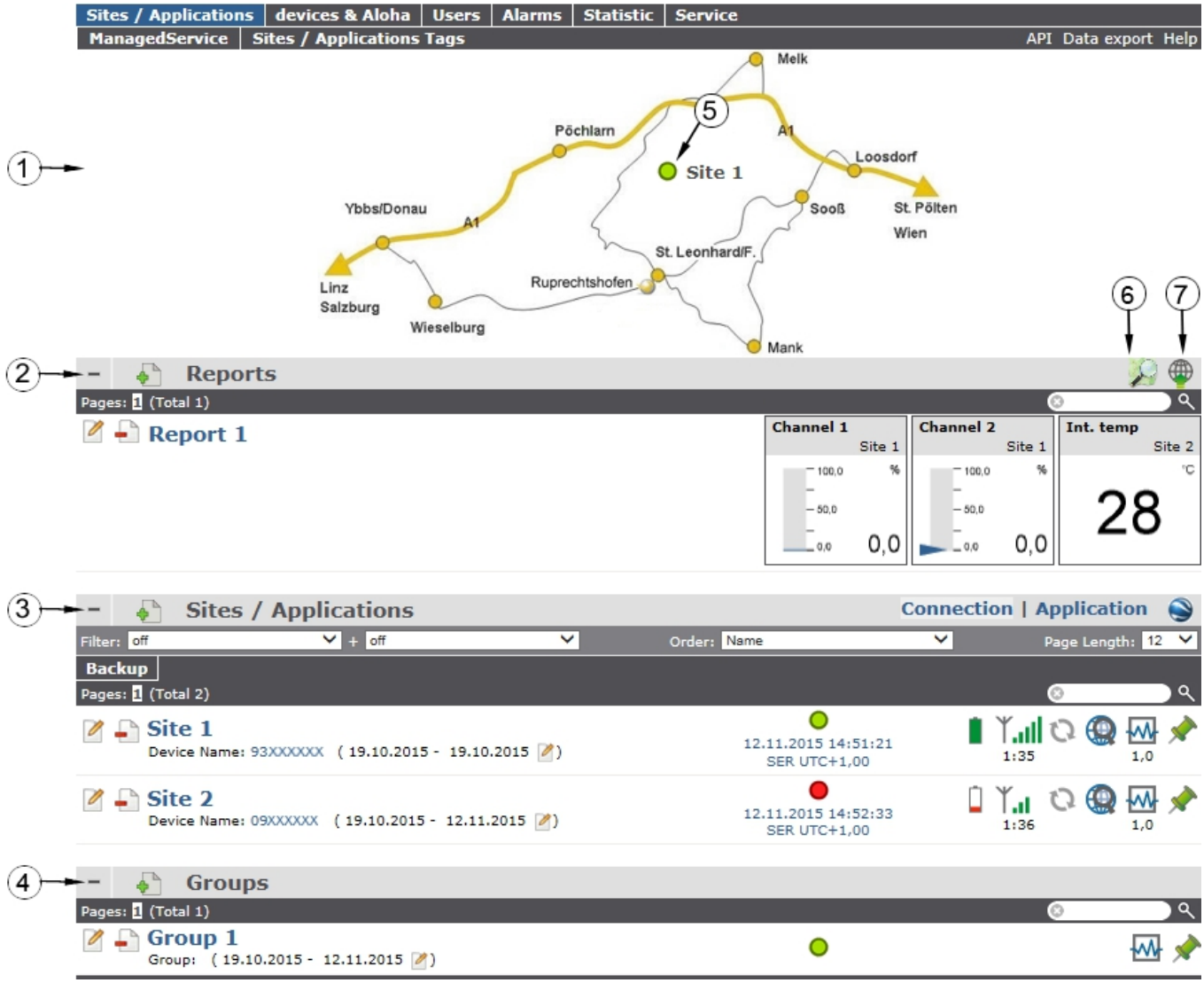


Overview of the "Customer" area

1	Area where an image file can be displayed as a "Map" and/or the OpenStreetMaps map can be displayed The sites can be manually placed on the image file used as a "map". In the OpenStreetMaps map, the sites are only displayed once GPS coordinates have been assigned to the site.
2	Adds a new customer

3	List of tags that are assigned to at least one of the customers displayed in the list of customers. If the list of customers was limited by the search field or selection of a tag, this is taken into consideration when creating the list of tags. A cross is added to the end of the list of tags as soon as the list of customers is limited by the selection of a tag. Clicking on this cross will reset the selection of all tags and the restriction is cancelled. By clicking on one of the tags with the left mouse button only those customers who have been assigned the corresponding tag are displayed in the list of customers and the selected tag is highlighted in colour. By clicking on one of the tags with the right mouse button all of the customers who have been assigned the corresponding tag are hidden, the selected tag is highlighted in colour and the title of the tag is crossed out. Clicking the same mouse button again will remove the restriction.
4	Opens the input screen for configuring the customer
5	Deletes the customer
6	Comment that can be entered in the configuration of the customer
7	If a default report was defined, the default report is accessed by clicking on the name of the customer. Otherwise the "Sites" area at customer level is opened by clicking on the name of the customer (see ""Site" area at customer level" on page 116 or "Reports" on page 117).
8	Customer's address that can be entered via the input screen for configuring the customer
	Search field to filter the customer list
10	Symbol via which an image file can be loaded on to the server as an "Overview map" To remove the "Map" again, open the upload dialogue again and click on "Submit" without selecting an image file beforehand.
11	Symbol via which a OpenStreetMaps map, on which the sites are displayed, can be loaded. (see "Map view" on page 117)

12.3 "Site" area at customer level



Overview of the "Sites" area at customer level

1	Area where an image file can be displayed as a "Map" and/or the OpenStreetMaps map can be displayed The sites can be manually placed on the image file used as a "map". In the OpenStreetMaps map, the sites are only displayed once GPS coordinates have been assigned to the site.
2	List of reports (see "Reports" on page 117)
3	List of sites/applications (see "Site" on page 59)
4	List of groups (see "Groups" on page 117)
5	Symbol that represents a site on the "Map"

6	Symbol via which a OpenStreetMaps map, on which the sites are displayed, can be loaded. (see "Map view" on page 117)
7	Symbol via which an image file can be loaded on to the server as a "Map" To remove the "Map" again, open the upload dialogue again and click on "Submit" without selecting an image file beforehand.

12.3.1 Reports

The reports provide a variety of options to display graphs of the data on the web interface of the myDatanetserver or to download the data from the myDatanet server. Detailed instructions on creating and handling the reports is provided in myDatanet Server Manual (805002).

12.3.2 Groups

The groups offer a variety of options for compressing and summarising the measurement data of different sites. Detailed instructions on creating and handling the groups is provided in myDatanet Server Manual (805002).

12.3.3 Map view

The map view provides an overview of the geographic position of the sites. Detailed instructions on operating and configuring map view are provided in myDatanet Server Manual (805002).

12.4 Recommended procedure

12.4.1 Creating the site

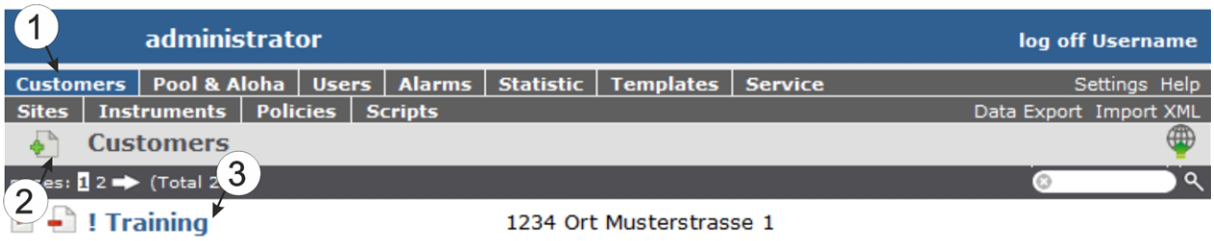
> ***Note:*** *Some of the fields mentioned in the following chapters may be hidden depending on the respective user level. In this case, please contact the administrator of the myDatanet server.*

Detailed instructions on creating a new site are provided in myDatanet Server Manual (805002).

1. Log in via the web interface on the myDatanet server. You will receive the web address from your responsible sales partner.

Login form of the myDatanet server

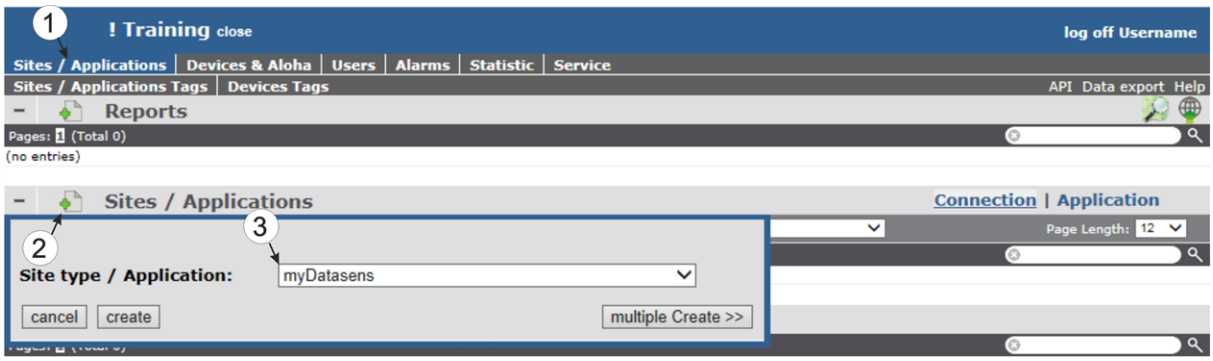
2. Click on the "Customer" menu item of the myDatanet server to call up the list of available customers. Select an existing customer or create a new customer.



Selecting the customer

1	Menu item to call up the list of customers	3	List of available customers
2	Creating a new customer		

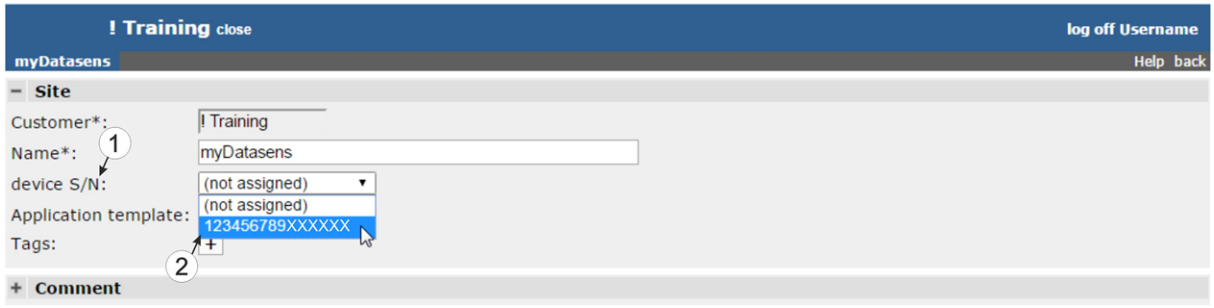
3. Click on the "Sites / Applications" menu item of the myDatanetserver to call up the list of available application templates and sites. Use the "myDatasens" application template to create a new site/application.



Creating the site

1	Menu item to call up the list of sites	3	Selection of the type of site
2	Creating a new site		

4. Link the site/application with the myDatasensH2S1000 BLE & 3G by selecting the serial number. If the serial number of your device is not included in the list, you must first assign the device to the customer (see "Assigning a device to the customer" on page 119) or the device is already assigned to a different site. More detailed information on this is provided in myDatanet Server Manual (805002).



Linking the device and site

1 Device assignment	2 List of devices that have not yet been linked with a site

12.4.2 Assigning a device to the customer

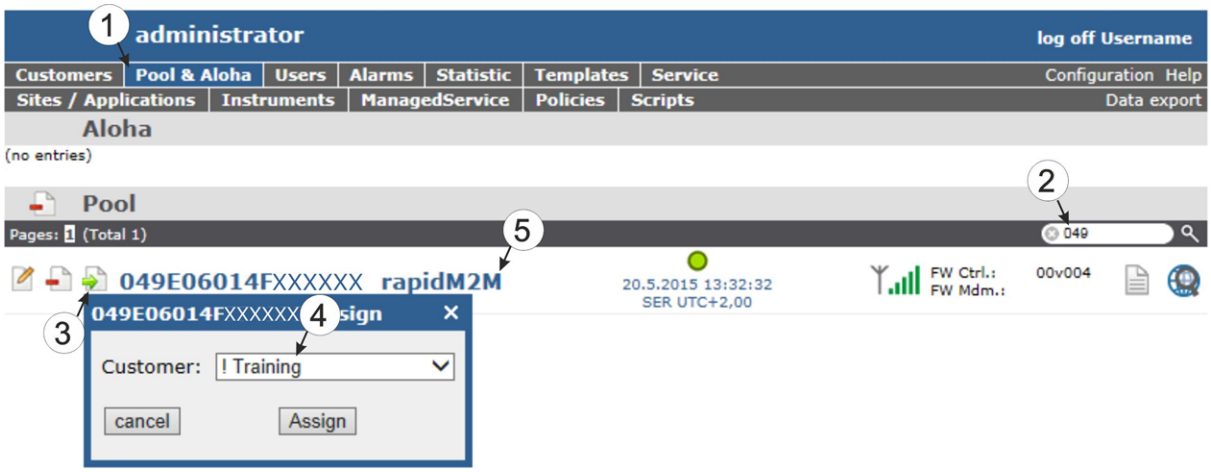
> ***Note:*** *Some of the fields mentioned in the following chapters may be hidden depending on the respective user level. In this case, please contact the administrator of the myDatanet server.*

Detailed instructions on shifting the devices are provided in myDatanet Server Manual (805002).

1. Log in via the web interface on the myDatanet server. You will receive the web address from your responsible sales partner.

Login form of the myDatanet server

2. Click on the "Pool and Aloha" menu item of the myDatanet server to access the list of devices that are not assigned to a customer and enter the serial number of the myDatasensH2S1000 BLE & 3G in the search field. If your device is not included in the list, you may need to initiate setup mode via the solenoid switch to trigger a transmission (see "Setup mode" on page 29). The device is not displayed in the list if it is already assigned to a customer. More detailed information on this is provided in myDatanet Server Manual (805002).



Assigning a device to the customer

1	Menu item for calling up the list of devices that are not assigned to a customer	4	Selection of the customer to whom the device should be assigned
2	Filter for the list of measurement instruments	5	List of measurement instruments
3	Opens the dialogue to select the customer to whom the device should be assigned		

3. Use the filter to find the required device in the list of measurement instruments. Click on the symbol to open the dialogue to select the customer (see "Assigning a device to the customer" on page 120) and assign the instrument to the selected customer.

Chapter 13 API

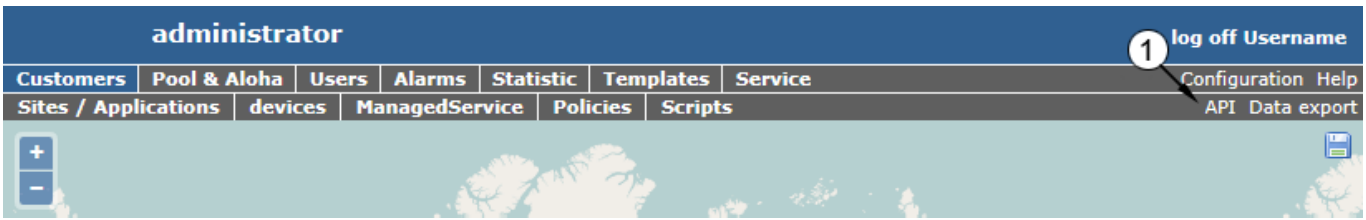
Important note: The relevant licences are required on the myDatanet server to use the API. For future information contact your responsible sales partner.

13.1 General

The API is provided to export data from and import data to the myDatanet server. However, this is not just limited to the pure measurement data but includes all of the data provided by myDatanet server (e.g. configurations). It is therefore possible for the customer to completely dispense with the interface of the myDatanet server and to create his own user interface. A specially developed PC program or web interface can, for example, be used for this purpose.

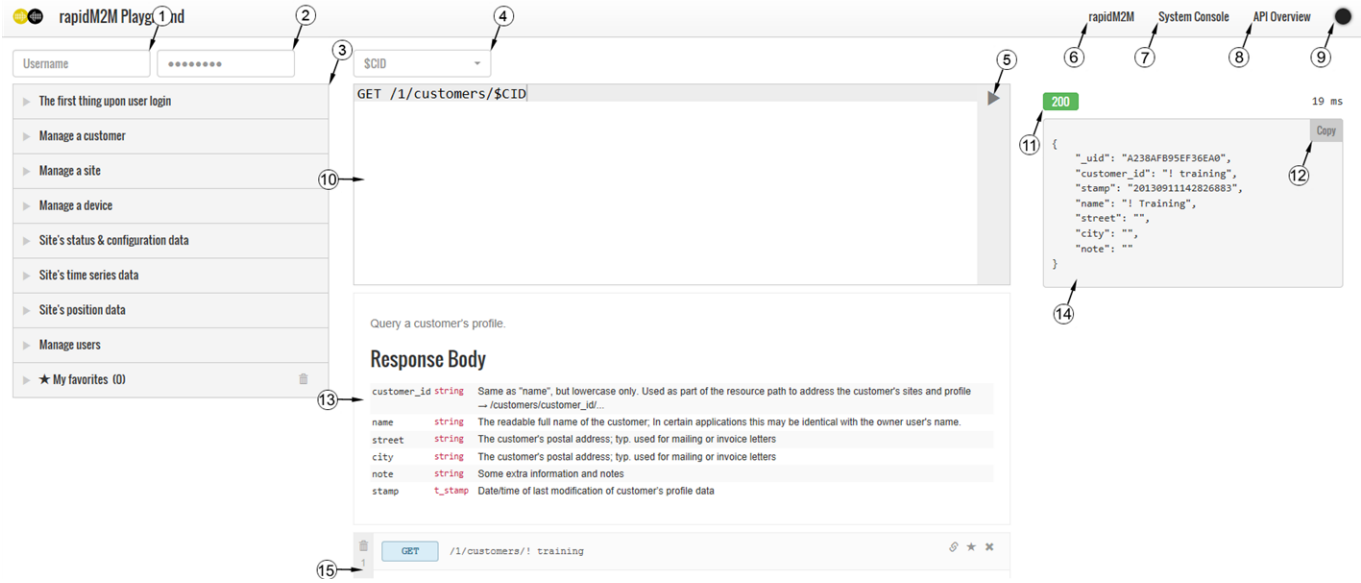
13.2 rapidM2M Playground

The rapidM2M Playground enables you to familiarize with the API of the myDatanet server and to test the functions provided. A click on the “API” button takes you to the rapidM2M Playground .



1	opens the rapidM2M Playground

13.2.1 Übersicht



rapidM2M Playground

1	input field for the user name
2	input field for the password
3	List of all available HTTP-commands. The HTTP commands are grouped according to application fields.
4	Dependent on the HTTP-command selected drop down lists for the selection of the client, the user and the measurement site are displayed, which should substitute the relative wildcard (“$CID”...client, “$UID”...user, “$SID”...site) in the resource path of the HTTP command.
5	button for the execution of the HTTP command
6	opens the website "http://rapidm2m.com/", which provides additional information for developers
7	opens the login dialogue of the myDatanet Server linked to the rapidM2M Playground
8	opens the quick guide for the API
9	button for changing the colour scheme of the rapidM2M Playground
10	window showing the HTTP command selected
11	response code sent by the myDatanet Server as a response to the HTTP command
12	copies the JSON-object, which was created as response to the HTTP command, to the clipboard
13	window showing the documentation of the selected HTTP command. This contains a description of the action to be executed by the selected HTTP command, notes to be considered and a description of the request body as well as the response body.
14	window showing the JSON-object, which is created as response to the HTTP command
15	window showing the last HTTP commands executed

Chapter 14 Maintenance

Important note: To prevent any damage to the device, the work described in this section of the instructions must only be performed by qualified personnel.

The device must be deenergised before any maintenance, cleaning and/or repair work.

14.1 General maintenance

- Regularly check the myDatasensH2S1000 BLE & 3G for mechanical damage.
- Clean the myDatasensH2S1000 BLE & 3G with a soft, moist cloth. Use a mild cleaning agent, if necessary.

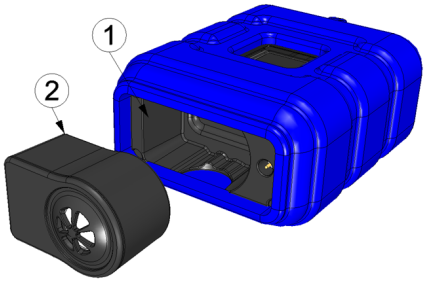
14.2 Maintenance of the myDatasensH2S1000 BLE & 3G

As the sensor unit is designed as a separate module, the myDatasensH2S1000 BLE & 3G itself does not require any cyclic maintenance work other than the actions listed in chapter "General maintenance" on page 123 and replacement of the batteries after max. 2 years. The remaining days until the next time the batteries need to be replaced are shown on the display of the myDatasensH2S1000 BLE & 3G (see "Display" on page 56). The batteries must only be replaced by the manufacturer (see "Contact information" on page 157) or a certified service partner. The device must be returned in its original packaging for this purpose.

14.3 Replacing the sensor module

The site settings do not need to be modified when replacing the sensor module. Leaving the device at the place of use and simply replacing the sensor module also ensures that the recording is not interrupted.

1. Remove the depleted sensor module from the sensor recess of the myDatasensH2S1000 BLE & 3G .



Removing the sensor module

1 Sensor module	**2** Sensor recess of the myDatasensH2S1000 BLE & 3G

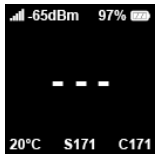
The display is activated and the following actions are executed when the sensor module is removed:

> ***Note:*** *To check the current operating state, you may need to activate the display again by briefly pressing (approx. 1 sec.) the solenoid switch (see "Solenoid switch" on page 56).*

1. A connection to the myDatanet server is established.

2. The data is synchronised with the myDatanet server.

3. Transport mode is activated, i.e. the measurement and cyclical data transmission are deactivated.



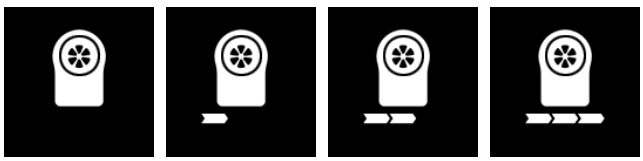
2. Before inserting the new sensor module, ensure that the sensor recess in the myDatasensH2S1000 BLE & 3G is clean. Remove any impurities and/or dirt.
3. Insert the new sensor module (see "Inserting the sensor module" on page 40). It is designed in such a way that it cannot be inserted incorrectly.

   Important note: *During the BLE pairing between the new sensor module and the myDatasensH2S1000 BLE & 3G , ensure that there are no other sensor modules within a radius of 1 m.*

   When inserting the new sensor module, transport mode is terminated again, the display is activated and the following actions are executed:

   Note: *To check the current operating state, you may need to activate the display again by briefly pressing (approx. 1 sec.) the solenoid switch (see "Solenoid switch" on page 56).*

   1. The BLE connection between the sensor module and the myDatasensH2S1000 BLE & 3G is established.

   2. A connection to the myDatanet server is established if the BLE pairing between the sensor module and myDatasensH2S1000 BLE & 3G was successful.

   3. The data is synchronised with the myDatanet server.

The following step is not mandatory.

4. Check whether the coupling with the desired sensor module was established as part of the BLE pairing. To do so, compare the serial number (see "Display" on page 56) shown on the display of the myDatasensH2S1000 BLE & 3G with the one on the type plate of the sensor module.
5. Send the depleted sensor module to the manufacturer or a certified service partner in the original packaging to be calibrated (see "Return" on page 36).

14.4 Maintenance of the H2S sensor

The H2S sensor of the sensor module is an electrochemical gas sensor that is used up over time. It must therefore be recalibrated at regular intervals (at the latest every 6 months). The display of the myDatasensH2S1000 BLE & 3G indicates the remaining days until the next calibration of the sensor module inserted in the sensor recess is due (see "Display" on page 56). The load from the gas (ppm/s), in addition to the running time since the last calibration, is relevant to the wear of the H2S sensor. For the calibration, the sensor module must be sent back to the manufacturer or a certified service partner in the original packaging (see "Return" on page 36). The maximum service life of the used H2S sensor is 2 years, although, it may be shortened due to loads during operation. During the calibration process, the manufacturer or certified service partner will evaluate the wear of the sensor and inform the customer about the required replacement of the sensor, if necessary.

14.4.1 Calibration, trimming and zero-point alignment

CAUTION:
To prevent any damage to the device, the work described in this section of these instructions must only be performed by qualified personnel trained to handle H2S calibration gas.

Note: *Additional explanations on the difference between calibration, trimming and zero-point alignment*

Action	*Amount of time*	*Required tools*	*Accuracy*
Calibration *(see "Calibration" on page 127)*	⧖⧖⧖⧖	🔧🔧🔧🔧	★★★★
Trimming *(see "Trimming" on page 134)*	⧖⧖	🔧	★★
Zero-point alignment *(see "Zero point adjustment" on page 138)*	⧖		★

14.4.1.1 Safety instructions for handling H2S gas

DANGER:

Extreme caution is required when handling calibration gases!

Hydrogen sulphide is a neurotoxic substance that can cause poisoning and even death depending on the concentration.

It has the following effects on humans:

- ~ 0.1ppm: Odour threshold
- from 20ppm: Corneal damage following prolonged exposure
- approx. 100ppm: Irritation of the mucous membranes in the eyes and respiratory system, salivation, irritation of the throat
- › 200ppm: Headache, breathing difficulties
- › 250ppm: Impairment of the olfactory receptors
- › 300ppm: Nausea
- approx. 500ppm: Weakness, drowsiness, dizziness (life threatening within a few minutes)
- › 500 ppm: Seizures, unconsciousness (fatal within a few seconds)

Long-term effects following exposure to low doses include tiredness, loss of appetite, headaches, irritability, poor memory and a lack of concentration.

The greatest caution must therefore be exercised depending on the calibration gas used.

The maximum admissible concentration (MAC value) at the workplace for H2S gas is 10ppm.

14.4.1.2 Calibration

Note: *The calibration of a sensor module must only be completed in a specially equipped calibration room.*

14.4.1.2.1 Calibration specifications

Important note:

- *No one is allowed to enter the calibration room without training.*
- *Employees must only use those gases or gas concentrations that they are trained to use according to the relevant risk potential.*
- *Alcohol-based cleaning agents must not be used.*
- *Before entering the calibration room, the employee must have been in an environment free of alcoholic vapours for at least 30 minutes.*
- *The ESD safety guidelines must be observed in the calibration room.*

14.4.1.2.2 Calibration room equipment

The following basic equipment must be available in the calibration room:

- Ensure sufficient ventilation is provided.
- Gas cylinders must be assembled and stored properly.
- The fittings on the gas discharge station must correspond to the working pressure.
- A computer is required for the DeviceConfig configuration program.
- An extraction device that is in permanent operation during the calibration process must be provided.

More detailed provisions must be taken from the applicable standards on installing a gas storage centre for the relevant country.

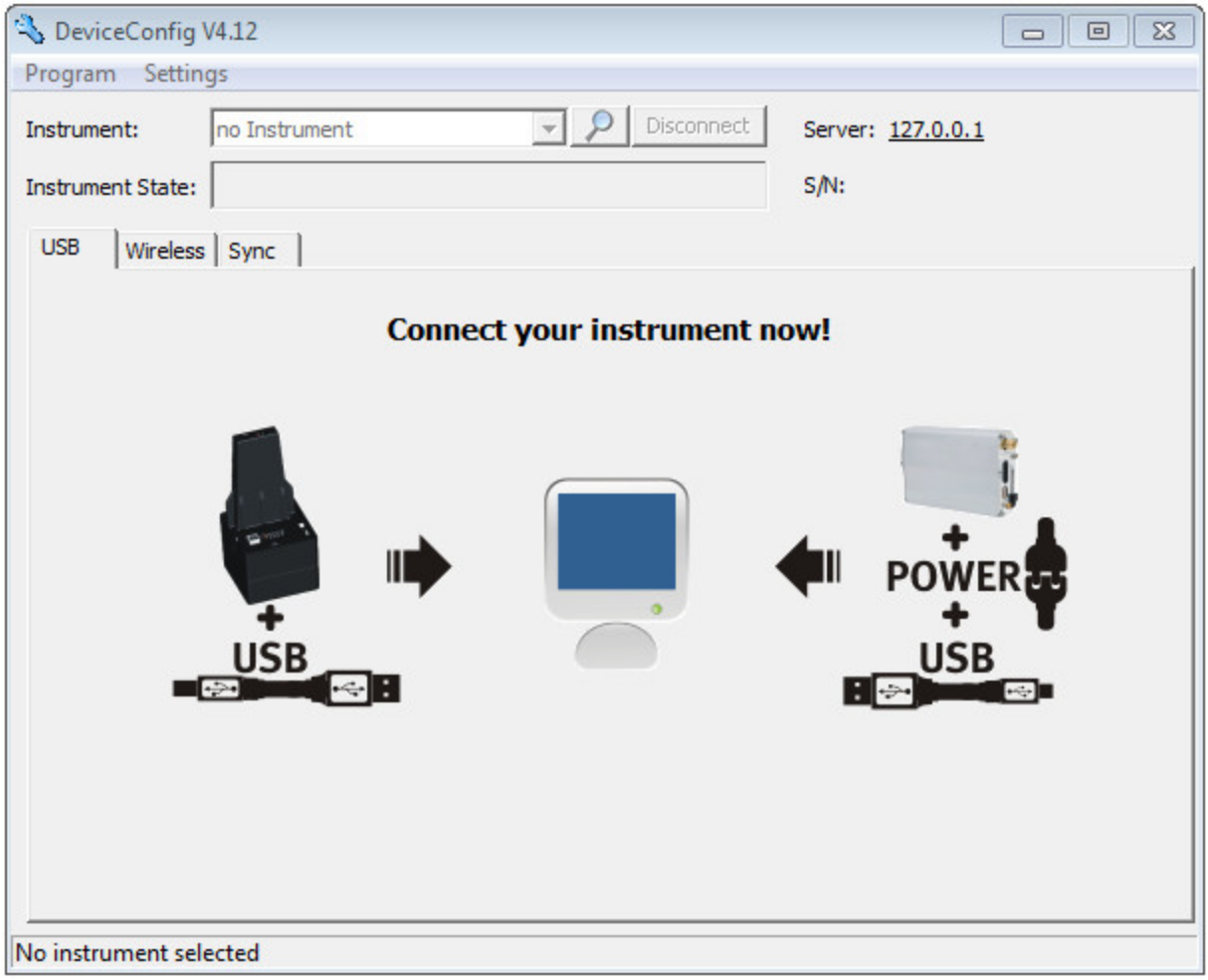
Normally, gas storage centres must be approved and accepted by the legislative authorities.

The gas storage centre must be designed for a hydrogen sulphide concentration of up to 200ppm.

14.4.1.2.3 Calibration process

> ***Important note:*** *The sensor module must be stored in an environment that is free of H2S and alcoholic vapours for twelve hours before the calibration.*

1. Connect the USB BLE-Adapter (300676) to the USB interface of your PC.
2. Start the DeviceConfig configuration program. It is available for download in the service area of your myDatanet server (see "myDatanet Server Manual " 805002). Installation instructions are provided in the chapter "Installation" on page 71.

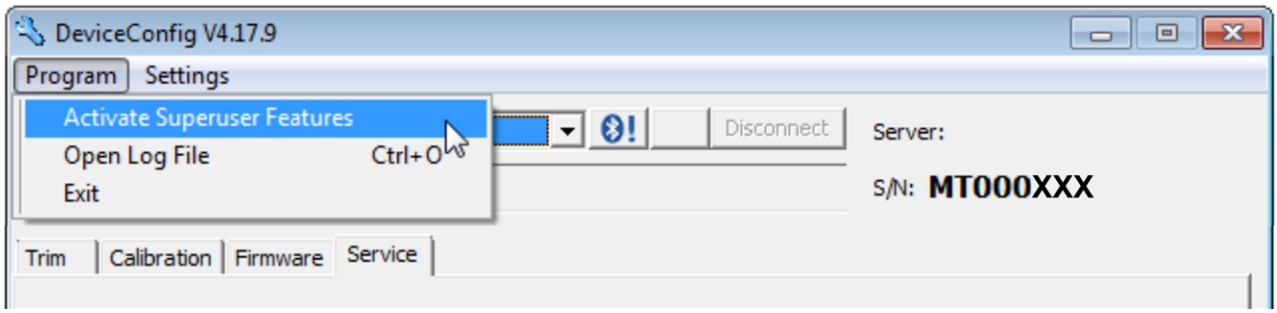


DeviceConfig

3. Connect the sensor module to the PC using the USB BLE-Adapter (300676) supplied (see "Establishing a connection to a sensor module with Bluetooth Low Energy interface" on page 100).

4. The calibration must only be completed by a restricted group of people. A password is therefore required. For this purpose, select "Program -› Activate Superuser Features" and enter the password provided by the administrator of your myDatanet server in the dialogue window that appears.

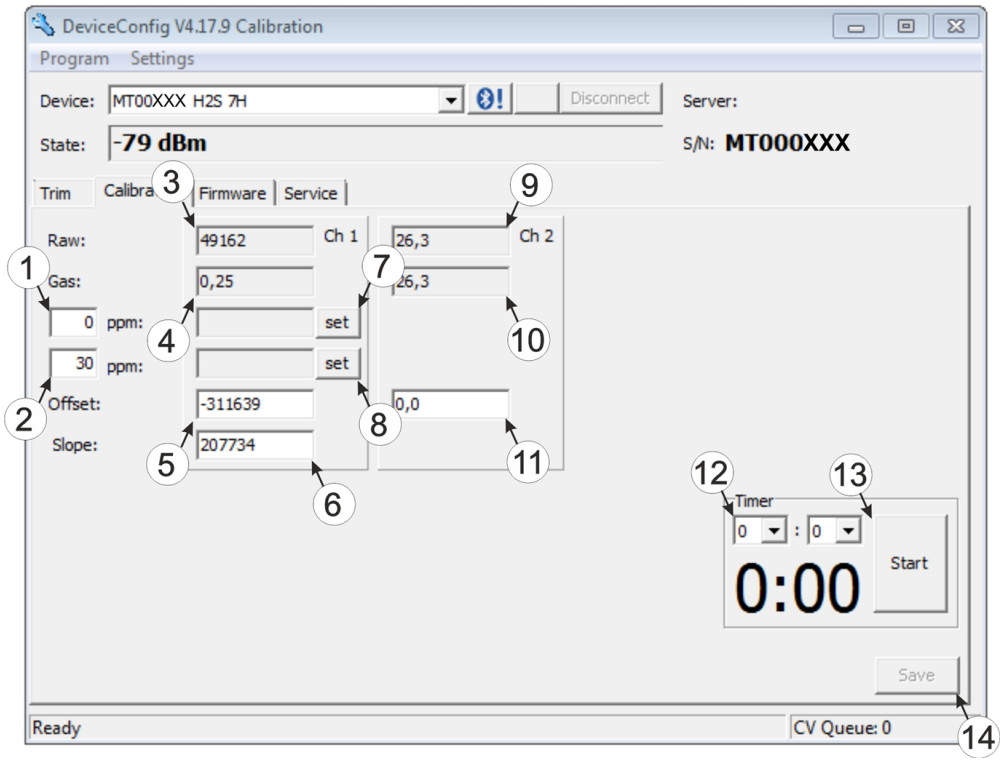
   Note: *Additional tabs will be displayed within the configuration program depending on the level of the password.*



Display following input of the password including additional tabs

5. Select the "Calibration" tab (see "Display following input of the password including additional tabs" on page 129).

6. Ensure that o ppm is selected for the lower reference point. Wait one minute before pressing the button to set the lower reference point. You can use the timer integrated in the interface to determine the amount of delay that remains. An acoustic signal is issued once the timer has elapsed. During this one-minute delay, it must be ensured that the H2S concentration in the calibration room is o ppm (extraction active and all of the valves on the gas cylinders are closed).



"Calibration" tab

1 Lower reference point (target value in ppm)	8 Button for adopting the upper reference point (H2S)
2 Upper reference point (target value in ppm)	9 Raw value (temperature)
3 Raw value (H2S)	10 Temperature measurement value (calculated with the currently valid values for the offset)
4 H2S measurement value (calculated with the currently valid values for the offset and slope)	11 Offset for calculating the temperature
5 Determined offset (H2S)	12 Timer to determine the remaining delay
6 Determined slope (H2S)	13 Starts/stops the timer [1)]
7 Button for adopting the lower reference point (H2S)	14 Button to transfer the values determined for the offset and slope to the sensor module

[1)] After a restart, the timer is automatically reset to the value set via the two dropdown fields.

7. Place the sensor module in the Calibration adapter for BLE sensor module (300665), which should already be connected to the gas extraction station.

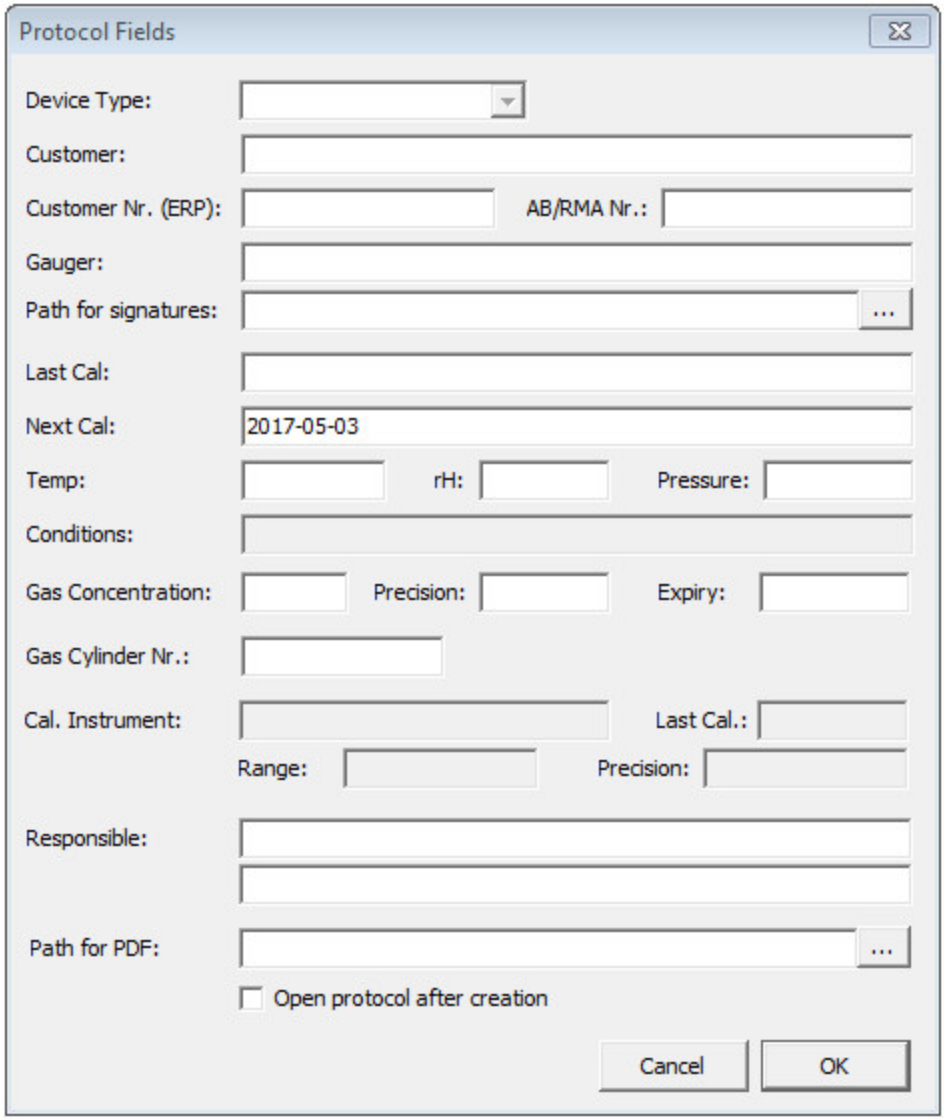
Inserting the sensor module in the calibration adapter

1 Hose to the gas extraction station	3 Calibration adapter for BLE sensor module (300665)
2 Sensor module	

8. Ensure that the concentration value of the gas that you are using for the calibration is entered for the upper reference value (recommendation: 30-150ppm). Set the flow controller for the calibration gas to 0.5 l/min. and gas the device for five minutes. Then press the button to adopt the upper reference point (see ""Calibration" tab " on page 130).

   Note: *If the determined value for the offset is below t.b.d. (e.g.t.b.d.) or above t.b.d. (e.g.t.b.d.), it can be assumed that the H2S sensor is defective. In this case, contact the manufacturer (see "Contact information" on page 157).*

9. Press the "Save" button to transfer the determined offset and slope values to the sensor module (see ""Calibration" tab " on page 130). A calibration protocol to ensure traceability is also created during this process, whereby a dialogue window, in which additional information can be added, will initially appear. The protocol is printed once this window is closed by selecting "OK". The standard printer is always used for this purpose without any additional prompt. A PDF writer can also be used.



Dialogue window to enter additional information

Device Type

Not required for this device class

Customer

Name of the customer

Customer no. (ERP)

ERP number of the customer

AB/RMA no.

Order number or RMA number that the device is assigned to

Gauger

Name of the gauger who completed the calibration. The folder specified in the "Path for signatures" must contain a PDF file with the digitised signature of the gauger. The file name of the PDF must correspond exactly with the name of the gauger entered in the "gauger" field.

Path for signatures
Folder where the PDFs with the digitised signatures of the gaugers are located.

...
Opens a dialogue window to select the folder

Last cal:
Time of the last calibration (set automatically, although it can be edited)

Next cal:
Time when the next calibration should be completed (suggested automatically, although it can be edited)

Temp
Temperature in the calibration room during the calibration

rH
Air humidity in the calibration room during the calibration

Pressure
Air pressure in the calibration room during the calibration

Conditions
Not required for this device class

Gas concentration
Concentration in ppm of the gas used for the upper reference point

Precision
Precision in % specified by the manufacturer of the gas used

Expiry
Expiry date of the gas used

Cal. instrument
Not required for this device class

Last cal.
Not required for this device class

Range
Not required for this device class

Precision
Not required for this device class

Responsible
Name and address of the company responsible for the calibration

Path for PDF
Folder in which the calibration protocols should be saved as PDFs

...
Opens a dialogue window to select the folder

Open protocol after creation
Checkbox for selecting whether the calibration protocol should be opened after creation

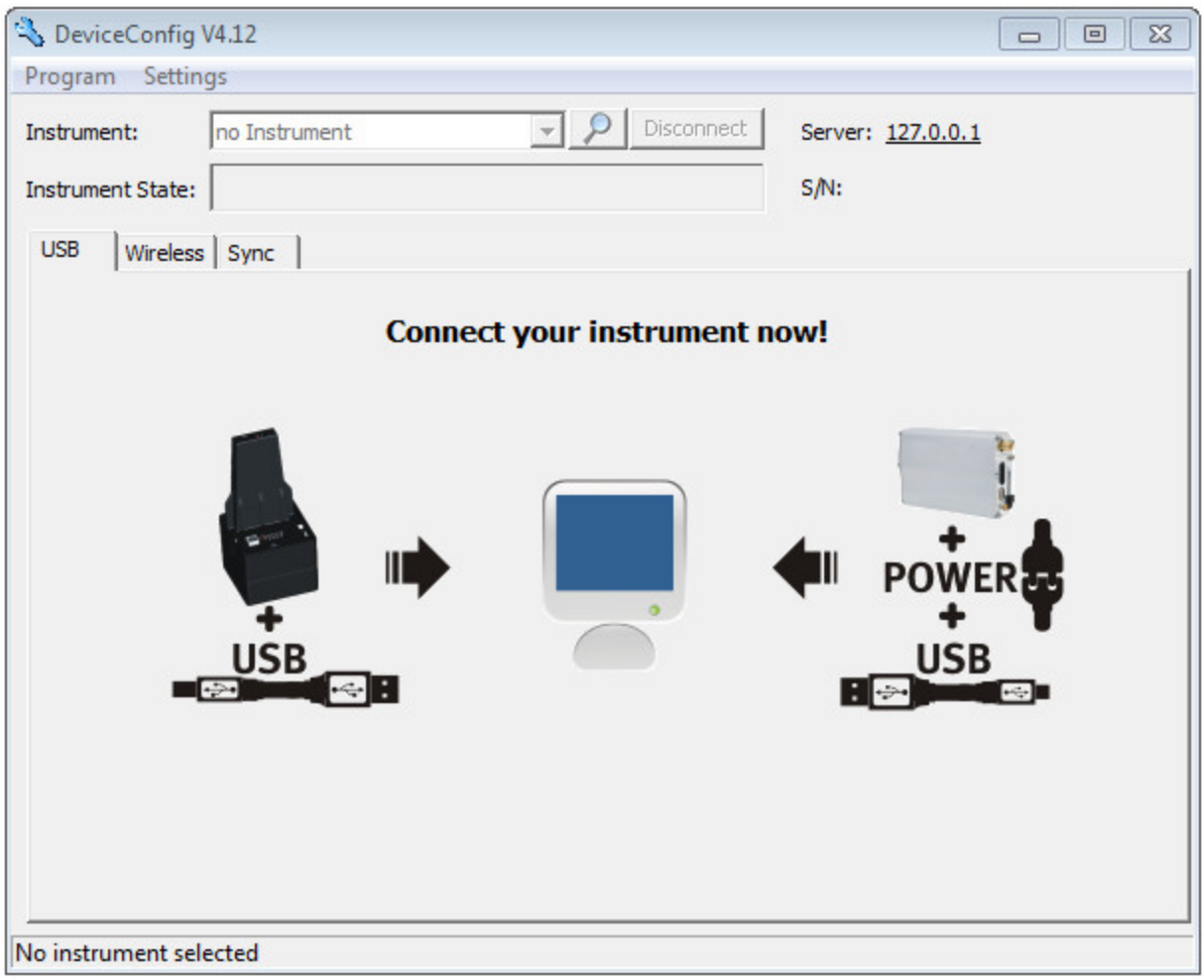
14.4.1.3 Trimming

Important note:

- *Employees must only use those gases or gas concentrations that they are trained to use according to the relevant risk potential.*
- *Alcohol-based cleaning agents must not be used.*

The optional "Calibration set H2S 30ppm (206.810)" and "Calibration adapter for BLE sensor module (300665)" accessories are recommended for executing the trimming process. If you are under the impression that based on the operational demands, the calibration of the sensor is no longer entirely correct, this can be compensated by the trimming process. This means that the time until the next scheduled calibration can be bypassed. The trim can then be removed again during the next calibration. The basic calibration of the device is not changed by the trimming process. The trim can be removed again at any time by clicking on the "Reset" button (see ""Trim" tab " on page 136).

1. Connect the USB BLE-Adapter (300676) to the USB interface of your PC.
2. Start the DeviceConfig configuration program. It is available for download in the service area of your myDatanet server (see "myDatanet Server Manual " 805002). Installation instructions are provided in the chapter "Installation" on page 71.

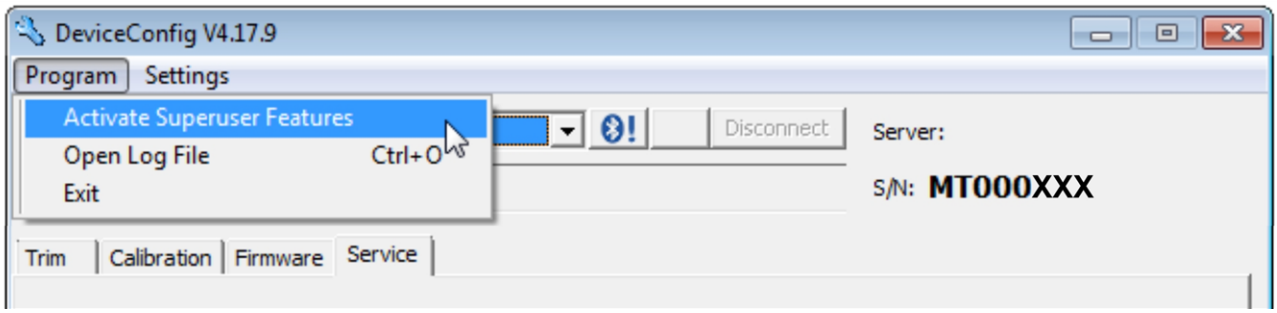


DeviceConfig

3. Connect the sensor module to the PC using the USB BLE-Adapter (300676) supplied (see "Establishing a connection to a sensor module with Bluetooth Low Energy interface" on page 100).

4. The trimming process can only be completed by a restricted group of people. A password is therefore required. For this purpose, select "Program -› Activate Superuser Features" and enter the password provided by the administrator of your myDatanet server in the dialogue window that appears.

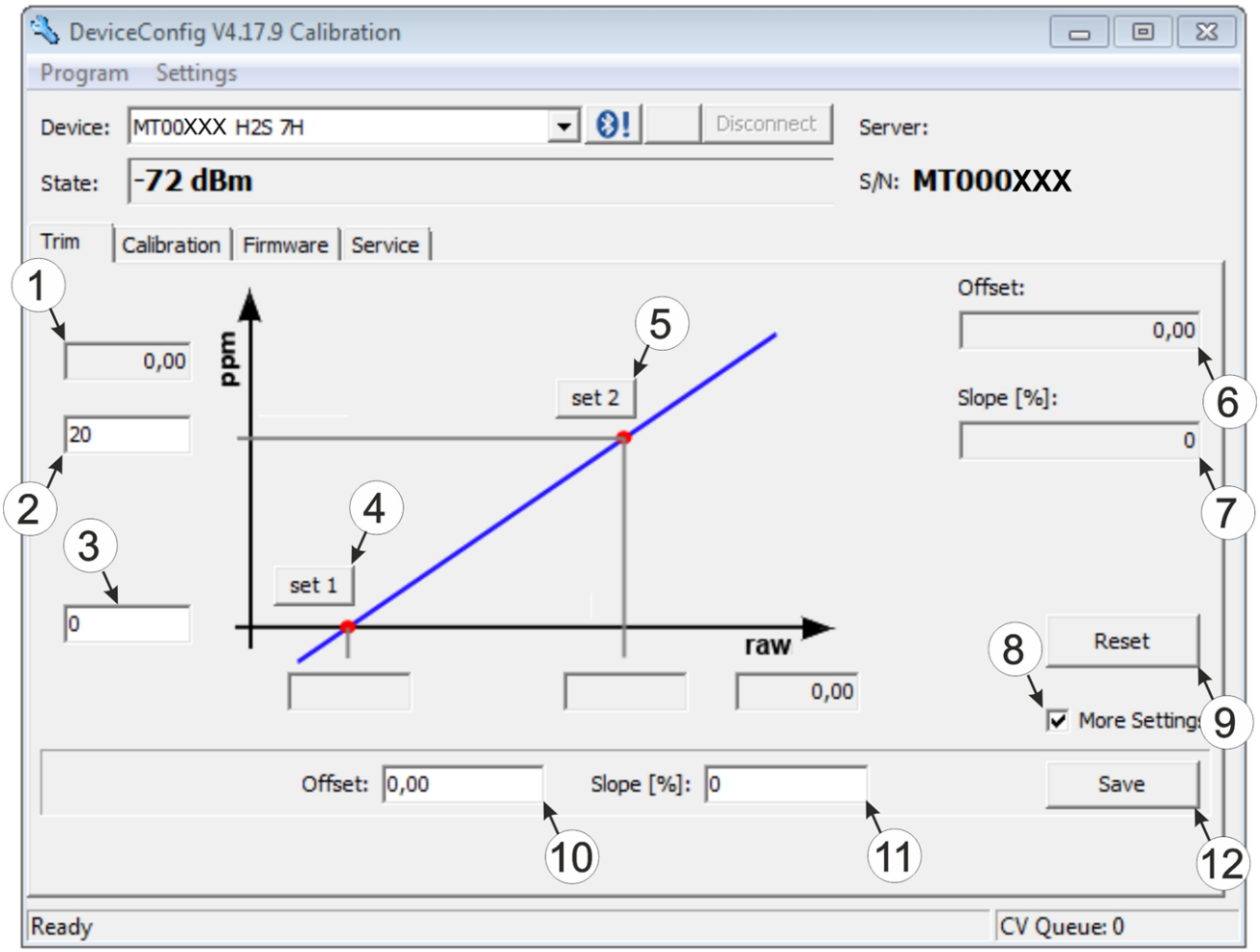
   Note: *Additional tabs will be displayed within the configuration program depending on the level of the password.*



Display following input of the password including additional tabs

5. Select the "Trim" tab (see "Display following input of the password including additional tabs" on page 135).

6. Ensure that o ppm is selected for the lower reference point. Wait one minute before pressing the button to set the lower reference point. During this one minute, it must be ensured that no H2S gas reaches the sensor.



"Trim" tab

1	H2S measurement value (calculated with the currently valid values for the offset and slope)	7	Detected slope
2	Upper reference point (target value in ppm)	8	Checkbox to display the input fields for the manual input of the trim
3	Lower reference point (target value in ppm)	9	Button to remove the trim
4	Button for adopting the lower reference point	10	Input field for the manual entry of the offset
5	Button for adopting the upper reference point	11	Input field for the manual entry of the slope
6	Detected offset	12	Button to transfer the manually entered values for the offset and slope to the sensor module

7. Place the sensor module in the Calibration adapter for BLE sensor module (300665), which should already be connected to the source of the calibration gas.

Inserting the sensor module in the calibration adapter

1 Hose to the source of the calibration gas	3 Calibration adapter for BLE sensor module (300665)
2 Sensor module	

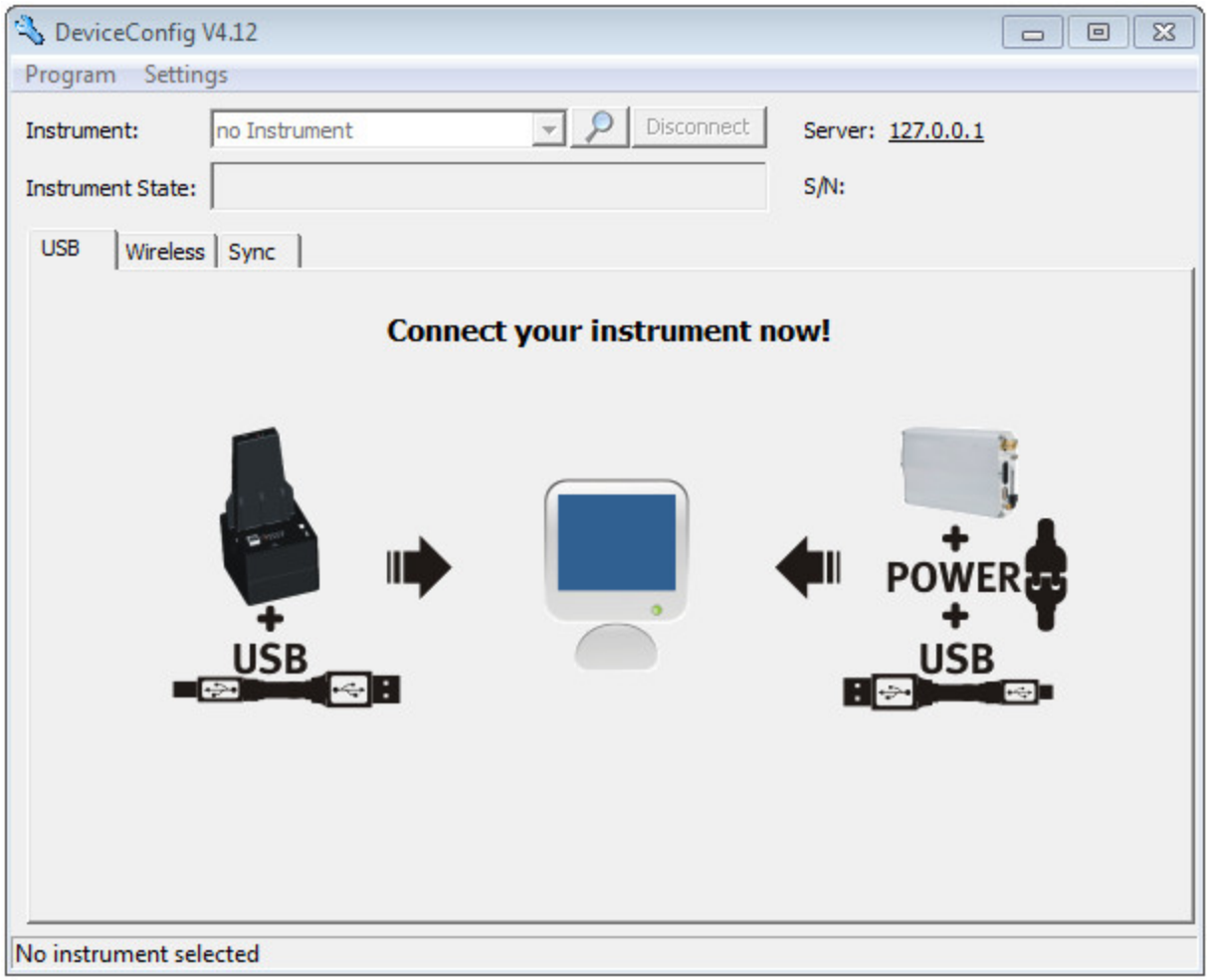
8. Ensure that the concentration value of the gas that you are using for trimming is entered for the upper reference value (30 ppm when using the "Calibration set H2S 30ppm (206.810)"). Set the flow controller for the calibration gas to 0.5 l/min. and gas the device for five minutes. Then press the button to adopt the upper reference point (see ""Trim" tab " on page 136). During this process the values determined for the offset and slope are also transferred to the sensor module.

> ***Note:*** *There is also an option to display the input fields for manually entering the offset and slope by selecting the checkbox "More Settings" (see ""Trim" tab " on page 136). By clicking on the "Save" button, the manually entered values for the offset and slope are transferred to the sensor module.*

14.4.1.4 Zero point adjustment

The zero point adjustment is used to compensate for adjustments of the zero point. The basic calibration of the device is not changed by the zero point adjustment.

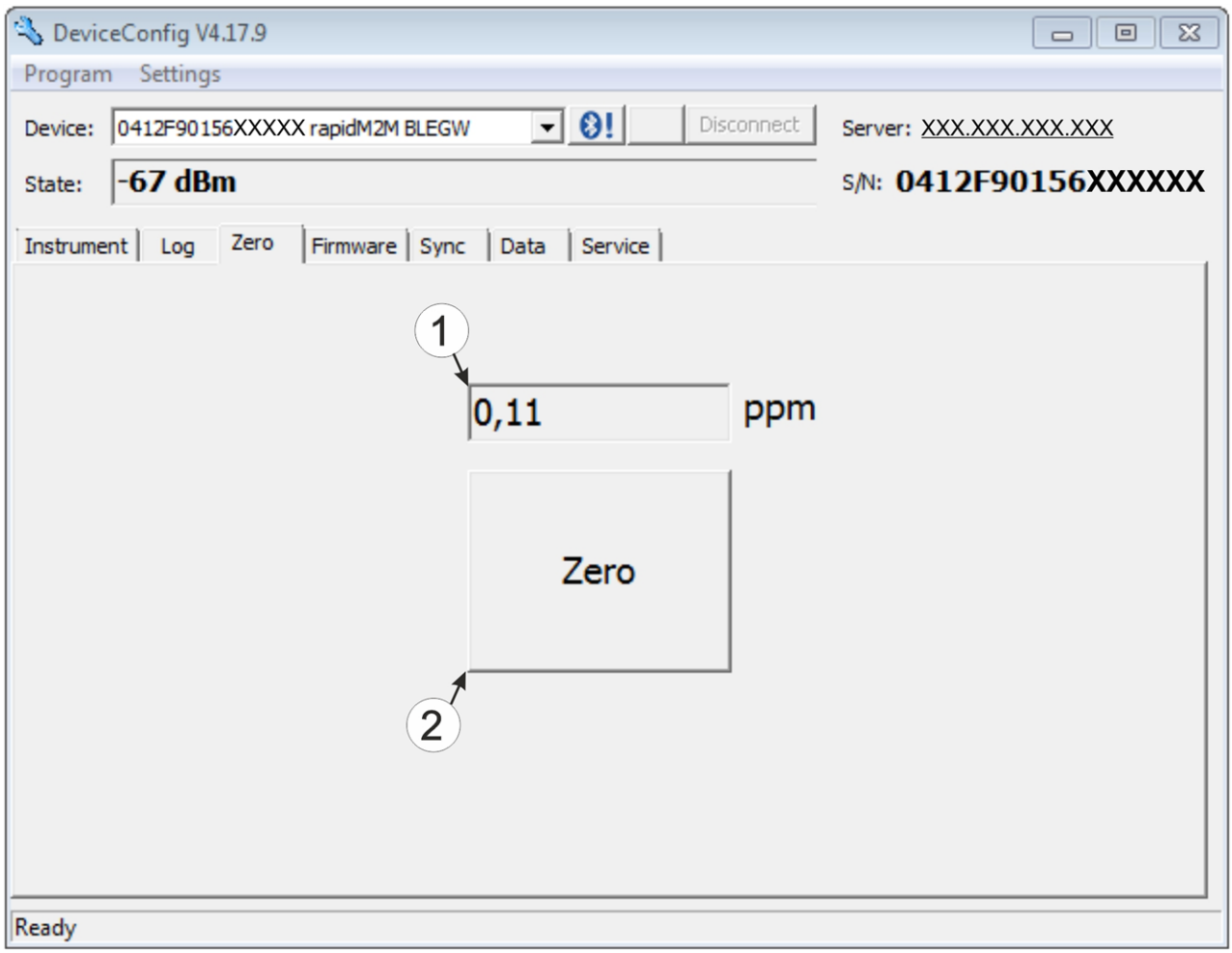
1. Connect the USB radio transmitter (206.657) to the USB interface of your PC.
2. Start the DeviceConfig configuration program. It is available for download in the service area of your myDatanet server (see "myDatanet Server Manual " 805002). Installation instructions are provided in the chapter "Installation" on page 71.



DeviceConfig

3. Connect the myDatasensH2S1000 BLE & 3G to the PC using the USB BLE-Adapter (300676) supplied (see "Establishing a connection to a device with Bluetooth Low Energy interface" on page 76).
4. Select the "Zero" tab (see ""Zero" tab " on page 139).

5. Ensure that no H2S gas reaches the sensor. Wait until the displayed ppm value is stable and then click on "Zero".



"Zero" tab

Chapter 15 Removal/disposal

Dispose of the device in accordance with the locally valid environmental regulations for electronic products.

Rechargeable batteries and/or battery packs may not remain in the myDatasensH2S1000 BLE & 3G after discharging. Ensure that the used rechargeable batteries and/or battery packs are disposed of in an environmentally proper way.

Chapter 16 Troubleshooting and repair

16.1 General problems

Problem	Cause/solution
Device does not respond (nothing appears on the display).	• Battery pack is completely discharged
Communication problems (between myDatasensH2S1000 BLE & 3G and PC)	• Reduce the distance between the myDatasensH2S1000 BLE & 3G and USB BLE-Adapter , and try to avoid obstacles such as walls and similar. • Check the value displayed by the DeviceConfig for the wireless signal level [dBm]. To ensure a stable connection, this value should be higher than -90dBm , for example -85dBm (see "Establishing a connection to a device with Bluetooth Low Energy interface" on page 76). • The capacity of the battery pack is virtually depleted.
Communication problems (between myDatasensH2S1000 BLE & 3G and myDatanet server)	• Evaluate the error code shown on the display (see "Display" on page 56). • Load the device log from the myDatasensH2S1000 BLE & 3G or the myDatanet server and use DeviceConfig for the report (see "Evaluating the device log" on page 150). • The capacity of the battery pack is virtually depleted.
Setup mode cannot be activated	• Evaluate the error code shown on the display (see "Display" on page 56). • Load the device log from the myDatasensH2S1000 BLE & 3G or the myDatanet server and use DeviceConfig for the report (see "Evaluating the device log" on page 150). • The capacity of the battery pack is virtually depleted.
Not all or no data is available on the server.	• The measurement data and configurations have not been synchronised between the DeviceConfig configuration program and the myDatanet server. • The connection was aborted during the transmission, which is indicated by a time-out entry in the connection list (see "myDatanet Server Manual " 805002). Solution: Activate setup mode or wait for the next cyclical transmission. • The assignment of the device and site is not correct (see "Site" on page 59 or "Creating the site" on page 117).
H2S measurement value is not plausible.	• Check the display for the number of remaining days until the next calibration or next service is due (see "Display" on page 56).

Problem	Cause/solution
Alarm state of a measurement value was not identified	• Increase the record interval (attention: This will increase the required data volume).
Alarm state was not transferred although the data is present	• Check the alarm settings of the measurement channel • The connection was aborted during the transmission, which is indicated by a time-out entry in the connection list (see "myDatanet Server Manual " 805002). Solution: Activate setup mode or wait for the next cyclical transmission.
Alarm message was not sent although the alarm was signalled	• Check the settings of the alarm schedule (see "myDatanet Server Manual " 805002). • Check the address data of the alarm schedule (see "myDatanet Server Manual " 805002).

16.2 Log entries and error codes

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1000	POWER ON	0	---	Restart following a power failure
		4	---	Watchdog reset (e.g. because of an exception)
		6	---	Reset was initiated by the device itself (e.g. in event of firmware update)
		##	--	Restart for reason other than ones specified above. There may be a hardware problem if the "POWER ON" log entry with a parameter code that is not equal to 0 or 6 is contained in the device log several times. Contact the manufacturer in this case (see "Contact information" on page 157).
1030	UV LOCKOUT	---	---	The device switches to energy saving mode and terminates all of the operations as the rechargeable battery or battery voltage is too low. Only the charge controller, if present, remains active.
1031	UV RECOVER	---	---	The rechargeable battery or battery voltage once again suffices to guarantee reliable operation. This is achieved by replacing the rechargeable battery or battery pack . The device resumes normal operation in accordance with the configuration.
1034	CONTROLLER_ UPDATE	##	---	Controller firmware update was completed successfully This entry is always duplicated in the device log. In the first entry, the parameter specifies the major version number (e.g. 3 for 03v011), while in the second entry it specifies the minor version number (e.g. 11 for 03v011).

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1035	EXCEPTION	##	---	An internal system error was detected that caused the device to restart. The parameter specifies the type of the system error. Contact the manufacturer if the device log contains this error with the same parameter code several times (see "Contact information" on page 157).
1038	UV MODEM LOCKOUT	---	---	The device deactivates the modem because the rechargeable battery or battery voltage is too low. A connection cannot be established now.
1039	UV MODEM RECOVER	---	---	The rechargeable battery or battery voltage once again suffices to guarantee a stable connection. This is either achieved by replacing the rechargeable battery or battery or by ensuring that the charge control has charged the battery sufficiently.
1161	LOG REFORMATFILE	##	---	Error in file system has been resolved. This can result in data being lost (data and/or log entries). The parameter contains more information on the problem. Contact the manufacturer if the device log contains this error with the same parameter code several times (see "Contact information" on page 157).
1200	MODEM ERROR			Modem error (see "Modem error" on page 148)
1202	MODEM CMME ERROR	##	---	The GPRS modem indicates a +CME error. The parameter specifies the type of error.
1203	SELECTED NETWORK	##	---	A new GSM network was selected. This entry is always duplicated in the device log. In the first entry, the parameter specifies the MCC (Mobile Country Code), while in the second entry it specifies the MNC (Mobile Network Code) of the selected GSM network.
1212	ERROR MODEM IRREGULAR OFF	##	---	Indicates a faulty connection. The parameter includes a counter that indicates how many consecutive connections have not worked.

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1252	MODEM TO CON	##	---	Timeout while a connection is being established. The parameter specifies the reason for the timeout. Contact the manufacturer if the device log contains this error with the same parameter code several times (see "Contact information" on page 157).
1281	ZLIB STREAMPROCESS ERR	##	---	Internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 157).
1282	ZLIB STREAMFINISH ERR	##	---	Internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 157).
1317	BLE CONNECTED	---	---	Bluetooth connection to a PC established
1318	BLE DISCONNECTED	---	---	Bluetooth connection was terminated
1601	SIM_STATE	0	NONE	SIM state was changed to "NONE" (initial state)
		1	PRODUCTION	SIM state was changed to "PRODUCTION" (a new device is in stock).
		2	HOT	SIM state was changed to "HOT" (valid contract)
		3	COLD	SIM state was changed to "COLD" (end of contract or fair use policy violated).
		4	DISCARDED	SIM state was changed to "DISCARDED" (device has been decommissioned)
2000 - 2199	MODULE ERR	##	---	Reserved for extensions
2200 - 2399	MODULE WARNING	##	---	Module-specific uncritical error (see "Module-specific uncritical error " on page 149)

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
2400 - 2599	MODULE INFO	##	---	Module-specific information about the current operating state (see "Module-specific information regarding the current operating state" on page 150)
2600 - 2799	MODULE DEBUG	##	---	Reserved for extensions
3000 - 3099				Internal system error Contact the manufacturer if the device log contains this error with the same parameter code several times (see "Contact information" on page 157).

16.2.1 Modem error

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
GPRS error				
1200	BEARER GPRS FAILED	-988	---	GPRS setup error • Try to improve the position of the antenna. • Check whether the device is in the coverage area (www.microtronics.at/footprint).
1200	BAND SEL FAILED	-969	---	A network could not be found on the GSM900/1800 or on the GSM850/1900 band. • Try to improve the position of the antenna. • Check whether the device is in the coverage area (www.microtronics.at/footprint).
1200	NETLOCK ERROR	-966		Error when selecting the network. Check whether the device is in the coverage area. Internal SIM chip: see www.microtronics.at/footprint

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
TCP channel error				
1200	CHANNEL ABORTED	-965	---	An attempt is being made to write to/read a TCP client that is no longer available. Try again later
	TCP DNS FAILURE	-958	---	The name could not be resolved in an IP address. Internal error
	CHANNEL REFUSED	-955	---	The TCP connection has been refused by the server. Try again later
	CHANNEL HOST UNREACHABLE	-954	---	No route to the host. Try again later
	CHANNEL NETWORK UNREACHABLE	-953	---	No network available Try again later
	CHANNEL PIPE BROKEN	-952	---	TCP connection interrupted Try again later
	CHANNEL TIMEOUT	-951	---	Timeout (DNS request, TCP connection, ping response, etc.) Try again later

16.2.2 Module-specific uncritical error

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
2200	MODULE WARNING(200)	0	---	Batteries for the myDatasensH2S1000 BLE & 3G need to be replaced
2201	MODULE WARNING(201)	0	---	Calibration of the sensor module is due

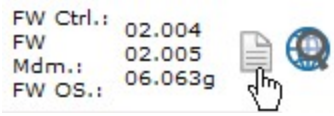
16.2.3 Module-specific information regarding the current operating state

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
2400	MODULE INFO (400)	0	---	Sensor module has been removed
		1	---	Sensor module has been inserted
2401	MODULE INFO(401)	##	---	Serial number of the inserted sensor module This entry is always duplicated in the device log. In the first entry, the parameter specifies the higher 16Bit of the serial number and the second entry specifies the lower 16Bit of the serial number.
2410	MODULE INFO(410)	0	---	Solenoid switch was released again after being pressed
		1	---	Solenoid switch pressed

16.3 Evaluating the device log

16.3.1 Evaluating the device log on the myDatanet server

The last 300 log entries on the myDatanet server can be called up via the button shown below that is located in the measurement device list. As the log entries are sent to the server in the transmission cycle in the same way as the measurement data, only the log entries up to the last server connection are available.



The manual for the server ("myDatanet Server Manual " 805002) includes a detailed description of the evaluation of the device log on the myDatanet server.

16.3.2 Evaluating the device log using DeviceConfig

The DeviceConfig program can be used to read all of the stored log entries, including those that have not yet been transferred to the myDatanet server, directly from the myDatasensH2S1000 BLE & 3G via the Bluetooth interface.

A more detailed description about the evaluation of the device log using DeviceConfig is included in the user manual for the DeviceConfig ("myDatanetDeviceConfig Manual " 805004).

Chapter 17 Spare parts and accessories

17.1 Assembly sets

Description	Quantity	Order number
Niro shackle	1	206.325

17.2 Antennas

Description	Quantity	Order number
Flat antenna Smart Disc Multi Band FME-F 2m	1	300629

17.3 Sensor modules

Description	Quantity	Order number
H2S 7H Sensor module	1	300644

17.4 Other accessories

Description	Quantity	Order number
MDN Magnet	1	206.803
Calibration set H2S 30ppm	1	206.810
Caliration gas H2S 30ppm	1	206.812
USB extension cable USB-A/USB-A 1,8m	1	206.664
DeviceConfig	1	300264
BLE Gateway MDN Protection casing	1	300662

Chapter 18 Document history

Rev.	Date	Changes
01	18.11.2016	First version
02	20.12.2016	Chapter "Device labelling" on page 19 *Protection class in the figure of the type plate corrected*
03	04.04.2017	Chapter "Declaration of conformity" on page 9 *Declaration of Conformity of the H2S 7H Sensor module updated*

Chapter 19 Glossary

Footprint

The manufacturer's devices are equipped with subscriber identity modules (SIM) ex-works for the purpose of mobile data transmission. The footprint describes the countries and regions, in which a mobile connection is available (see www.microtronics.at/footprint).

NaN value

The myDatanet uses special encoding to display different error statuses in the measurement values, for example. By setting a measurement value to "NaN", it is clearly marked as invalid and is thus not used for any further calculations. In the measurement value graphs, a measurement value that has been set to "NaN" is indicated by an interruption in the graph. When downloading the data, a measurement value set to "NaN" is indicated by an empty data field.

Chapter 20 Contact information

Support & Service:
Microtronics Engineering GmbH
Hauptstrasse 7
3244 Ruprechtshofen
Austria, Europe
Tel. +43 (0)2756 7718023
support@microtronics.at
www.microtronics.at

Microtronics Engineering GmbH (Headquarter)
Hauptstrasse 7
3244 Ruprechtshofen
Austria, Europe
Tel. +43 (0)2756 77180
Fax. +43 (0)2756 7718033
office@microtronics.at
www.microtronics.at

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EN ISO 80079-34 ATEX-Richtlinie ATEX PRODUKTION

EN ISO 9001 Qualitätsmanagementsystem MANAGEMENTSYSTEM

EN ISO 14001 Umweltmanagementsystem MANAGEMENTSYSTEM

EN ISO 50001 Energiemanagementsystem myDatanet

Microtronics Engineering GmbH | www.microtronics.at

Hauptstrasse 7 | 3244 Ruprechtshofen | Austria

Tel +43 2756 77180 | Fax +43 2756 77180 33 | office@microtronics.at

300741 | Rev.03