User manual myDatasensBLE+

installed on myDatalogEx LTE-M

Valid from:

- **Firmware version: 02v000**
- **App. version: 11v000**
- **Server version: 50v007**
- **Hardware version: 5.2**



301589 | Rev.01

Microtronics

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Chapter 2 Declaration of conformity

EU-Konformitätserklärung

EU Declaration of Conformity / Déclaration de conformité UE

Produktbezeichnung:
Product:
Désignation du produit:

Portabler Datenlogger mit Ex-Zulassung zur Erfassung und Übertragung von analogen und digitalen Signalen

Type :
Type code:
Type:

myDatalogEx LTE-M

Gültig ab:
Valid from:
Valide à partir de:

Rev. 5.0

Microtronics

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 20 ATEX 120 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 One or more of the associated listed in the Type Examination Certificate SIQ 20 ATEX 120 X standards have been replaced by new editions.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 20 ATEX 120 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	
(2014/30/EU)	**EMC Directive**		
		EN61326-1	
(2014/35/EU)	**LVD Directive**		
		EN61010-1	
(2014/53/EU)	**RED Directive**		
	Safety & Health 3.1a	EN62368-1+A11:2017	
	EMC 3.1b	EN301489-1 V2.2.0 EN301489-1 V2.1.1 EN301489-17 V3.2.0	
	Radio spectrum efficiency 3.2	EN300328 V2.1.1 EN300328 V2.2.2	
(2014/34/EU)	**ATEX Directive**		
		EN IEC 60079-0 EN 60079-11	
(2015/863/EU)	**RoHS Directive**		
	Prevention 4.1	EN IEC 63000	
	Kennzeichnung/ Markings/ Marquage CE 0123 Ex II 2G Ex ib IIB T3 Gb		

Ruprechtshofen, den 22.06.2023

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

Andreas Zuser , 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 Ex certification

(1) **EU-TYPE EXAMINATION CERTIFICATE**

(2) Product Intended for use in Potentially Explosive Atmospheres – **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

SIQ 20 ATEX 120 X **Issue: 0**

(4) Product: Gateway with BLE and GSM 2G/3G module, type: myDatalogEx

(5) Manufacturer: Microtronics Engineering GmbH

(6) Address: Hauptstrasse 7, 3244 Ruprechtshofen, Austria

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) SIQ Ljubljana, Notified body number 1304 in accordance with Article 17 and Article 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report TEx120.2/20.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0 : 2018 **EN 60079-11 : 2012**

Where additional criteria beyond those given here have been used, they are listed at item (18) in the schedule to this certificate.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

Ex II 2 G Ex ib IIB T3 Gb

Certification body

Bojan Pečavar

Ljubljana, 1 October 2020

Page 1/4

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SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, +386 1 4778 221, ex@siq.si

(13) **SCHEDULE**

(14) **EU-Type Examination Certificate Number SIQ 20 ATEX 120 X, Issue: 0**

(15) Description of Product

Gateway with BLE and GSM 2G/3G module, type: myDatalogEx, is a data logger for recording and transferring analogue signals, designed in type of protection intrinsic safety 'ib'. The generated measurement data is recorded in an adjustable interval, temporarily saved in the internal data memory and then transferred to a myDatanet server via a GSM connection or Bluetooth.

The device has internal batteries for power supply. The batteries are not intended to be replaced by user. The device has two external connectors, one for connection of the antenna and the other for connection of the intrinsically safe sensor. It has an adjustable (0...22 V) voltage output to supply the sensors.

Enclosure is made from plastic material and has additional plastic protective armor.

Technical data:

Ambient temperature range:	From -20°C to +50°C
Voltage supply:	Two batteries Tadiran type SL-2880 and hybrid layer capacitor Tadiran type HLC-1530
Sensor supply:	U_o = 25.6 V I_o = 82 mA P_o = 523 mW C_o = 0.31 µF 0.36 µF 0.465 µF L_o = 1000 µH 250 µH 100 µH
Data transmission	Bluetooth Low Energy: Range: 20 m (depending on the environmental conditions) Transmission rate: 120 data records/sec. 2G/3G modem (Europe): 2G GPRS 900MHz / 1800MHz, UMTS B1, B8

(16) Test Report

TEx120.2/20 dated 1 October 2020.

(17) Specific Conditions of Use

- Ambient temperature range -20°C ≤ T_{amb} ≤ +50°C.
- Potential electrostatic charging hazard: Clean the device with moist or electrostatically dissipative cloth.
- The device shall be protected against UV radiation.
- Batteries must be replaced only by manufacturer or authorized service.
- Connector for external sensor shall be always protected by intended plug or connected to sensor.

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3.1 Issue one

(1) **EU-TYPE EXAMINATION CERTIFICATE**

(2) Product Intended for use in Potentially Explosive Atmospheres – **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

SIQ 20 ATEX 120 X **Issue: 1**

(4) Product: Gateway with BLE and GSM 2G/3G module, type: myDatalogEx

(5) Manufacturer: Microtronics Engineering GmbH

(6) Address: Hauptstrasse 7, 3244 Ruprechtshofen, Austria

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) SIQ Ljubljana, Notified body number 1304 in accordance with Article 17 and Article 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report TEx413/21.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018+AC:2020 **EN 60079-11:2012**

Where additional criteria beyond those given here have been used, they are listed at item (18) in the schedule to this certificate.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

Ex II 2 G Ex ib IIB T3 Gb

Certification body

Bojan Pečavar

Ljubljana, 27 October 2021

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(13)

SCHEDULE

(14) **EU-Type Examination Certificate Number SIQ 20 ATEX 120 X, Issue: 1**

(15) Description of Product

Gateway with BLE and GSM 2G/3G module, type: myDatalogEx, is a data logger for recording and transferring analogue signals, designed in type of protection intrinsic safety 'ib'. The generated measurement data is recorded in an adjustable interval, temporarily saved in the internal data memory and then transferred to a myDatanet server via a GSM connection or Bluetooth.

The device has internal batteries for power supply. The batteries are not intended to be replaced by user. The device has two external connectors, one for connection of the antenna and the other for connection of the intrinsically safe sensor. It has an adjustable (0...22 V) voltage output to supply the sensors.

Enclosure is made from plastic material and has additional plastic protective armour.

Technical data:

Ambient temperature range:	From -20°C to +50°C
Sensor supply:	U_o = 25.6 V I_o = 82 mA P_o = 523 mW C_o = 0.31 µF 0.36 µF 0.465 µF L_o = 1000 µH 250 µH 100 µH
Data transmission	Bluetooth Low Energy: Range: 100 m (depending on the environmental conditions) Transmission rate: 120 data records/sec. 2G/3G modem (World): 2G GPRS 850/900MHz & 1800/1900MHz UMTS B1, B2, B5, B8, B19

(16) Test Report

TEx413/21 dated 27 October 2021.

(17) Specific Conditions of Use

- Ambient temperature range -20°C ≤ T_{amb} ≤ +50°C.
- Potential electrostatic charging hazard: Clean the device with moist or electrostatically dissipative cloth.
- The device shall be protected against UV radiation.
- Batteries must be replaced only by manufacturer or authorized service.
- Connector for external sensor shall be always protected by intended plug or connected to sensor.

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3.2 Issue two

(1) **EU-TYPE EXAMINATION CERTIFICATE**

(2) Product Intended for use in Potentially Explosive Atmospheres – **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

SIQ 20 ATEX 120 X **Issue: 2**

(4) Product: Gateway with BLE, GSM 2G/3G and LTE-M module, types: myDatalogEx and myDatalogEx LTE-M

(5) Manufacturer: Microtronics Engineering GmbH

(6) Address: Hauptstrasse 7, 3244 Ruprechtshofen, Austria

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) SIQ Ljubljana, Notified body number 1304 in accordance with Article 17 and Article 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report TEx153/23.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 + AC:2020-02 **EN 60079-11:2012**

Where additional criteria beyond those given here have been used, they are listed at item (18) in the schedule to this certificate.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2 G Ex ib IIB T3 Gb

Certification body Ljubljana, 21 July 2023

Bojan Pečavar

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SIQ Ljubljana is accredited by Slovenian Accreditation with accreditation number CP-001 in the field of certification of products, processes and services (SIST EN ISO/IEC 17065).

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(13) **SCHEDULE**

(14) **EU-Type Examination Certificate Number SIQ 20 ATEX 120 X, Issue: 2**

(15) Description of Product

Gateway with BLE, GSM 2G/3G and LTE-M module, types: myDatalogEx and myDatalogEx LTE-M, is a data logger for recording and transferring analogue signals, designed in type of protection intrinsic safety 'ib'. The generated measurement data is recorded in an adjustable interval, temporarily saved in the internal data memory and then transferred to a myDatanet server via a GSM or Bluetooth connection.

The device has internal batteries for power supply. The batteries are not intended to be replaced by user. The device has two external connectors, one for connection of the antenna and the other for connection of the intrinsically safe sensor. It has an adjustable (0...22 V) voltage output to supply the sensors.

Enclosure is made from plastic material and has additional plastic protective armour.

Type key:

Type:	Description:
myDatalogEx	BLE gateway with BLE and GSM 2G/3G world module
myDatalogEx LTE-M	BLE gateway with BLE and LTE-M module

Technical data:

Ambient temperature range:	From -20°C to +50°C
Sensor supply:	U_o = 25.6 V I_o = 82 mA P_o = 523 mW C_o = 0.31 µF 0.36 µF 0.465 µF L_o = 1000 µH 250 µH 100 µH
Data transmission	- Bluetooth Low Energy: Range: 100 m (depending on the environmental conditions) Transmission rate: 120 data records/sec. - 2G/3G modem (World): 2G GPRS 850/900MHz & 1800/1900MHz UMTS B1, B2, B5, B8, B19 - LTE-M module: B1, B2, B3, B4, B5, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B66

(16) Test Report

TEx153/23 dated 21 July 2023.

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Chapter 4 Specifications

Voltage supply	Battery: 2 x Li-SOCl2cells with a total of 25,74Ah
Housing	Material: Noryl GTX 973 / PC (housing/cover and activation module) Weight: 730g Degree of protection:: IP66 / IP68 / IP69 IP68: 105 at an immersion depth of1m Dimensions (WHD): 106 x 169 x 61mm (with protective armour)
Ex certification	 II 2G Ex ib IIB T3 Gb
Operating temperature	-20...+50°C
Air humidity	15...90%rH non-condensing
Storage and transport temperature	-20...+70°C
Measurement channel	1 x analogue Modes: • 0...20mA: Resolution 1µA , max. 25,6mA , load 2Ω • 4...20mA: Resolution 1µA , max. 25,6mA , load 2Ω Additional information is provided in "Technical details about the universal input" on page 56.
Sensor supply	1 x switchable and adjustable sensor supply (0...22V) • U_o: 25,6V • I_o: 82mA • P_o: 0,523W • C_o: 0,31µF • L_o: 1000µH Additional information is provided in "Technical details about the sensor supply" on page 57.
Remote measurement channels	1 x sensor module (connected via Bluetooth Low Energy) The sensor module is not included in the standard scope of supply. Specifications of the senor module are provided in the relevant user manual. A list of compatible sensor modules are provided in chapter "Sensor modules" on page 155.
Display	1,5" OLED display with a resolution of 128 x 128 pixels and the ability to display 262.144 different colours
Operation	Reed switch for activating the display and triggering setup mode

Antenna connector	FME-M
Bluetooth	5.0 compatible Low Energy module
Data memory	Internal flash memory for up to 14.296 measurement cycles
Data type	f32 (32Bit floating point)
Data transmission	Bluetooth Low Energy: Range: 20m (depending on the environmental conditions) Transmission rate: 120 data records/sec. LTE-M/NB-IoT modem (world): M1: LTE B1, B2, B3, B4, B5, B8, B12, B13, B14, B18, B19, B20, B25, B26, B28, B66 NB1/NB2: LTE B1, B2, B3, B4, B5, B8, B12, B13, B17, B19, B20, B25, B26, B28, B66
SIM	Integrated SIM chip
Battery life	up to 10 years at 10sec. measurement interval and 12h transmission cycle

Chapter 5 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 are available via the manufacturer's website (see "Contact information" on page 161).*

5.1 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.

5.2 Copyright

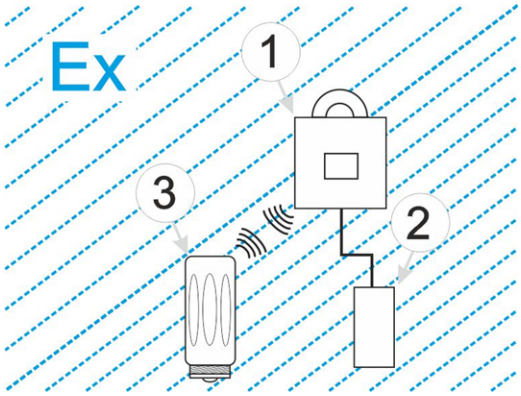
The copying and distribution of this document as well as the utilisation and communication of its contents to others without express authorisation is prohibited. Contraventions are liable to compensation. All rights reserved.

5.3 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.

5.4 Ex protection

The myDatasensBLE+ measurement system consists of the myDatalogEx LTE-M with installed "myDatasensBLE+" IoT application and a separately obtainable sensor module.It is designed for use in areas with a zone 1 explosive atmosphere. The used sensor module must of course also be approved for use in areas with a zone 1 explosive atmosphere. This also applies for the sensor with mA output which is connected via cable.



1	BLE & LTE-M Gateway ATEX with installed IoT application "myDatasensBLE+"	**3**	Sensor module approved for Ex zone 1
2	Sensor module with mA output approved for Ex zone 1		

Important note: *The Ex approval is only valid if the corresponding marking is provided on the type plate of the myDatalogEx LTE-M and the sensor module.*

Important note: *The certificates of conformity and any relevant test certificates from the respective authorities must be carefully observed during installation and commissioning.*

5.4.1 myDatalogEx LTE-M

The following conditions must be observed:

- Only the manufacturer is permitted to open the enclosure to carry out maintenance work, which must also be completed strictly outside the Ex area.
- The manufacturer's original spare parts must be used without exception.
- The batteries may only be replaced with certified products of identical design.
- Possible danger of electrostatic discharge build-up - clean the device with a moist or electrostatically dissipative cloth.
- A mounting distance of min. 50 mm must be maintained on all sides to prevent any soiling.
- The device must be protected from UV radiation.

II 2G Ex ib IIB T3 Gb

5.4.2 Sensor module

The sensor module is not included in the standard scope of supply. The conditions to be observed and the Ex certification are provided in the user manual of the relevant sensor module.

5.5 Safety instructions

For the connection, commissioning and operation of the myDatasensBLE+ , 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.*

5.5.1 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.*

5.5.2 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 mobile network modem contained in the device.

5.5.3 Safety and preventative measures for handling mobile network modems

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

CAUTION:
The mobile network 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 mobile network modem for which wireless signals and networks are utilized. The mobile network modem must be switched on and operated in an area where sufficient signal strength is present.*

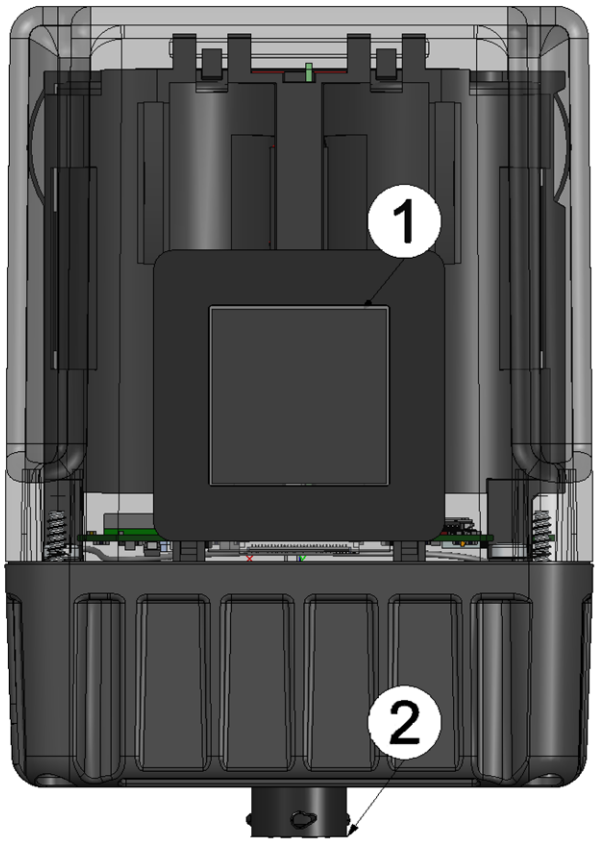
5.5.3.1 Safety and precautionary measures for the mobile network modem installation

- This device must only be installed by a trained technician who applies the recognised installation practices for a radio 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 mobile network modem can cause interferences if it is located in the vicinity of television sets, radios or computers.
- Do not open the mobile network 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 is solely 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.

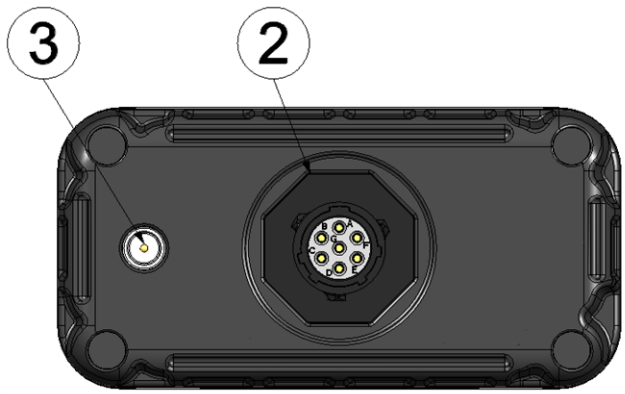
5.5.3.2 Safety measures for installing the antenna

- 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!

5.6 Overview



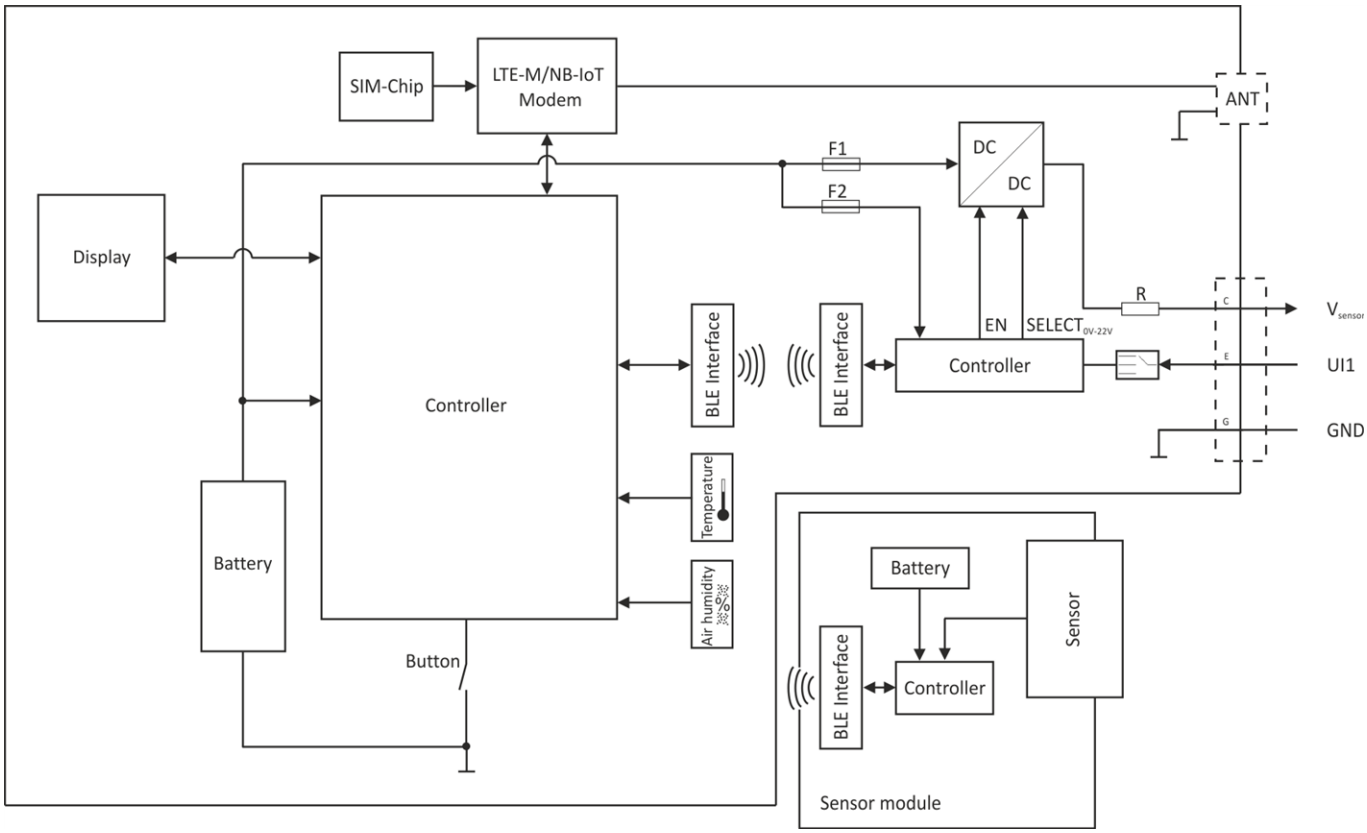
Front of the myDatasensBLE+
(view without protective armour)



Bottom of the myDatasensBLE+
(view without protective armour)

1 Display	**3** Antenna connector
2 Sensor connector	

5.6.1 Block diagram



Block diagram of the myDatasensBLE+

5.7 Intended use

The measurement instrument is designed to determine process and transmit a mA signal as well as the level which is provided by a remote sensor module. The device is battery-operated. The measured and recorded data is saved on a non-volatile storage medium. This stored data can be either sent to a cantral server for further processing via a mobile network connection, or it can be transmitted to a PC using a Bluetooth connection (Bluetooth Low Energy). Using the software made available by the manufacturer, the data can then be forwarded from the PC to a central server. The device has an integrated SIM chip to establisch a mobile network connection. The maximum permissible limit values (specified in chapter "Specifications" on page 17) 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 before. 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.*

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.com/footprint. A Managed Service contract with Microtronics Engineering GmbH is required for use of the mobile data transmission (see www.microtronics.com/managedservice). This includes the provisioning of the mobile communications connection via the network of the service provider included in the above-mentioned list.*

5.8 Allgemeine Produktinformationen

The system is a compact, battery operated, stationary system designed for recording and transmitting a mA signal as well as levels that are provided by a remote sensor module. The myDatasensBLE+ consists of the data logger "myDatalogEx LTE-M " with installed IoT application "myDatasensBLE+" and a separately available sensor module for measuring fresh, dirty and gray water. Information about measurement range, resolution, precision, measurement method and capacity of the intstalled batteries is provided in the user manual of the respective sensor module. Communication between the sensor module and the myDatalogEx LTE-M is realised via Bluetooth connection (Bluetooth Low Energy). Depending on the ambient conditions, the bridgeable distance can be up to20m . In addition to the primary measurement value, i.e. the level (with installation height and trimming taken into account), up to 3 secondary measurement values (e.g. distance to the surface or temperature of the electronics) and the internal measurement values "Battery", "Battery life" (remaining days until the next battery replacement), "Flags" (sensor status) and "RSSI" (BLE field strength) are determined for the sensor module. To record the mA signal, a corresponding sensor connector is available directly on the myDatalogEx LTE-M . The sensor is also supplied via this connector. For this purpose, the myDatalogEx LTE-M has an adjustable (0...22V) voltage output. To save energy, the voltage ouptu can be configured so that it is only activated briefly before and during measurement. In addiditon to the primary measurement value, the inernal measurement values "Flags" (sensor status) and "RSSI" (BLE field strength) are determined for the mA input. Furthermore the internal measurement values "SOC" (State of Charge), "Battery", "Int. Temp", "rH" (humidity inside the housing), "GSM" (GSM level strength), "Service" (remaining days until the next battery replacement) and "Load" (energy cosumption between two recordings) of the myDatalogEx LTE-M are determined (see "Internal channels" on page 87).

The measurement data of the remote sensor module is determined at an interval of 10sec.(to determine alarms, warnings and trigger events) and can be recorded in the internal data memory at an adjustable interval (see "Basic settings" on page 93). The measurement interval for the mA input at the myDatalogEx LTE-M is configurable (see "Basic settings" on page 93). In this interval, alarms, warnings and trigger events are determined. For recording the measurement data of the mA input, the same interval as the one for the remote sensor module is used.

The recorded data can be read out locally via a Bluetooth connection (Bluetooth Low Energy) or, in a freely selectable interval, transmitted automatically to a central myDatanet server via a mobile network connection. The device is equipped with an integrated SIM chip for this purpose. The DeviceConfig configuration program (see "DeviceConfig " on page 103) provided by the manufacturer and the USB BLE-Adapter (300685) are required to read out the data via a Bluetooth connection. The configuration program DeviceConfig offers the possibility to forward the measurement data to a central myDatanet server. This server provides a variety of options for managing and displaying the data. More information is provided in the server manual ("myDatanet Server Manual " 805002). The device is configured via the interface of the relevant myDatanet server. If the level falls below or exceeds a defined value (applicable for both the measurement values determined via the mA input and the level determined via the remote sensor), regardless of the transmission cycle that is currently set, the trigger function can be used to initiate an immediate transmission, to switch to an "Record

interval alternative" or to activate the "Transmission cycle quick" (see "Trigger" on page 86). In addition, limits can be set for the primary measurement values (i.e. measurement value at the mA input or the level) as well as the internal measurment values of the myDatalogEx LTE-M , so that if the measurement value falls below or exceeds these limits, a transmission is initiated immediately in order to report an alarm or warning to the myDatanet server (see "Alarms" on page 85).

The myDatasensBLE+ has a 1,5" OLED display to show the current measurement values (level) and a variety of status information (e.g. remaining days until the next battery replacement of the sensor module). The display is either activated via the solenoid switch or by inserting the activation module. Detailed information on this is provided in chapter "Display" on page 72.

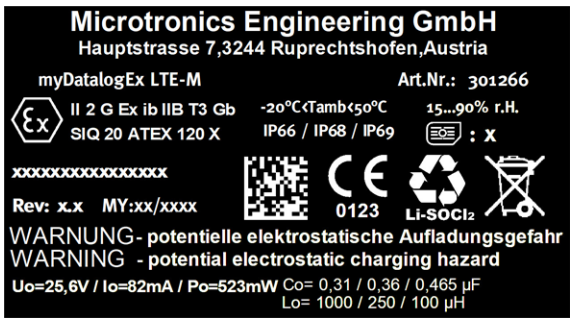
5.9 Device labelling

The information in this user manual applies exclusively to the myDatasensBLE+ that is made up of the following components:

- IoT application "myDatasensBLE+"
- myDatalogEx LTE-M
- Sensor module (available separately see chapter "Sensor modules" on page 155 for a list of compatible sensor modules)

The type plate of the myDatalogEx LTE-M is located on the rear of the device and contains the following information:

- Name and address of the manufacturer
- Type designation
- Item number
- Ex protection designation as specified in chapter "Declaration of conformity" on page 9
- Serial number
- Hardware revision
- Week and year of production
- Environmental conditions during operation
- Protection class
- Country list profile of the SIM chip
- CE marking
- Chemical composition of the installed battery
- Logo for the EU WEEE Directive
- Hazard note regarding electrostatic charge build-up
- Ex parameters as specified in chapter "Ex certification" on page 11



Type plate myDatalogEx LTE-M

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.com/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.*

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

5.10 Installation of spare and wear parts

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.

Note: *The use of spare and wear parts that are not approved by the manufacturer shall void the Ex approval.*

5.11 Storage of the product

To store the myDatasensBLE+ , activate transport mode by setting the "operating mode" in the configuration section "Basic settings" (see "Basic settings" on page 93) to "transport". Then activate the setup mode using the solenoid switch (see "Setup mode" on page 40) to transmit the altered configuration to the myDatasensBLE+ . This way any data that has not yet been transferred to the myDatanet server at this point in time is transmitted. The data transmission and measurement are then deactivated. The sensor cable and antenna can be removed as soon as the mobile network connection has been terminated - indicated by "transport mode" being shown on the display (see "Display" on page 72). You may need to activate the display again by briefly holding the magnet (approx. 1 sec.) to the reed switch again (see "Reed switch" on page 72). Most of the compatible sensor modules do not have to be deactivated separately. Information on whether a sensor module has a special transport mode is provided in the chapter "Storage of the product" of the user manual of the relevant sensor module. Store all of the components of the myDatasensBLE+ (myDatalogEx LTE-M and sensor module) in their original packaging. Do not remove the protective armour during this process. The sensor connector must be protected during storage using the protective cap (type "UTS10DCG") included in the scope of supply.

The myDatasensBLE+ 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. However, the configuration and the most recently recorded data are always retained. Transport mode is deactivated again by triggering setup mode again and the myDatasensBLE+ resumes operation according to the configuration. A connection to the myDatanet server is also established as part of this process, so that any changes to the configuration settings made via the server interface are transmitted to the device. Sensor modules that do not have a transport mode are always ready for operation and do not have to be activated separately.

5.12 Warranty

The device has been functionally tested before delivery. If it is used as intended (see "Intended use" on page 24) and the operating instructions, the applicable documents(see "Applicable documents " on page 61) and the safety notes and instructions contained therein, are observed, no functional restrictions are to be expected and perfect operation should be possible.

> ***Note:*** *Please also note in this regard the next chapter "Disclaimer" on page 28.*
>
> ***Note: Limitation of warranty***
>
> *In the event of non-compliance with the safety instructions and instructions in this document, the manufacturer reserves the right to limit the warranty.*

5.13 Disclaimer

The manufacturer assumes no liability

- for damages owing to **a change** of this document. The manufacturer reserves the right to change the contents of this document and this disclaimer at any time and without any notice.
- for damages to persons or objects resulting from **failure to comply** with applicable **regulations**. For connection, commissioning and operation of the devices/sensors all available information and higher local legal regulations (e.g. in Austria ÖVE guidelines) such as applicable Ex regulations as well as safety requirements and regulations in order to avoid accidents shall be adhered to.
- for damages to persons or objects resulting from **improper use**. For safety and warranty reasons, all internal work on the instruments beyond from that involved in normal installation and connection, must be carried out only by qualified Microtronics personnel or persons or companies authorised by Microtronics .
- for damages to persons or objects resulting from the use of instruments in technically **imperfect** condition.
- for damages to persons or objects resulting from the use of instruments **not in accordance with the requirements**.
- for damages to persons or objects resulting from **failure to comply** with **safety information** contained within this instruction manual.
- for missing or incorrect measurement values or resulting consequential damages due to **improper installation**.

5.14 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 (2009/104/EC) 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.

5.15 Personnel requirements

Installation, commissioning and maintenance may only be completed by personnel who meet the following conditions:

- Qualified specialist personnel with the relevant training
- Authorised by the facility operator

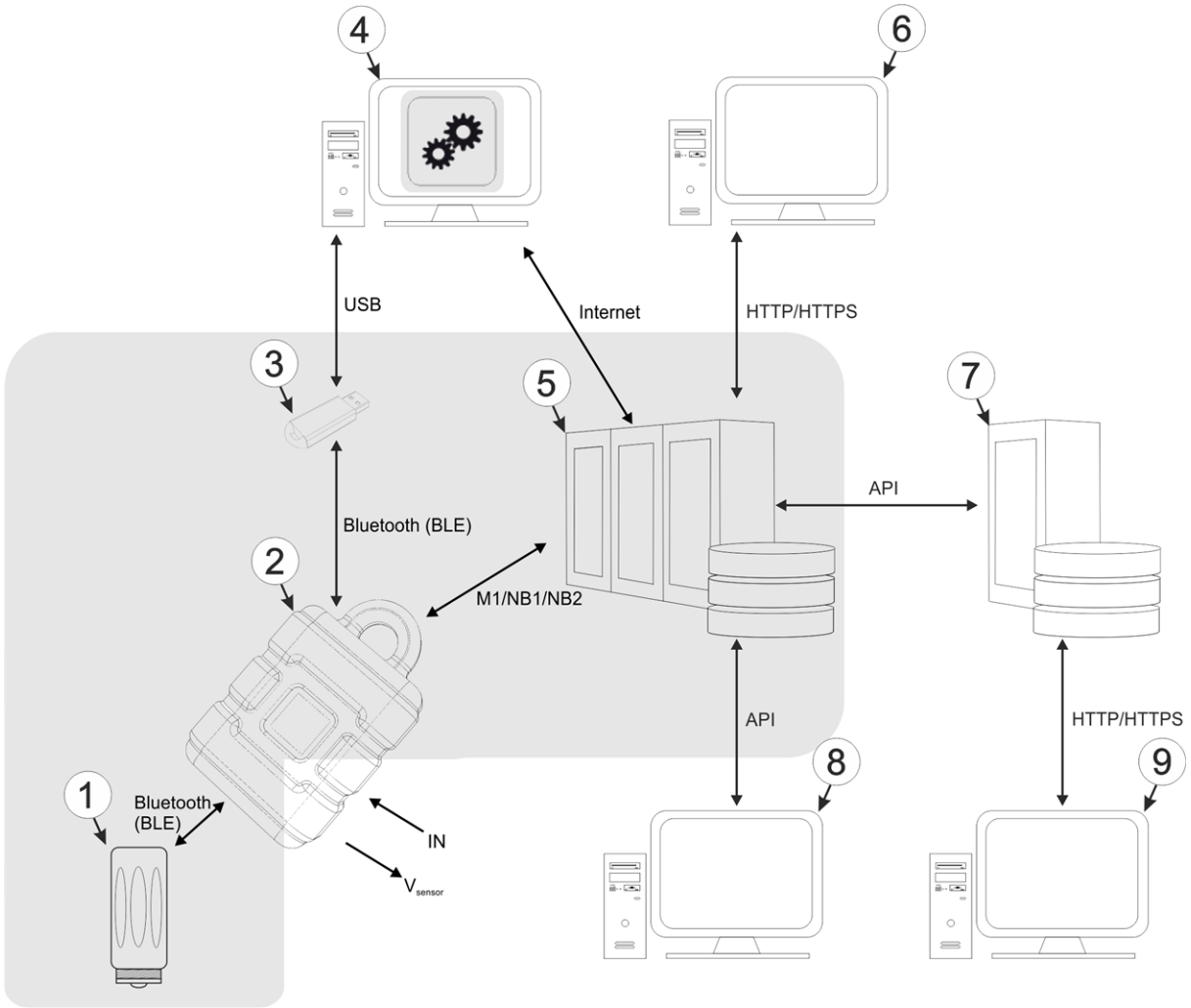
Note: Qualified personnel

In the context of these instructions and the warnings on the product itself, individuals responsible for the setup, installation, commissioning and operation of the product must have gained relevant qualifications relating to their activities, including, for example:

- *Training, instruction and authorisation to activate/deactivate, ground and label electric circuits and devices/systems in accordance with the standards of safety engineering.*
- *Training or instruction on the maintenance and use of suitable safety equipment in accordance with the standards of safety engineering.*
- *First aid training*

Chapter 6 Functional principle

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



Functional principle

1	Sensor module (available separately)
2	myDatalogEx LTE-M with installed IoT application "myDatasensBLE+" and integrated managed service SIM chip
3	USB BLE-Adapter (Bluetooth Low Energy to USB converter)
4	PC with installed DeviceConfig configuration program
5	myDatanet server, to which the data is transferred
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 137).
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 137)
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 31)37), there are 2 options for transferring the data from the myDatasensBLE+ to the myDatanet server:

- Directly via LTE-M/NB-IoT mobile connection
- Indirectly, by initially reading the data from the device using the DeviceConfig configuration program via the Bluetooth connection (BLE) and then using the PC's Internet connection to transfer the data to the server.

Functions and components provided by myDatanet :

- myDatasensBLE+

  It is a system approved for Ex zone 1 used to determine a mA signal as well as levels. It consists of the data logger "myDatalogEx LTE-M " with the IoT application "myDatasensBLE+" installed together with a sensor module which is available separately. Communication between the sensor module and the myDatalogEx LTE-M is realised via Bluetooth connection (Bluetooth Low Energy). For the connection of a sensor with mA ouptut, a corresponding sensor connector is available directly on the myDatalogEx LTE-M .

  - Sensor module

    Separately available sensor for determining water levels in fresh, dirty and gray water. A list of compatible modules is provided in chapter "Sensor modules" on page 155.

  - myDatalogEx LTE-M with installed IoT application "myDatasensBLE+"

    It is a data logger approved for Ex zone 1, which has both an mA input and, in conjunction with a sensor module, enables a level to be recorded. The saved data can either be sent to a central server via the mobile network (LTE-M/NB-IoT) 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 myDatasensBLE+)

  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 USB BLE-Adapter driver" on page 106.

- DeviceConfig configuration program (opitonal)

  The DeviceConfig configuration program is required to read out the data from the myDatasensBLE+ via 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.

- Managed Service

  Managed Service is the basis for operating the devices and provides 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 (see "API" on page 137) or the web interface of the server.

Functions and components provided by the customer:

- Sensor with mA output

  Sensor with an interface that is compatible with the specifications listed in chapter "Technical details about the universal input" (see "Technical details about the universal input" on page 56). If the device is operated in areas with zone 1 explosive atmosphere, only sensors that are also approved for zone 1 and of which the Ex parameters are compatible with those of the myDatalogEx LTE-M may be used.

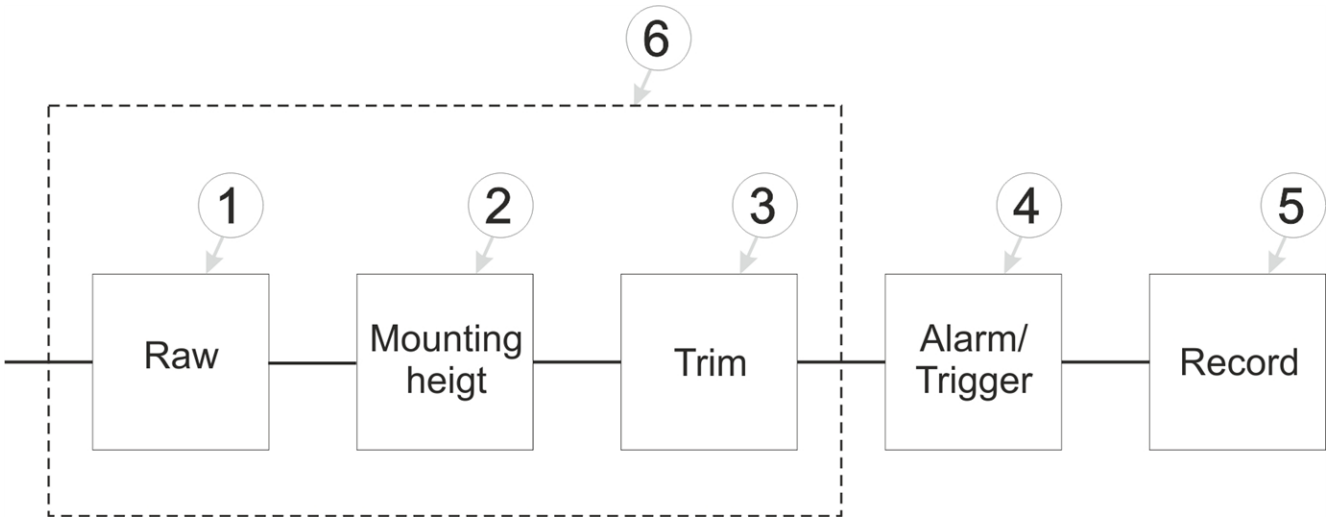
- Customer-specific server with web interface for the clients (optional)

  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 137) by the customer specific server.

6.1 Determining the measurement values

6.1.1 Determining the water level

The module chain described in the following is started every 10sec.(i.e. with the measurement interval) and executed once. The first three stages ("raw", "Mounting height" and "Trim") are already completed in the sensor module. I.e. the measurement level delivered by the sensor module is already the actual water level (mounting height and trimming considered). The measurement interval is independent from the record interval and cannot be altered. It is used to detect alarms,warnings and trigger events. It is then the currently valid measurement value generated in the measurement interval that is recorded. The measurements executed since the last recording are not consolidated (e.g. average determination). The interval for the recordings can be selected via the "Record interval" parameter (see "Basic settings" on page 93). The triggers can, however, be used to switch to an alternative record interval that can be selected via the "Record interval alternative" parameter (see "Basic settings" on page 93).



Schematic diagram of how the measurement value for the "Remote measurement channel" is generated (see "Remote measurement channels" on page 85)

1	Generation of the raw value using the relevant measuring method (see "Determining the raw value" on page 34)	**4**	Monitoring of the alarm limits and trigger thresholds (see "Alarm/trigger module" on page 38)
2	calculates the preliminary water level taking the configurable "Mounting height" into consideration (see "Taking the installation height into consideration" on page 35)	**5**	As the record interval can be selected differently from the non-changable measurement interval, the measurement values are not recorded every time a measurement takes place. (see "Record module" on page 38)
3	corrects the preliminary water level with the configurable value for "Trimming" (see "Taking trimming into consideration" on page 35)	**6**	This part of the module chain is already completed in the sensor module.

6.1.1.1 Determining the raw value

The raw value is the measurement value generated directly from the sensor module. Depending on the type of sensor module, different measuring processes are applied (e.g. distance measurement using a radar sensor). If necessary, an automatic compensation of external influences (e.g. temperature) is applied.

6.1.1.2 Taking the installation height into consideration

The mounting height of the sensor module can be taken into consideration in this stage. Information on how the configuration parameter "Mounting height" influences the calculation of the water level is provided in the user manual of the relevant sensor module. Depending on the type of sensor module and on the installation situation, a negative sign may also be required.

The following table indicates the parameter relevant for the module:

Configuration section	Parameter	Erklärung
Bluetooth measurement channels -> Basis	Mounting height	indicates the mounting height of the sensor.

6.1.1.3 Taking trimming into consideration

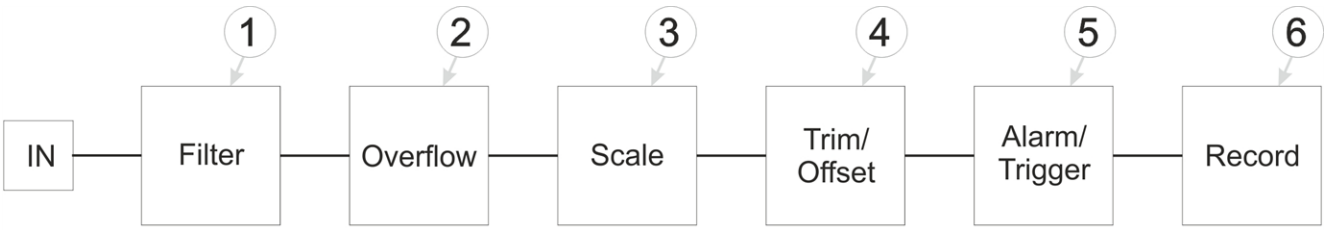
This stage allows to adjust the zero point without having to change the value for the mounting height again. Information on how the "trimming" configuration parameter is influencing the calculation of the water level is provided in the user manual of the relevant sensor module. Depending on this and on whether the water level value has to be corrected scaling up or down, a negative sign has to be set.

The following table indicates the parameter relevant to the module:

Configuration section	Parameter	Explanation
Bluetooth measurement channels -> Basis	Trimming	is used for adjusting the zero point

6.1.2 Determining the measurement value at the mA input

The module chain described in the following is started in a configurable measurement interval and executed once. The measurement interval is independent from the record interval and can be adjusted via the parameter "measurement interval" (see "Basic settings" on page 93). It is used to detect alarms,warnings and trigger events. It is then the currently valid measurement value generated in the measurement interval that is recorded. The measurements executed since the last recording are not consolidated (e.g. average determination). The interval for the recordings can be selected via the "Record interval" parameter (see "Basic settings" on page 93). The triggers can, however, be used to switch to an alternative record interval that can be selected via the "Record interval alternative" parameter (see "Basic settings" on page 93).



Schematic diagram of how the "measurement channel" measurement value is generated (see "Measurement channel" on page 80)

1 Filter to compensate short-term signal fluctuations (see "Filter module" on page 36). The filter module is run through several times during the determination of a measured value.	**4** Adds the values entered via the configuration parameters "trimming" and "offset" to the measurement value (see "Trim/Offset module" on page 37)
2 Monitoring of the measurement range limits (see "Overflow module" on page 37)	**5** Monitoring of the alarm limits and trigger thresholds (see "Alarm/trigger module" on page 38)
3 Rescaling from the raw value to the measurement value (see "Scale module" on page 37)	**6** As the record interval can be selected differently from the non-changable measurement interval, the measurement values are not recorded every time a measurement takes place (see "Record module" on page 38).

6.1.2.1 Filter module

The filter module is designed to compensate for brief fluctuations of the input signal.

The following table specifies the relevant parameters for the module:

Configuration section	Mode	Parameter	Explanation
Measurement channel -> configuration	4-20mA	Filter time	Time in [ms], during which the analogue signal is averaged for signal smoothing, is designed to suppress signal noise
	0-20mA		

6.1.2.2 Overflow module

This module monitors the measurement range limits of the raw value. If the mA input was, for example, switched to "4-20mA" mode, a raw value of 2mA will violate the measurement range.

The following table specifies the relevant parameters for the module:

Configuration section	Mode	Parameter	Explanation
Measurement channel -> configuration	4-20mA	Overflow	Procedure in the event of measurement range violations
	0-20mA		

6.1.2.3 Scale module

This module rescales the raw value (e.g. mA) to the required measurement value (e.g. mm).

The following table specifies the relevant parameters for the module:

Configuration section	Mode	Parameter	Explanation
Measurement channel -> Basic	4-20mA 0-20mA	0%	Start of the measurement range in the measurement unit
		100%	End of the measurement range in the measurement unit

6.1.2.4 Trim/Offset module

An offset for the measurement value, if required, can be taken into consideration with the help of this module. It also enables the zero point to be adjusted without having to change the already set offset again. The "Trimming" parameter value and the "Offset" parameter value are added to the initial value of the scale module (see "Scale module" on page 37). This means that a negative prefix must be set for the "Trimming" parameter (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 81) if the scaled measurement value should be reduced during the zero point adjustment.

The following table specifies the relevant parameters for the module:

Configuration section	Mode	Parameter	Explanation
Measurement channel -> Basic	0-20mA 4-20mA	Trimming	is used for adjusting the zero point (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 81)
		Offset	Allows for a correction of the measurement value by an offset value (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 81)

6.1.3 Alarm/trigger module

This module monitors the alarm limits and trigger levels and creates an entry in the alarm list if necessary. An immediate transmission is also triggered in the event of a warning or alarm. For the primary measurement value of the sensor module (i.e. the water level) and for the primary measurement level at the mA input (i.e. the scaled value with offset and trimming taken into account) both the alarm and trigger function of the module are available. However, only the alarm function is available for the internal channels of the myDatasensBLE+ .

All of the parameters of the "Alarms" and "Trigger" tabs of the "measurement channel" configuration section (see "Measurement channel" on page 80), of the "remote measurement channels" configuration section (see "Remote measurement channels" on page 85) and all of the parameters of the "Alarms" tab of the "Internal channels" configuration section (see "Internal channels" on page 87) are relevant to this module.

6.1.4 Record module

The measurement values are recorded using the record module. As the record interval may be set differently from the unchangeable measurement interval for "remote measurement channels" and the adjustable measurement interval for the "measurement channel", recordings do not occur every time a measurement takes place. Depending on the triggers set by the alarm/trigger module, the record interval is modified, the transmission cycle is changed, the transmission is initiated or an immediate recording is triggered, if necessary.

The following table specifies the relevant parameters for the module:

Configuration section	Parameter	Explanation
Measurement channel -> Trigger	RI	Execute recording immediately
	XM	Initiate transmission
	RA	The alternative record interval should be used.
	QX	The alternative transmission cycle should be used.
Remote measurement channels ->Trigger	RI	Execute recording immediately
	XM	Initiate transmission
	RA	The alternative record interval should be used.
	QX	The alternative transmission cycle should be used.
Basic settings	Record interval	Time between measurement data recordings
	Alternative record interval	Time between measurement data recordings, if an alternative record interval should be used because of a trigger being initiated

6.2 Functionality of the internal data memory

Structure	Circular buffer
Total size	14.296 measurement cycles
Number of sectors	8
Sector size	1.787 measurement cycles

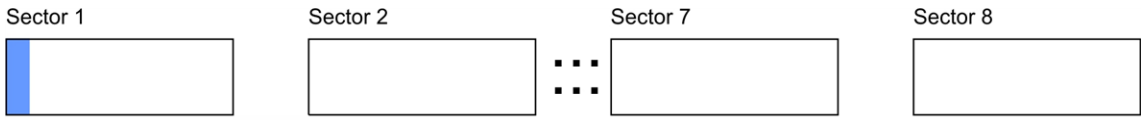
The internal data memory of the myDatasensBLE+ is designed as a circular buffer with 8 sectors. If the maximum number of data records (14.296) is achieved, the sector with the oldest data is deleted fully before new data can be saved in this sector again. This means that the internal data memory at the very least contains the measurement values of the last 12.509 cycles, however at most the measurement values of the last 14.296 cycles.

For this reason, it is recommended to coordinate the transmission cycle and record interval in such a way that a maximum of 12.509 measurement cycles have to be recorded between two transmissions. 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 or the alternative record interval is activated via the trigger, this must also be taken into consideration when calculating the measurement cycles that are to be saved.

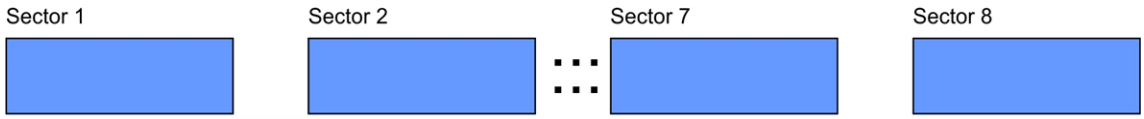
Note:

Additional explanation regarding the functionality of the circular buffer

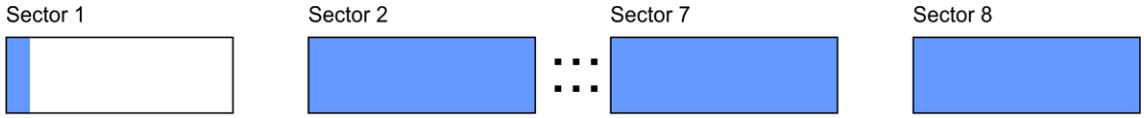
Data memory after the first measurement cycle:



Data memory after 14.296 measurement cycles:



Data memory after 14.296 +1 measurement cycles:



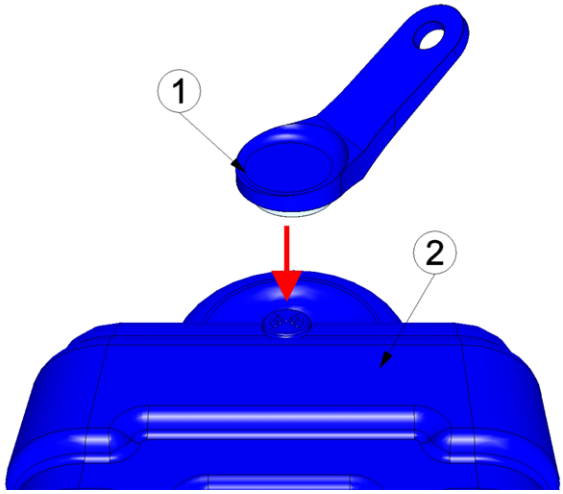
6.3 Procedure in case of connection aborts

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

6.4 Setup mode

Setup mode is a special operating mode where the server assignment is verified before a connection to the myDatanet server is established. Setup mode is activated by holding the magnet to the reed switch for at least three seconds (see "Reed switch" on page 72).

1. Activate the setup mode by holding the magnet to the reed switch for at least 3 seconds (see "Reed switch" on page 72).



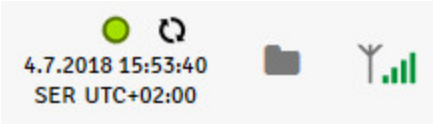
Activating setup mode

1 MDN Magnet (206.803)	**2** myDatasensBLE+

On the display of the device, first the connection establishment and then the data synchronisation are signalised via the corresponding symbole (circles forming one circle).

> ***Note:*** *To check the current operating state, you may need to activate the display again by briefly holding the magnet (approx. 1 sec.) to the reed switch (see "Reed switch" on page 72).*

2. Wait until it is indicated in the list of sites/applications that the device is connected to the server (rotating arrows).



The myDatasensBLE+ is only for a very shor time connected to the server. You can therefore check whether the time stamp of the last connection (underneath the green status symbol) has been updated.

In the configuration section "Status" of the specific input mask for configuring the site (accessible by clicking on the name of the site in the liste of sites/applications), the time of the last connection establishment is also shown (see "State" on page 77). In this configuration section you can also see if the device is currently connected to the server.

6.5 Automatic selection of the GSM network

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

6.6 Determining the GSM/UMTS/LTE signal strength

The GSM/UMTS/LTE signal strength is only updated during the connection establishment. However, the value of the GSM/UMTS/LTE signal strength is copied in the measurement data for every record.

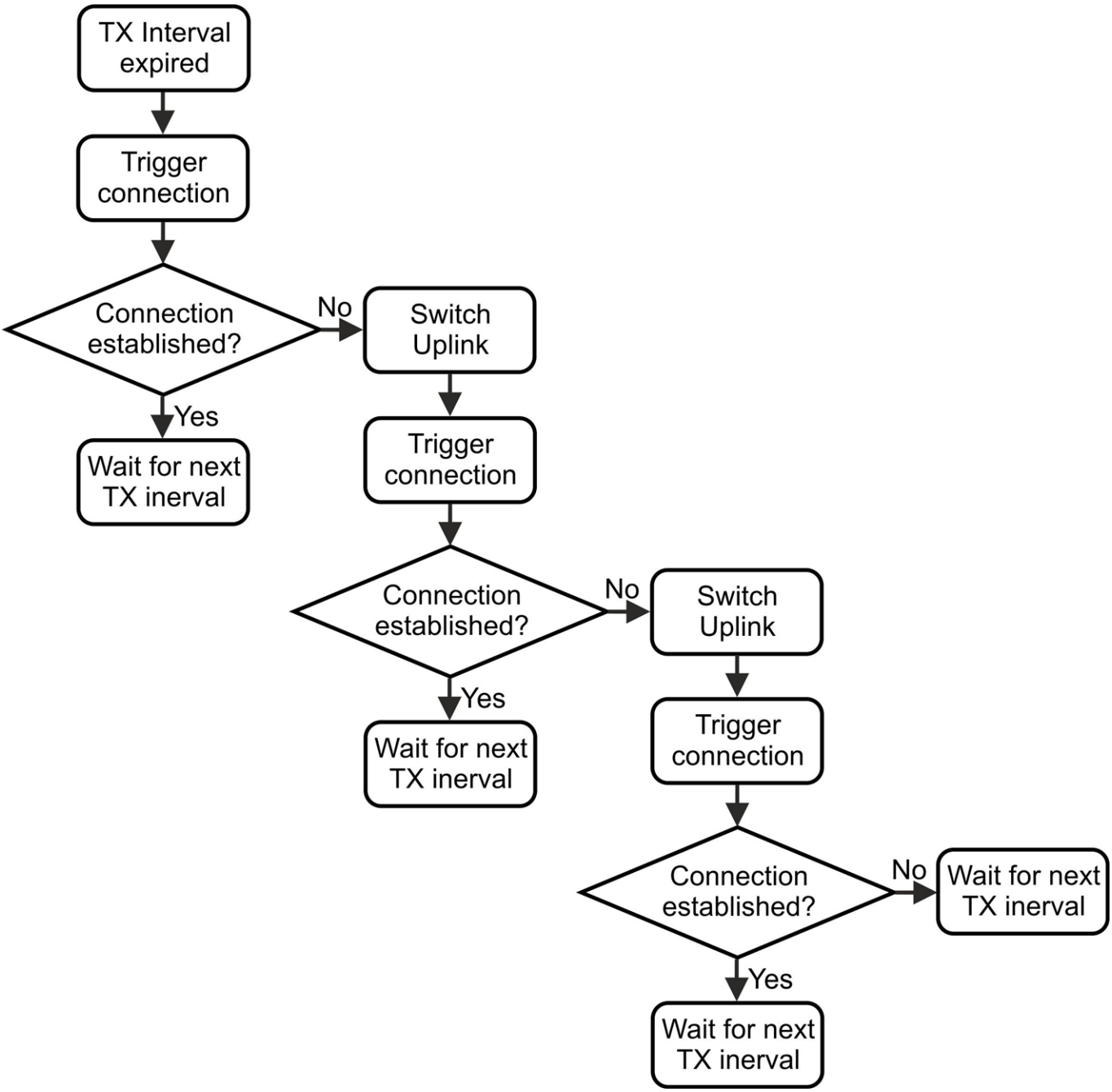
6.7 Determining the position data

An internal flag is set each time the position cycle expires thus ensuring that the GSM position data will also be determined the next time a connection is established. The position cycle can be selected via the relevant parameter in the "Basic settings" configuration section (see "Basic settings" on page 93). If set to 0, the GSM position data is generated every time a connection is established.

6.8 Automatic switching between the mobile network technologies "LTE-M" and "NB-IoT"

If a connection to the myDatanet server should be established, the first connection attempt is made via the last used mobile network technology (e.g. "LTE-M"). If the connection attempt fails, it is automatically switched to the alternative mobile network technology (e.g. "NB-IoT") for the next connection attempt. If the connection attempt fails again, it is automatically switched back to the mobile network technology initially used (e.g. "LTE-M") and the connection attempt is started for the last time. If this third connection attempt fails again, there are no further attempts until the next planned transmission (e.g. after the transmission interval has expired).

If establishing a connection via the last used mobile network technology (e.g. "LTE-M") failed but after switching to the alternative mobile network technology (e.g. "NB-IoT") a connection could be established, the next planned transmission (e.g. after the transmission interval has expired) is first attempted via the mobile network technology now verified as working (e.g. "NB-IoT").



Sequence of automatic switching between the mobile network technologies

Chapter 7 Storage, delivery and transport

7.1 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 161).

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

7.2 Scope of supply

Note: *All specifications of the scope of supply in this user manual refer to the set "myDatalogEx LTE-M BLE+"(301559) . The components of which the measurement system myDatasensBLE+ consists may however also be individually assembled.*

The standard scope of supply of the set "myDatalogEx LTE-M BLE+"(301559) includes:

- myDatalogEx LTE-M (301266)
- IoT application "myDatasensBLE+"(301504)
- BLE Gateway MDN Protection casing (300662)
- MDN Magnet (206.803)
- Staubschutzkappe des Typs "UTS10DCG"

Note: *An antenna (see "Antennas" on page 155) is required for operation but is not included in the scope of supply and must be ordered separately.*

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

7.3 Storage

The following storage conditions must be adhered to:

myDatasensBLE+	Storage temperature	-20...+70°C
	Humidity	15...90%rH
Sensor module	Storage temperature	See chapter "Storage" in the manual of the relevant sensor module
	Humidity	

Important note: *During storage, the sensor connector must be covered using the protective cap (type "UTS10DCG") which is included in the scope of supply.*

Note: *The batteries remain in the devices during storage.*

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

7.4 Transport

Protect the myDatasensBLE+ against heavy shocks, bumps, impacts or vibrations. The original packaging must always be used for transport.

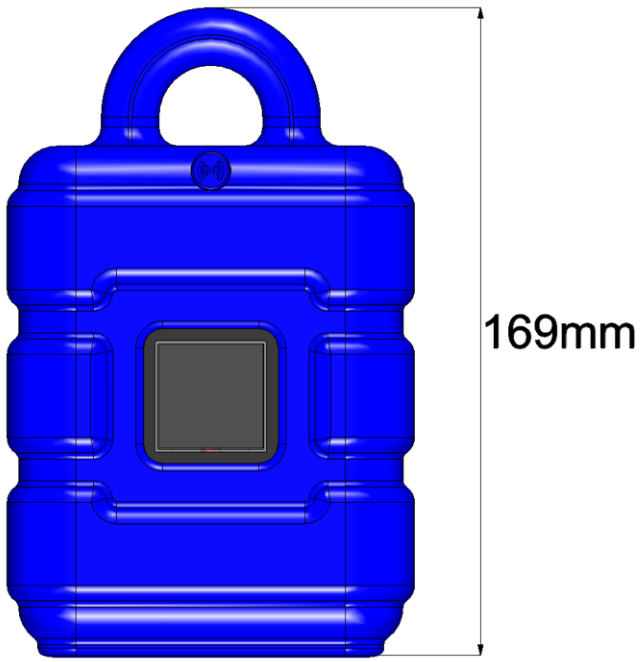
7.5 Return

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 161). The return shipment of the myDatasensBLE+ must occur in the original packaging and with freight and insurance paid to Microtronics Engineering GmbH (see "Contact information" on page 161). Insufficiently cleared return shipments will otherwise not be accepted!

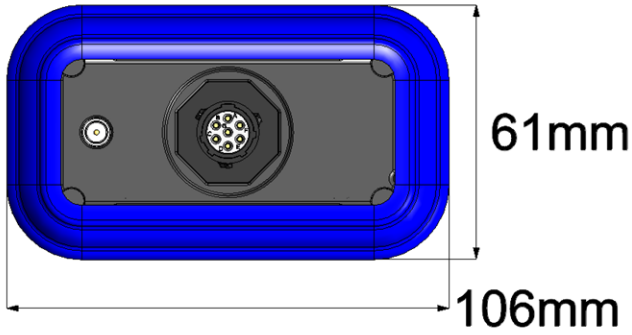
Chapter 8 Installation

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.*

8.1 Dimensions



Dimensions: Height
(view with protective armour)



Dimensions: Width and depth
(view with protective armour)

8.2 Installing the myDatasensBLE+

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 myDatasensBLE+ must not be operated in the field without a protective armour.*
- *Due to the electrostatic effects, the protective armour must not be rubbed with cloths in the Ex zone.*
- *When using metallic mounting fixtures, these have to be integrated in the grounding concept in a suitable manner.*

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

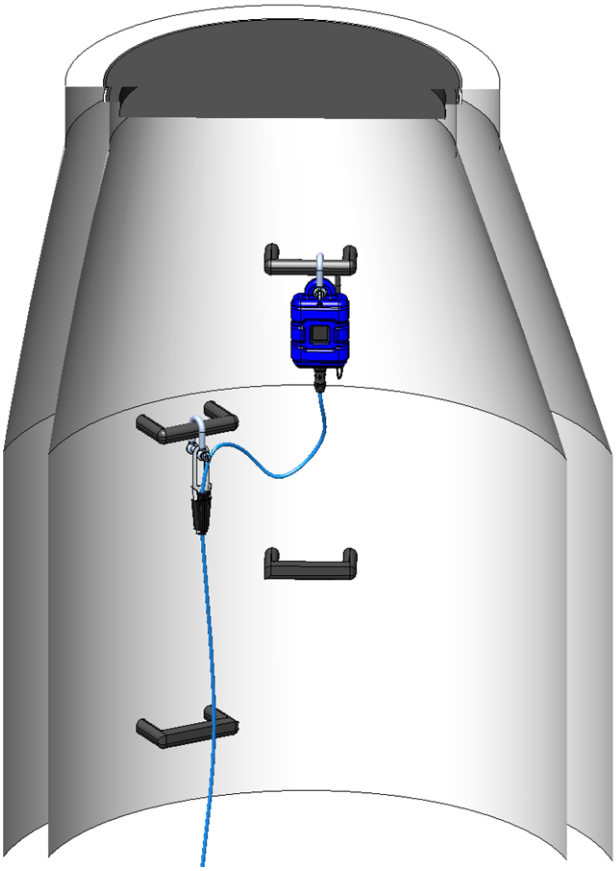
- Direct sunlight
- Direct influence of weather (rain, snow, ...)
- Objects that radiate intense heat (maximum ambient temperature: -20...+50°C)
- Objects with a strong electromagnetic field (frequency converter or similar)
- Corrosive chemicals or gases
- Mechanical impacts
- Direct installation on 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.*

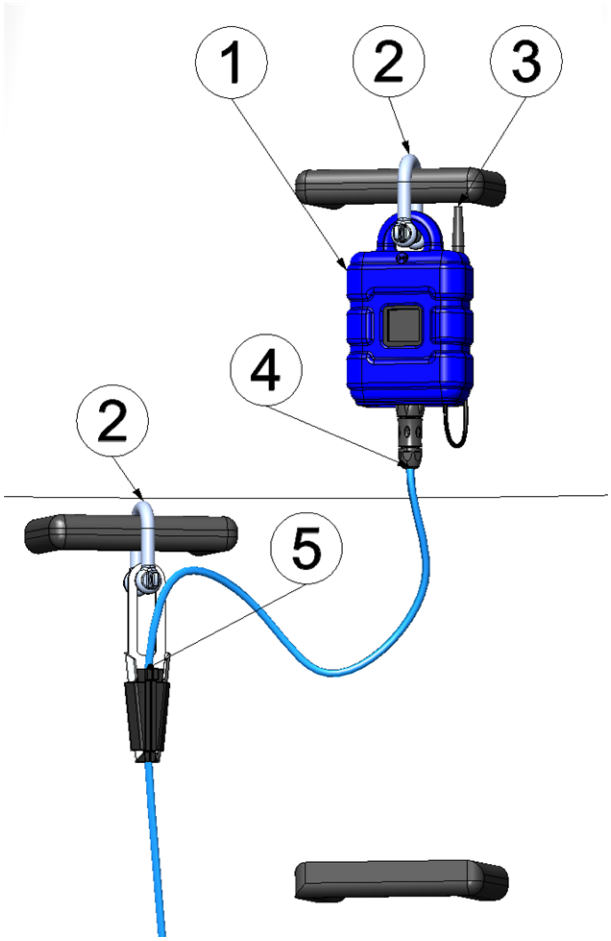
8.2.1 Suspended installation

The following optional accessory sets are required for suspended installations.

- 2 x Niro shackle (206.325)
- 1 x Anchor clamp 5,5 - 10,5mm (301017)
- 1 x Multi band antenna with bracket (300787)



Suspended installation



Detailed view of a suspended installation

1	myDatasensBLE+	**4**	Connection cable of the sensor (e.g. Connection cable 7-pins for sensors 2,8m 206.602)
2	Niro shackle (206.325)	**5**	Anchor clamp 5,5 - 10,5mm (301017)
3	Multi band antenna with bracket (300787)		

1. Attach the Multi band antenna with bracket (300787) on the rear side of the myDatasensBLE+ .
2. Use the Niro shackle (206.325), to attach the myDatasensBLE+ to a rung of the manhole ladder or a similar fastening point in accordance with the figure "Detailed view of a suspended installation" on page 47.

3. Use the Niro shackle (206.325) and the Anchor clamp 5,5 - 10,5mm (301017) to attach the connection cable of the sensor to a rung of the manhole ladder or a similar fastening point in accordance with the figure "Detailed view of a suspended installation" on page 47 .

   Important note: *The sensor connection of the myDatasensBLE+ is not designed to carry heavy loads. For this reason, a clamp must be used in order to fasten the sensor cable in a suitable manner.*

4. Connect the sensor cable with the sensor connection of the myDatasensBLE+ .

   Important note: *If you use a clamping tube to connect the Connection cable 7-pins for sensors 2,8m (206.602) with the actual sensor cable, the clamping tube must be located between the Anchor clamp 5,5 - 10,5mm (301017) and the sensor connection of the myDatasensBLE+ (see "Use of the clamping tubes" on page 55).*

8.2.2 Installing the sensor module

Tips and information on the installation of the sensor module are provided in the user manual of the relevant sensor module.

8.2.3 Zero point adjustment

The zero point adjustment is used to compensate divergences of the sensor values compared to a reference measurement without having to adjust the configuration of the mounting height for sensor modules (see configuration section "Remote measurement channels" on page 85) or the offset for sensors with mA output (see "Measurement channel" on page 80).

8.2.3.1 Zero point adjustment with the help of setup mode

Note: *As the minimum record interval is 10sec.min., this process is only suitable if the water level is as consistent as possible during the zero point adjustment.*

1. Place the sensor module in the final installation position. Tips and information on the installation of the sensor module are provided in the user manual of the relevant sensor module.
2. If you want to use a sensor with mA output, complete all steps described in chapter "Connecting the sensor" on page 52.
3. Connect the antenna (see "Connecting the mobile network antenna" on page 55).
4. Enter the mounting height of the sensor module in the relevant input field (see "Remote measurement channels" on page 85).
5. Enter the required offset for the sensor with mA output in the relevant input field (see "Measurement channel" on page 80).
6. Ensure that the "Trimming" parameter is set to 0 for all sensors the zero point needs to be adjusted for (see "Remote measurement channels" on page 85for sensor modules and "Measurement channel" on page 80 for sensors with mA output).
7. Activate setup mode using the reed switch (see "Setup mode" on page 40) to transmit the configuration of the site to the myDatasensBLE+ .

8. Wait until some measurement values have been recorded. The waiting time depends on the configured record interval (see "Basic settings" on page 93) and the number of measurement values that you want to take into consideration when calculating the zero point adjustment. If necessary, you can shorten the record interval for this commissioning phase to reduce the waiting time.
9. Activate setup mode using the reed switch (see "Reed switch" on page 72) to transmit the recorded measurement values to the myDatanet server.
10. Click on the "Direct Report" symbol in the list of sites/applications to display the data saved on the myDatanet server.

11. A so-called "report" is used to display the data stored on the myDatanet server (see "Reports" on page 133). Use the "Download" symbol to download the data of the displayed measurement value graphic as a tsv file and calculate the average value of the measurement values for the corresponding sensor (i.e. for the sensor module or the sensor with mA output). Detailed instructions on handling the reports are provided in themyDatanet Server Manual (805002).

12. If the calculated average value do not match the ones of the reference measurement, the zero point will need to be adjusted. To do so, calculate the difference between the calculated average value and the reference measurement and enter a corresponding correction value in the input field for the "Trimming" parameter (see "Remote measurement channels" on page 85for sensor modules or "Measurement channel" on page 80 for sensors with mA output). Information on how the "Trimming" parameter influences the calculation of the water level is provided in the relevant user manual of the sensor module. For sensors with mA output, the value of the parameter "trimming" is added. I.e., if the measurement value is to be reduced when adjusting the zero point, a negative sign is to be set for the parameter "trimming" (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 81).
13. Trigger the setup mode again to transmit the altered configuration, i.e. the new value for "Trimming", first to the myDatasensBLE+ and in case of "remote sensors" subsequently to the sensor module.
14. If a zero point adjustment was required, repeat all of the steps from step 8 "Wait until some measurement values have been recorded".
15. Then compare the calculated average value of the measurement values of the relevant senor (i.e. for the sensor module or the sensor with mA output) with the corresponding reference measurement again If the values are still different, complete the zero point adjustment again.

    Note: *The current value of the "Trimming" configuration parameter must now be taken into consideration when calculating the difference between the determined average and the reference measurement. Information on how the "Trimming" parameter influences the calculation of the water level is provided in the relevant user manual of the sensor module. For sensors with mA output, the value of the parameter "trimming" is added to the sensor measurement value.*

8.2.3.2 Zero point adjustment with the help of the Bluetooth connection (BLE)

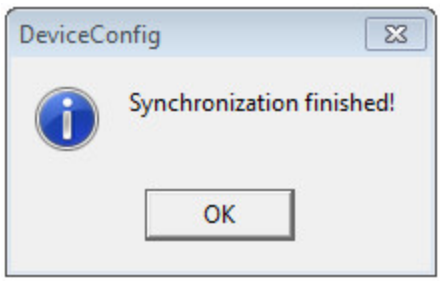
> ***Note:*** *As the minimum record interval is 10sec.min., this process is only suitable if the water level is as consistent as possible during the zero point adjustment.*

1. Place the sensor module in the final installation position. Tips and information on the installation of the sensor module are provided in the user manual of the relevant sensor module.
2. If you want to use a sensor with mA output, complete all steps described in chapter "Connecting the sensor" on page 52.
3. Ensure that transport mode is deactivated. I.e. the "operating mode" in the configuration section "basic settings" (see "Basic settings" on page 93) needs to be set to "normal".
4. Use the DeviceConfig configuration program to establish a Bluetooth connection (Bluetooth Low Energy) between the myDatasensBLE+ and your PC (see "Connecting a Device via Bluetooth Low Energy" on page 110).
5. Trigger a synchronisation between myDatasensBLE+ , 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 programm (see ""Sync" tab" on page 114).

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

   
6. Enter the mounting height of the sensor module in the relevant input field (see "Remote measurement channels" on page 85).
7. Enter the required offset for the sensor with mA output in the relevant input field (see "Measurement channel" on page 80).
8. Ensure that the "Trimming" parameter is set to 0 for all sensors the zero point needs to be adjusted for (see "Remote measurement channels" on page 85for sensor modules and "Measurement channel" on page 80 for sensors with mA output).
9. Trigger the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server to transmit the configuration of the site to the myDatasensBLE+ .
10. Wait until some measurement values have been recorded. The waiting time depends on the configured record interval (see "Basic settings" on page 93) and the number of measurement values that you want to take into consideration when calculating the zero point adjustment. If necessary, you can shorten the record interval for this commissioning phase to reduce the waiting time. In this case, use the "Sync" tab of the configuration program DeviceConfig (see ""Sync" tab" on page 114) to transmit the altered record interval from the site to the myDatasensBLE+ .
11. Trigger the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server to transmit the recorded measurement values to the myDatanet server.

12. Wait until the DeviceConfig configuration program indicates that the synchronisation process is completed.



Synchronisation completed

13. Click on the "Direct Report" symbol in the list of sites/applications to display the data saved on the myDatanet server.



14. A so-called "report" is used to display the data stored on the myDatanet server (see "Reports" on page 133). Use the "Download" symbol to download the data of the displayed measurement value graphic as a tsv file and calculate the average value of the measurement values for the corresponding sensor (i.e. for the sensor module or the sensor with mA output). Detailed instructions on handling the reports are provided in the myDatanet Server Manual (805002).



15. If the calculated average value do not match the ones of the reference measurement, the zero point will need to be adjusted. To do so, calculate the difference between the calculated average value and the reference measurement and enter a corresponding correction value in the input field for the "Trimming" parameter (see "Remote measurement channels" on page 85for sensor modules or "Measurement channel" on page 80 for sensors with mA output). Information on how the "Trimming" parameter influences the calculation of the water level is provided in the relevant user manual of the sensor module. For sensors with mA output, the value of the parameter "trimming" is added. I.e., if the measurement value is to be reduced when adjusting the zero point, a negative sign is to be set for the parameter "trimming" (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 81).
16. Trigger the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server again to transmit the altered configuration, i.e. the new value for "Trimming", to the myDatasensBLE+ and in case of "remote sensors" subsequently to the sensor module.
17. If a zero point adjustment was required, repeat all of the steps from step 10 "Wait until some measurement values have been recorded".
18. Then compare the calculated average value of the measurement values of the relevant senor (i.e. for the sensor module or the sensor with mA output) with the corresponding reference measurement again If the values are still different, complete the zero point adjustment again.

> ***Note:*** *The current value of the "Trimming" configuration parameter must now be taken into consideration when calculating the difference between the determined average and the reference measurement. Information on how the "Trimming" parameter influences the calculation of the water level is provided in the relevant user manual of the sensor module. For sensors with mA output, the value of the parameter "trimming" is added to the sensor measurement value.*

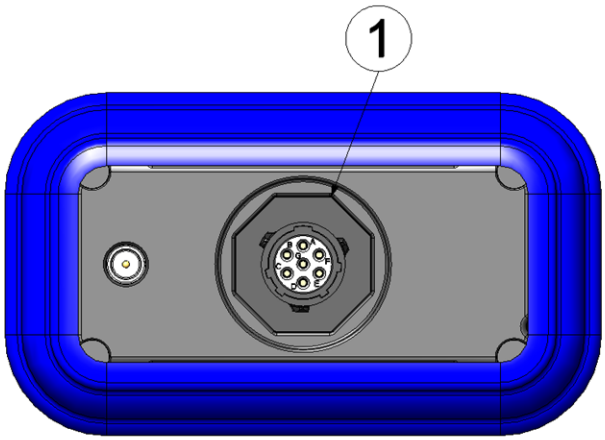
8.3 Electrical installation

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

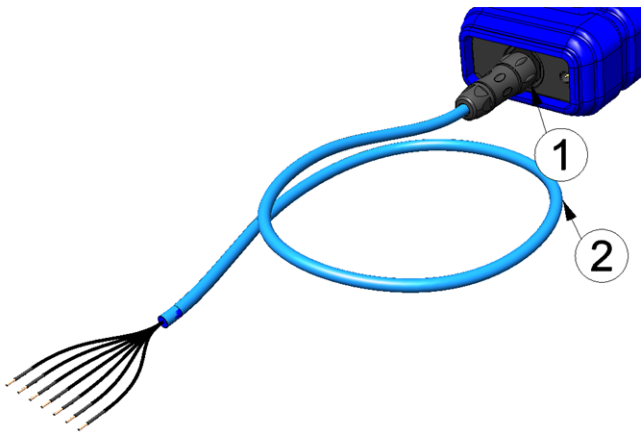
8.3.1 Connecting the sensor

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 instruments.*
- *Run all data cables so that they do not pose a trip hazard and ensure that cables do not have any sharp bends.*
- *Data cables must not exceed a lenght of 30m.*
- *If no cable is connected to the sensor connector, the plug must be covered with the protective cap (type "UTS10DCG") included in the scope of delivery.*



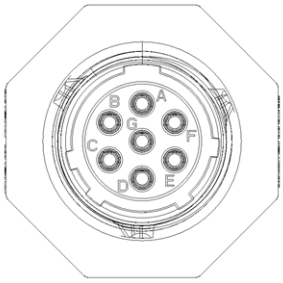
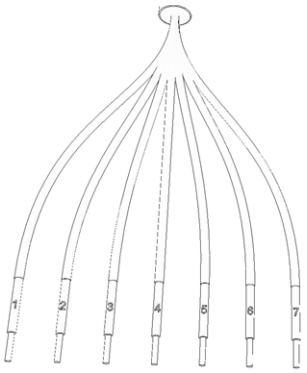
Connecting the sensors



Connecting the sensors when using the Connection cable 7-pins for sensors 2,8m (206.602)

1 Sensor connector (7-pin MIL connector)	**2** Connection cable 7-pins for sensors 2,8m (206.602)

Sensor connector

	Sensor connector (7-pin MIL connector)	Connection cable 7-pins for sensors 2,8m (206.602)	Signal
 Sensor connector	A	5	NC
	B	4	NC
	C	3	switchable and adjustable sensor supply (0...22V)
	D	2	NC
	E	7	Universal input 1
	F	6	NC
 Connection cable 7-pins for sensors 2,8m	G	1	Ground

1. Activate the mode suitable for the output signal of the sensor in the configuration section "Measurement channel" (see "Measurement channel" on page 80).
2. Connect your sensors to the sensor connector. You can use the Connection cable 7-pins for sensors 2,8m (206.602) or Cable connector 7-pins for myDatalogMobile (206.654). Further accessories are detailed in the chapter "Spare parts and accessories" on page 155.

   Important note: *If you operate the myDatasensBLE+ in areas with a zone 1 explosive atmosphere, observe the ATEX requirements when connecting the open ends of the Connection cable 7-pins for sensors 2,8m (206.602) with your sensors (e.g. distances between the signal lines). The same applies if you use the Cable connector 7-pins for myDatalogMobile (206.654).*

   Important note: *If you use the Connection cable 7-pins for sensors 2,8m (206.602), the joint between the sensor cable and sensor must be suitably protected against the penetration of moisture and dust. You can use the Clamping tube(300256) or Pressure compensation tube (300131) for this purpose (see "Use of the clamping tubes" on page 55).*
3. Connect the antenna (see "Connecting the mobile network antenna" on page 55).
4. Activate setup mode using the reed switch (see "Setup mode" on page 40). Afterwards, the symbol for connecting should be displayed on the device display.

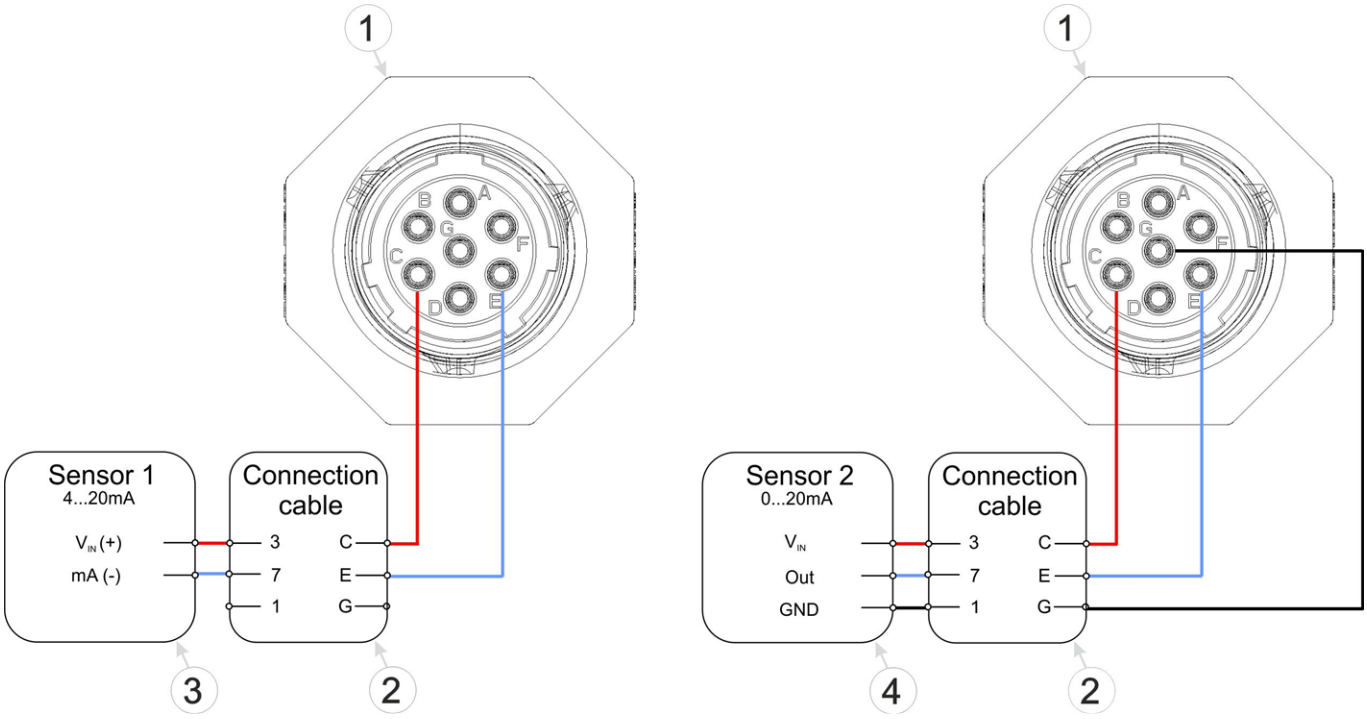
   Note: *If the myDatasensBLE+ is still in transport mode, the transport lock is deactivated by activating setup mode and the device resumes operation according to the configuration settings.*

The following step is not mandatory.

5. Check whether the connection to the myDatanet has worked correctly (see "Testing communication with the device" on page 67).

8.3.1.1 Connection examples

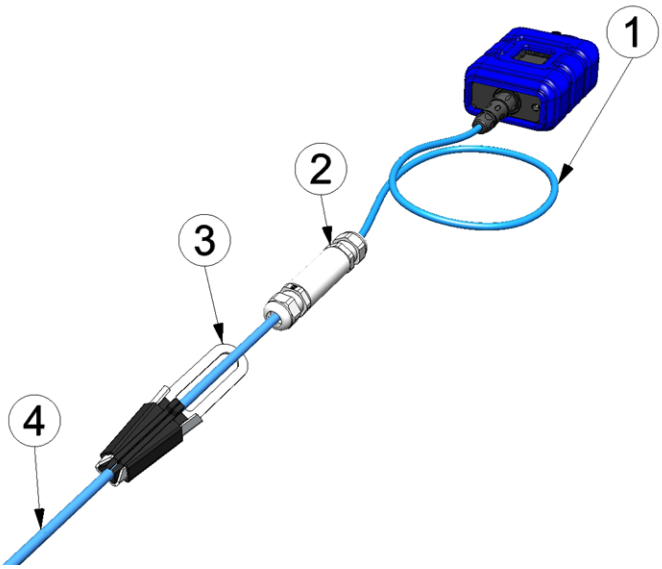
Important note: *This only applies if the sensor is also approved for operation in areas with a zone 1 explosive atmosphere and if the ATEX requirements (e.g. distances between the signal lines) are observed and maintained when the sensor is connected.*



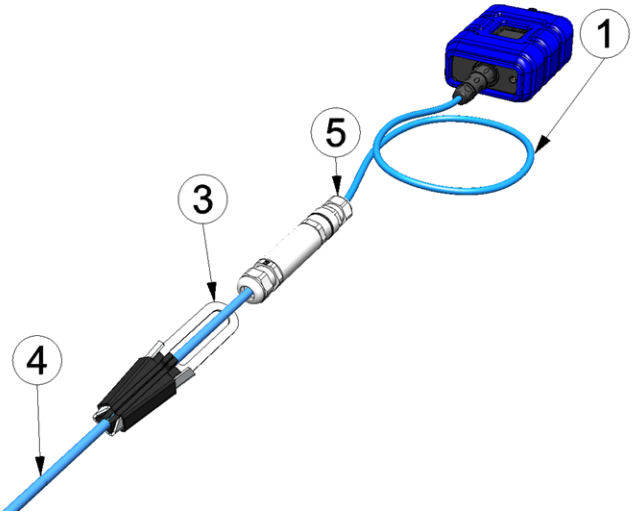
Connection examples

1 myDatasensBLE+	**3** 2-wire mA sensor
2 Connection cable 7-pins for sensors 2,8m (206.602)	**4** 3-wire mA sensor

8.3.1.2 Use of the clamping tubes



Connecting the sensors when using the Clamping tube(300256)



Connecting the sensors when using the Pressure compensation tube (300131)

1	Connection cable 7-pins for sensors 2,8m (206.602)	**4**	Connection cable of the sensor
2	Clamping tube(300256)	**5**	Pressure compensation tube (300131)
3	Anchor clamp 5,5 - 10,5mm (301017)		

The only difference between the Pressure compensation tube (300131) and Clamping tube(300256) is that one of the two cable screw connections is equipped with a breathable membrane to compensate the pressure.

8.3.2 Connecting the mobile network 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 23) of the myDatasensBLE+ .

1. Connect the connection cable of the antenna directly to the antenna connector of the myDatasensBLE+ (see "Overview" on page 23).

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 67).

8.3.2.1 Optimum antenna positioning for assembly in a shaft

8.3.2.1.1 Typical influences on the signal quality

Signal losses compared to the reference measurement

Steel cover	up to -30dB
Concrete cover	approx. -10dB
Environmental influences	up to -15dB
Installation height of the antenna	approx. -5dB / 15 cm depth
Vertical/horizontal alignment	approx. -10dB
Horizontal alignment	up to -15dB
Centre/edge of the shaft	approx. -10dB
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*

8.3.2.1.2 Possibilities for improving the signal quality

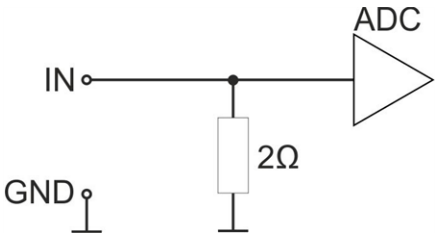
- Drill a duct for the connection cable of the antenna into the concrete ring on the shaft to avoid the steel cover
- Insert the connection cable of the antenna in an existing ventilation or supply pipe
- Use special types of antennas

8.3.3 Technical details about the universal input

Note: *The universal input is not galvanically isolated.*

Important note: *If the myDatasensBLE+ is operated in areas with a zone 1 explosive atmosphere, it is not permitted to connect external voltages to the universal input. This means that an analogue sensor must be supplied by the 0...22V voltage output of the device.*

The myDatasensBLE+ is equipped with a 16 bit ADC.

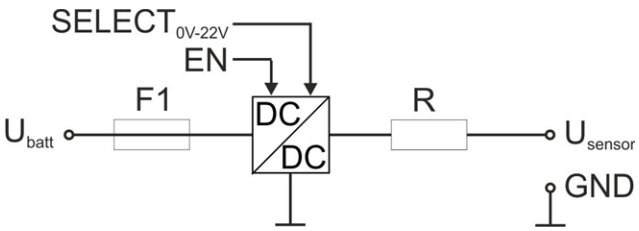


Schematic diagram of an universal input

8.3.3.1 0/4...20mA mode

Resolution	1µA
I_{max}	25,6mA
Load	2Ω

8.3.4 Technical details about the sensor supply



Schematic diagram of the sensor supply

U_{batt}	internal supply voltage
F	electronic fuse
R	330Ω
U_{Sensor}	0...22V

Ex parameters

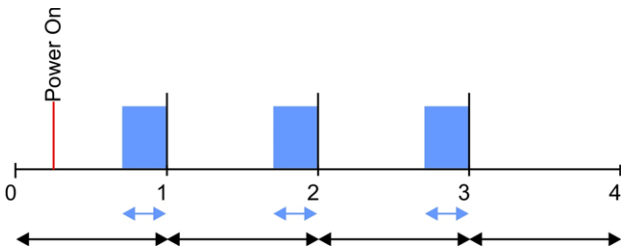
U_o	25,6V	
I_o	82mA	
P_o	0,523W	
	L_o [µH]	**C_o [µF]**
	1000	0,31
	250	0,36
	100	0,465

The sensor supply is activated by setting a value for the warmup time in the "measurement channel-> configuration" configuration section (see "Measurement channel" on page 80). The warmup time specifies how long before the measurement the sensor supply is switched on. If it is set to 0sec., the sensor supply will neither be activated prior to nor during the measurement.

Note: *The time of the first recording following the PowerOn is calculated and is not completed exactly according to the time after the PowerOn specified via the record interval. If the record interval is 1 minute long, the first recording is selected in such a way that it is completed at the full minute mark. This means that if the PowerOn is completed at 12:05:34, the first recording is taken at 12:06:00, i.e. 26 sec. after the PowerOn.*

Note: *Example to explain the correlation between warmup time and measurement cycle*

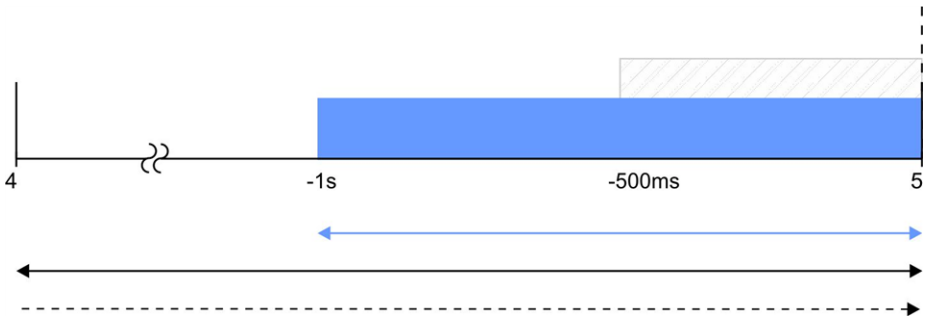
Basic settings		*Measurement cycle*	*1min.*
Measurement channel -> configuration		*Warmup time*	*20sec.*
Output at the device		*Sensor supply*	



Explanation: *The sensor supply is activated 20sec prior to the measurement interval each time, meaning that the value provided at the time of measurement is valid.*

Note: *Example to explain the filter time in conjunction with the Ext. warmup time*

Basic settings		*Record interval*	*5min.*
		Measurement cycle	*1min.*
Measurement channel -> configuration		*Ext. warmup time*	*1sec.*
		Filter time	*500ms*
Output at the device		*Sensor supply*	



Explanation: *The sensor supply is always activated 1sec before expiry of the measurement cycle. The filter time starts 500ms before expiry of the measurement cycle, which ensures that a valid value is available at the time of a measurement. However, this also means that the filter time must be taken into consideration when selecting the Ext. warmup time. In the current example, the sensor connected to the input must at the latest supply stable values 500ms following activation of the sensor supply. Otherwise, invalid values would be taken into consideration while averaging during the filter time resulting in the measurement value being distorted.*

8.3.5 Technical details about the Bluetooth Low Energy interface

The connection to a PC is established via the Bluetooth Low Energy interface. It is only designated for the communication with the DeviceConfig configuration program. A detailed description of the DeviceConfig configuration program is provided in chapter "DeviceConfig " on page 103. It can be downloaded free of charge from the following website:

www.microtronics.com/deviceconfig

Chapter 9 Initial Start-Up

9.1 User information

Before you connect the myDatasensBLE+ 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 myDatasensBLE+

Contact Microtronics Engineering GmbH(see "Contact information" on page 161) if anything is unclear or if you encounter difficulties with regard to installation, connection or configuration.

9.2 Applicable documents

In addition to this operating instructions, additional instructions or technical descriptions may be required for the installation, commissioning and operation of the entire system.

These instructions are enclosed to the respective additional devices or sensors or are available for download on the Microtronics website.

9.3 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 myDatasensBLE+ and the input screens of the myDatanet server before you begin with the configuration.

9.4 Placing the system into operation

9.4.1 Using the mobile connection and the myDatanet server

> ***Note:*** *It is recommended that the myDatasensBLE+ is first placed into operation in the office before moving the measurement system to the place of use. During this process, you should set a site for subsequent operation on the myDatanet server (see "Creating the site" on page 133) and and determine a site setting (see "Site configuration" on page 76). Take the opportunity to get to know the functions of the device in a stable environment.You can also use suitable test signals to simulate the sensors to establish the optimum configuration of themyDatasensBLE+ prior to its actual first use. This reduces the amount of time required for on-site installation to a minimum.*

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 desired customer, create a new site/application based on the IoT application "myDatasensBLE+" for operation of the myDatasensBLE+ on the myDatanet server (see "Creating the site" on page 133).
3. Configure the created site/application according to your requirements (see "Site configuration" on page 76).

   The following settings should be adjusted if a remote sensor module is used:

   1. If already known, enter the intended mounting height of the sensor module in the relevant input field (see "Remote measurement channels" on page 85).
   2. Ensure that the "Trimming" parameter is set to 0 (see "Remote measurement channels" on page 85).

   The following settings should be completed if a sensor with mA output is used:

   1. If already known, enter the required offset in the corresponding input field (see "Measurement channel" on page 80).
   2. Ensure that the parameter "trimming" is set to 0 (see "Measurement channel" on page 80)
4. Connect the antenna (see "Connecting the mobile network antenna" on page 55). The antenna is not included in the scope of supply and must be ordered separately.

   Note: *This and the 3 following steps can also be skipped, as the transmission also has to be triggered during the installation on site, which transfers the configuration to the myDatasensBLE+ at the same time.*

5. To establish a connection, activate setup mode (see "Setup mode" on page 40) using the reed switch. During this connection, the configuration of the site is transferred to the myDatasensBLE+ . The myDatasensBLE+ is delivered with transport mode active (measurement and transmission "off") and should also always be stored this way (see "Storage of the product" on page 27). When activating the setup mode, transport mode is automatically deactivated and the myDatasensBLE+ resumes operation according to configuration.
6. Activate transport mode again by setting the "operating mode" in the "basic settings" configuration section (see "Basic settings" on page 93) to "transport" and wait until the mobile network connection is disconnected. This has been achieved when the "transport mode" screen is shown on the display (see "Display" on page 72).
7. Remove the antenna again.

The following tasks are to be completed directly at the deployment site of the device:

8. Place the sensor module in the final installation position. Tips and information on the installation of the sensor module are provided in the user manual of the relevant sensor module.
9. If you want to use a sensor with mA output, complete all steps described in chapter "Connecting the sensor" on page 52.
10. Connect the antenna (see "Connecting the mobile network antenna" on page 55).
11. If you have not already done so in the office, enter the mounting height of the sensor module in the relevant input field (see "Remote measurement channels" on page 85).
12. Enter the required offset for the sensor with mA output into the corresponding input field (see "Measurement channel" on page 80) if you haven't already done so at the office.

13. Activate setup mode using the reed switch (see "Reed switch" on page 72) to transmit the configuration of the site to the myDatasensBLE+ .
14. You should then check whether the zero point needs to be adjusted for the individual sensors.

    Proceed as follows during this process:

    1. Wait until some measurement values have been recorded. The waiting time depends on the configured record interval (see "Basic settings" on page 93) and the number of measurement values that you want to take into consideration when calculating the zero point adjustment. If necessary, you can shorten the record interval for this commissioning phase to reduce the waiting time.

       Note: *As the minimum record interval is 10sec.min., this process is only suitable if the water level is as consistent as possible during the zero point adjustment.*

    2. Activate setup mode using the reed switch (see "Reed switch" on page 72) to transmit the recorded measurement values to the myDatanet server.
    3. Click on the "Direct Report" symbol in the list of sites/applications to display the data saved on the myDatanet server.

    4. A so-called "report" is used to display the data stored on the myDatanet server (see "Reports" on page 133). Use the "Download" symbol to download the data of the displayed measurement value graphic as a tsv file and calculate the average value of the measurement values for the corresponding sensor (i.e. for the sensor module or the sensor with mA output). Detailed instructions on handling the reports are provided in the myDatanet Server Manual (805002).

    5. If the calculated average value do not match the ones of the reference measurement, the zero point will need to be adjusted. To do so, calculate the difference between the calculated average value and the reference measurement and enter a corresponding correction value in the input field for the "Trimming" parameter (see "Remote measurement channels" on page 85for sensor modules or "Measurement channel" on page 80 for sensors with mA output). Information on how the "Trimming" parameter influences the calculation of the water level is provided in the relevant user manual of the sensor module. For sensors with mA output, the value of the parameter "trimming" is added. I.e., if the measurement value is to be reduced when adjusting the zero point, a negative sign is to be set for the parameter "trimming" (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 81).
    6. Trigger the setup mode again to transmit the altered configuration, i.e. the new value for "Trimming", first to themyDatasensBLE+ and if you use "remote sensors", subsequently to the sensor module.
    7. If a zero point adjustment is required, repeat all steps from sub-step 1 "Wait until some measurement values have been recorded".

8. Then compare the calculated average value of the measurement values of the relevant senor (i.e. for the sensor module or the sensor with mA output) with the corresponding reference measurement again If the values are still different, complete the zero point adjustment again.

   Note: *The current value of the "Trimming" configuration parameter must now be taken into consideration when calculating the difference between the determined average and the reference measurement. Information on how the "Trimming" parameter influences the calculation of the water level is provided in the relevant user manual of the sensor module. For sensors with mA output, the value of the parameter "trimming" is added to the sensor measurement value.*

9.4.2 Using the Bluetooth connection (BLE) and the myDatanet servers

You will need the DeviceConfig configuration program (minimum version 4.21.4) to commission the myDatasensBLE+ . It can be downloaded free of charge from the following website:

www.microtronics.com/deviceconfig

Detailed instructions on using the DeviceConfig configuration program are provided in the chapter "DeviceConfig " on page 103.

Note: *It is recommended that the myDatasensBLE+ is first placed into operation in the office before moving the measurement system to the place of use. During this process, you should set a site for subsequent operation on the myDatanet server (see "Creating the site" on page 133) and determine a site setting (see "Site configuration" on page 76). Take the opportunity to get to know the functions of the device in a stable environment. You can also use suitable test signals to simulate the sensors with mA output to establish the optimum configuration of the myDatasensBLE+ prior to its actual first use. This reduces the amount of time required for on-site installation to a minimum.*

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 desired customer, create a new site/application based on the IoT application "myDatasensBLE+" for operation of the myDatasensBLE+ on the myDatanet server (see "Creating the site" on page 133).
3. Use the DeviceConfig configuration program to establish a Bluetooth connection (Bluetooth Low Energy) between the myDatasensBLE+ and your PC (see "Connecting a Device via Bluetooth Low Energy" on page 110).
4. Activate the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server aus. 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 114).

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



5. Configure the created site/application according to your requirements (see "Site configuration" on page 76).

   The following settings should be adjusted if you use a remote sensor module:

   1. If already known, enter the intended mounting height of the sensor module in the relevant input field (see "Remote measurement channels" on page 85).
   2. Ensure that the "Trimming" parameter is set to 0 (see "Remote measurement channels" on page 85).

   The following settings should be completed if a sensor with mA output is used:

   1. If already known, enter the required offset in the corresponding input field (see "Measurement channel" on page 80).
   2. Ensure that the parameter "trimming" is set to 0 (see "Measurement channel" on page 80)

6. Activate the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server in order to transmit the configuration of the site to the myDatasensBLE+ .

The following tasks are to be completed directly at the deployment site of the device:

7. Place the sensor module in the final installation position. Tips and information on the installation of the sensor module are provided in the user manual of the relevant sensor module.
8. If you want to use a sensor with mA output, complete all steps described in chapter "Connecting the sensor" on page 52.
9. Deactivate the transport mode by setting the "operating mode" in the configuration section "basic settings" (see "Basic settings" on page 93) to "normal".
10. Use the DeviceConfig configuration program to establish a Bluetooth connection (Bluetooth Low Energy) between the myDatasensBLE+ and your PC (see "Connecting a Device via Bluetooth Low Energy" on page 110).
11. Activate the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server in order to transmit the altered values for the mounting height to the myDatasensBLE+ . To do so, initially select the "Sync with server" checkbox and then click on the button to trigger the synchronisation. The checkbox and button are both located on the "Sync" tab of the DeviceConfig configuration program (see ""Sync" tab" on page 114).
12. If you have not already done so in the office, enter the mounting height of the sensor module in the relevant input field (see "Remote measurement channels" on page 85).
13. Enter the required offset for the sensor with mA output into the corresponding input field (see "Measurement channel" on page 80) if you haven't already done so at the office.
14. Activate the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server in order to transmit the configuration of the site to the myDatasensBLE+ .

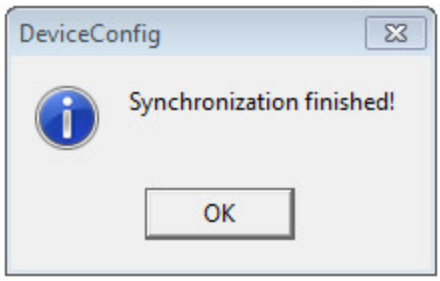
The following steps are only necessary, if you want to complete a zero point adjustment.

15. Wait until some measurement values have been recorded. The waiting time depends on the configured record interval (see "Basic settings" on page 93) and the number of measurement values that you want to take into consideration when calculating the zero point adjustment. If necessary, you can shorten the record interval for this commissioning phase to reduce the waiting time. In this case, use the "Sync" tab of the DeviceConfig configuration program (see ""Sync" tab" on page 114)to transfer the altered record interval from the site to the myDatasensBLE+ .

    Note: *As the minimum record interval is 10sec.min., this process is only suitable if the water level is as consistent as possible during the zero point adjustment.*

16. Activate the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server in order to transmit the recorded measurement values to the myDatanet server.

17. Wait until the DeviceConfig configuration program indicates that the synchronisation process is completed.



Synchronisation completed

18. Click on the "Direct Report" symbol in the list of sites/applications to display the data saved on the myDatanet server.



19. A so-called "report" is used to display the data stored on the myDatanet server (see "Reports" on page 133). Use the "Download" symbol to download the data of the displayed measurement value graphic as a tsv file and calculate the average value of the measurement values for the corresponding sensor (i.e. for the sensor module or the sensor with mA output). Detailed instructions on handling the reports is provided in the myDatanet Server Manual (805002).



20. If the calculated average value do not match the ones of the reference measurement, the zero point will need to be adjusted. To do so, calculate the difference between the calculated average value and the reference measurement and enter a corresponding correction value in the input field for the "Trimming" parameter (see "Remote measurement channels" on page 85for sensor modules or "Measurement channel" on page 80 for sensors with mA output). Information on how the "Trimming" parameter influences the calculation of the water level is provided in the relevant user manual of the sensor module. For sensors with mA output, the value of the parameter "trimming" is added. I.e., if the measurement value is to be reduced when adjusting the zero point, a negative sign is to be set for the parameter "trimming" (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 81).

21. Trigger the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server again to transmit the altered configuration, i.e. the new value for "Trimming", first to the myDatasensBLE+ and, when using "remote sensors", subsequently to the sensor module.

22. If a zero point adjustment is required, repeat all of the steps from step 14 "Wait until some measurement values have been recorded".
23. Then compare the calculated average value of the measurement values of the relevant senor (i.e. for the sensor module or the sensor with mA output) with the corresponding reference measurement again If the values are still different, complete the zero point adjustment again.

    Note: *The current value of the "Trimming" configuration parameter must now be taken into consideration when calculating the difference between the determined average and the reference measurement. Information on how the "Trimming" parameter influences the calculation of the water level is provided in the relevant user manual of the sensor module. For sensors with mA output, the value of the parameter "trimming" is added to the sensor measurement value.*

9.5 Testing communication with the device

9.5.1 Testing communication between myDatasensBLE+ and myDatanet server (mobile connection)

1. Within the desired customer, create a new site/application based on the IoT application "myDatasensBLE+" for operation of the myDatasensBLE+ on the myDatanet server (see "Creating the site" on page 133).
2. Configure the created site/application according to your requirements (see "Site configuration" on page 76).

   The following settings should be carried out if you also want to test the communication with the sensor module at the same time:

   1. Check or enter the installation height of the sensor module in the relevant input field (see "Remote measurement channels" on page 85).
   2. Check or enter the value for the zero point adjustment in the input field for "Trimming" (see "Remote measurement channels" on page 85).

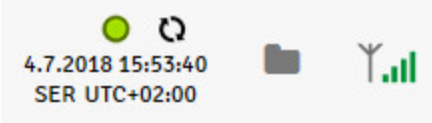
   The following settings should be made if you also want to test the measurement value acquisition at the mA input:

   1. If already known, enter the required offset in the corresponding input field (see "Measurement channel" on page 80).
   2. Ensure that the parameter "trimming" is set to 0 (see "Measurement channel" on page 80)
3. Connect the antenna (see "Connecting the mobile network antenna" on page 55).

The following step is only necessary if you also want to test the measurement value acquisition at the mA input at this time:

4. Connect the sensor (see "Connecting the sensor" on page 52).
5. To establish a connection, activate setup mode (see "Setup mode" on page 40) using the reed switch. In doing so, the configuration of the site is also transferred to the myDatasensBLE+ .

6. Wait until it is indicated in the list of sites/applications that the device is connected to the server (rotating arrows).



   The myDatasensBLE+ is only for a very short time connected to the server. You can therefore check if the time stamp of the last connection (under the green status symbol) has been updated.

The following steps are only necessary if you also want to test the measurement value acquisition and the data transmission at this time.

7. Wait until some measurement values have been recorded. The waiting time depends on the configured record interval (see "Basic settings" on page 93)
8. Trigger setup mode again to transmit the determined measurement values to the myDatanet server.
9. Click on the "Direct Report" symbol in the list of sites/applications to display the data saved on the myDatanet server.



10. Check whether all of the data up to the point of the synchronisation is present and plausible (especially the "Remote measurement channels" and "GSM" measurement values). Complete a zero point adjustment, if the measurement values (sensor modules and/or sensor with mA output) do not meet the expectations (see "Zero point adjustment" on page 48).

9.5.2 Testing communication between myDatasensBLE+ and myDatanet server (Bluetooth connection)

1. Within the desired customer, create a new site/application based on the IoT application "myDatasensBLE+" for operation of the myDatasensBLE+ on the myDatanet server (see "Creating the site" on page 133).
2. Use the DeviceConfig configuration program to establish a Bluetooth connection (Bluetooth Low Energy) between the myDatasensBLE+ and your PC (see "Connecting a Device via Bluetooth Low Energy" on page 110).
3. Trigger the synchronisation between myDatasensBLE+ , 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 114).

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



4. Configure the created site/application according to your requirements (see "Site configuration" on page 76).

   The following settings should be carried out if you also want to test the communication with the sensor module at the same time:

   1. Check or enter the installation height of the sensor module in the relevant input field (see "Remote measurement channels" on page 85).
   2. Check or enter the value for the zero point adjustment in the input field for "Trimming" (see "Remote measurement channels" on page 85)

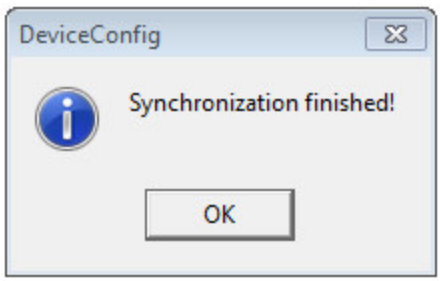
   The following settings should be made if you also want to test the measurement value acquisition at the mA input:

   1. If already known, enter the required offset in the corresponding input field (see "Measurement channel" on page 80).
   2. Ensure that the parameter "trimming" is set to 0 (see "Measurement channel" on page 80)

5. Trigger the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server to transmit the configurations of the site to the myDatasensBLE+ .

The following step is only required if you also want to test the measurement value at the mA input at this time:

6. Connect the sensor (see "Connecting the sensor" on page 52).
7. Wait until some measurement values have been recorded. The waiting time depends on the configured record interval (see "Basic settings" on page 93)
8. Trigger the synchronisation between myDatasensBLE+ , DeviceConfig and the myDatanet server to transmit the recorded measurement values to the myDatanet server.
9. Wait until the DeviceConfig configuration program indicates that the synchronisation process is completed.



Synchronisation completed

10. Click on the "Direct Report" symbol in the list of sites/applications to display the data saved on the myDatanet server.

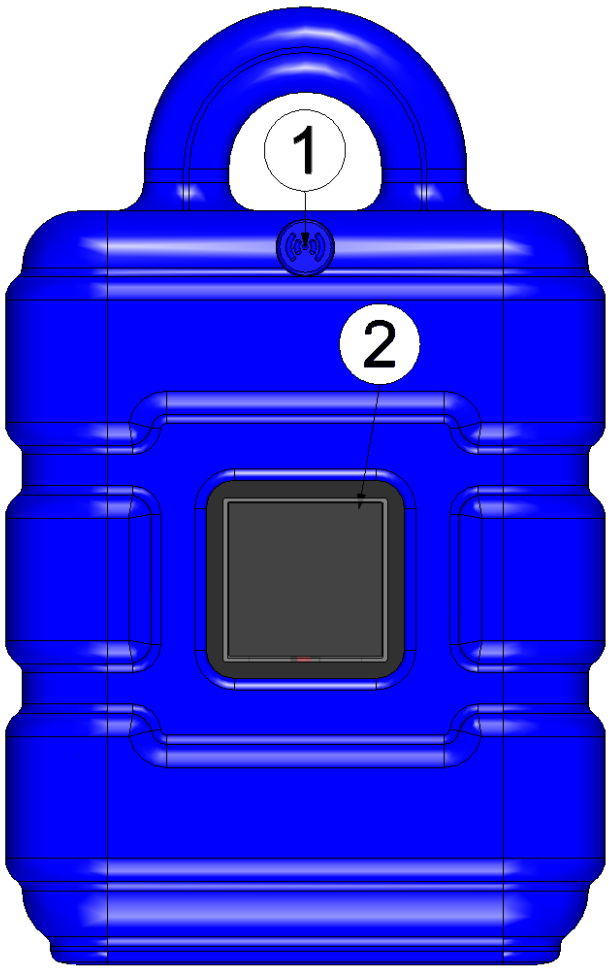
11. Check whether all of the data up to the point of the synchronisation is present and plausible (especially the "Remote measurement channels" and "GSM" measurement values). Complete a zero point adjustment, if the measurement values (sensor modules and/or sensor with mA output) do not meet the expectations (see "Zero point adjustment" on page 48).

Chapter 10 User interfaces

The configuration of the myDatasensBLE+ is carried out via the web interface on the myDatanet server (see "User interface on the myDatanet server" on page 76), which your responsible sales partner will provide to you.

10.1 User interface on the myDatasensBLE+

10.1.1 Operating elements



Operating elements

1 Reed switch	**2** Display

10.1.1.1 Reed switch

The MDN Magnet (206.803) included in the scope of delivery is required for operating the reed switch. The reed switch can be used to activate setup mode, to switch on the display of the myDatasensBLE+ for 20sec. or to switch between the tabs on the screen if the display is switched on.

Display	Operation by the user	Device response	Operation after releasing the reed switch
off	press briefly (approx. 1sec.)	display is activated for 20sec.	display of the current operating state (see "Display" on page 72)
off	press and hold for 3sec.	setup mode is activated	---
on	press briefly (approx. 1sec.)	switches to the next tab on the screen	When pressing briefly the first time after activating the display, automatic switching between the tabs is deactivated.
on	press and hold for 3sec.	setup mode is activated	---

The display of the myDatasensBLE+ is activated as soon as the reed switch is pressed. If the display is active, the tabs with information about the myDatalogEx LTE-M itself, the mA input and the sensor modules are shown subsequently (see "Display" on page 72). When pressing briefly the first time while the display is active, automatic switching between the tabs is deactivated. After that, you can switch between the tabs when pressing the switch again. The remaining time the display is active for is reset to 20sec. every time the reed switch is pressed.

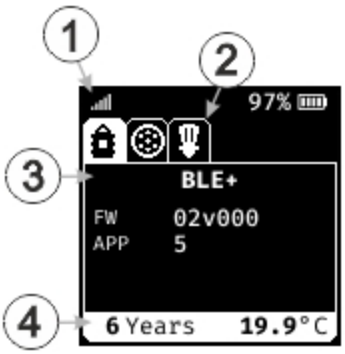
10.1.1.2 Display

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.*

10.1.1.2.1 General

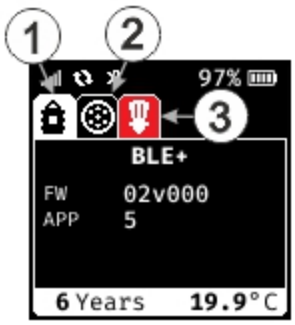
The display of the myDatasensBLE+ is only designed to show the current measurement values and various status information. The device cannot be operated via the display. The display is activated by briefly holding the magnet (approx. 1 sec.) to the reed switch (see "Reed switch" on page 72). The display then remains active for 20sec. , showing consecutively the tabs with information about the myDatalogEx LTE-M itself, the mA input and the sensor modules. Using the solenoid switch you can disable automatic switching between the tabs and switch manually between the display screens (see "Reed switch" on page 72).



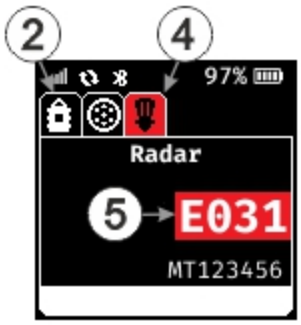
General structure of the display

1	Status bar	**3**	Information about the current tab
2	Display of the available tabs with specific information	**4**	Footer of the current tab

The tab on which information is currently shown on the display is highlighted by a white background. The background of the other tabs is black, provided no error has occurred with the respective components (myDatalogEx LTE-M , mA input or sensor module) of which they contain the information. The fact that one of the tabs not currently displayed contains an error code can be recognised by the red background. If the display is switched to a tab that contains an error code, the colour of the icon in the tab changes from white to black. A list of possible error codes is provided in chapter "Error codes" on page 76.



Tab with valid information



Tab with error code

1	Current tab with valid informationen	**4**	Current tab with error code
2	Inactive tab with valid informationen	**5**	Error code (see "Error codes" on page 76)
3	Inactive tab with error code		

10.1.1.2.2 Status bar

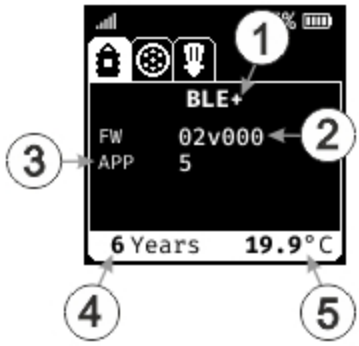
The status bar is located at the top border of the display and shows information about the network connection, mobile network connection, bluetooth connection and the state of charge.



Sections of the status bar

1	Information about the nework connection	
		field strength of the mobile network signal during the last connection
		transport mode activated
2	Status of the mobile network connection	
		mobile connection disconnected; wait for next connection establishment
		connecting
		connection to the myDatanet server established
		last connection failed
3	Status of the Bluetooth connection	
		establishing BLE connection to the sensor modules
4	current state of charge of the battery of the myDatalogEx LTE-M . To the left, the state of charge (SOC) is displayed in %	
		State of Charge >= 90%
		State of Charge >= 40%
		State of Charge >= 10%
		State of Charge < 9%

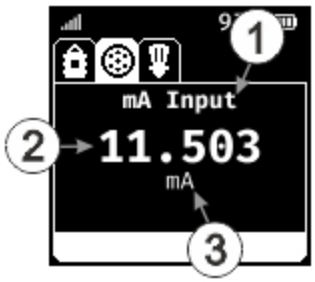
10.1.1.2.3 Information about the myDatalogEx LTE-M



Display of the information on the myDatalogEx LTE-M

1	Brief designation of the IoT application installed on the device	**4**	remaining time until the next battery replacement of the myDatalogEx LTE-M
2	Current software version installed on the measurement controller	**5**	Temperature inside the housing of the device
3	Version number of the IoT application that is currently installed on the device		

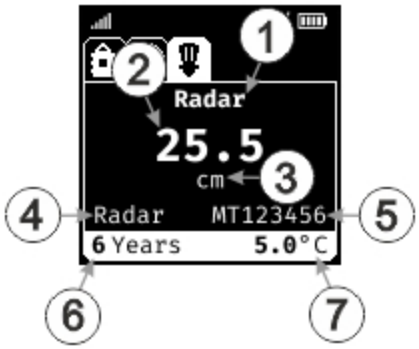
10.1.1.2.4 Information about the mA input



Display of the information on the mA input

1	indicates that the information on the mA input is currently displayed	**3**	Unit of the measurement value set via the server interface
2	measurement value on the mA input (scaled measurement value with offset and trimming taken into consideration)		

10.1.1.2.5 Information about the remote sensor modules



Display of the information on a sensor module type "BLE Radar "

1	indicates that information on a sensor module type "BLE Radar " is displayed	**5**	Serial number of the sensor module
2	Current level	**6**	Remaining time until the next battery replacement of the sensor module
3	Unit of length (mm, cm or m) selected via the server interface	**7**	Temperature of the electronics of the sensor module
4	Type designation of the sensor module		

10.1.1.2.6 Error codes

Error code	Description
E02	last connection failed
E03	last measurement failed
E14	state of charge of the internal rechargeable buffer battery too low for a mobile network connection to be established (recharging automatically may take up to 4 hours)
E31	Bluetooth pairing between device and sensor module faulty

10.2 User interface on the myDatanet server

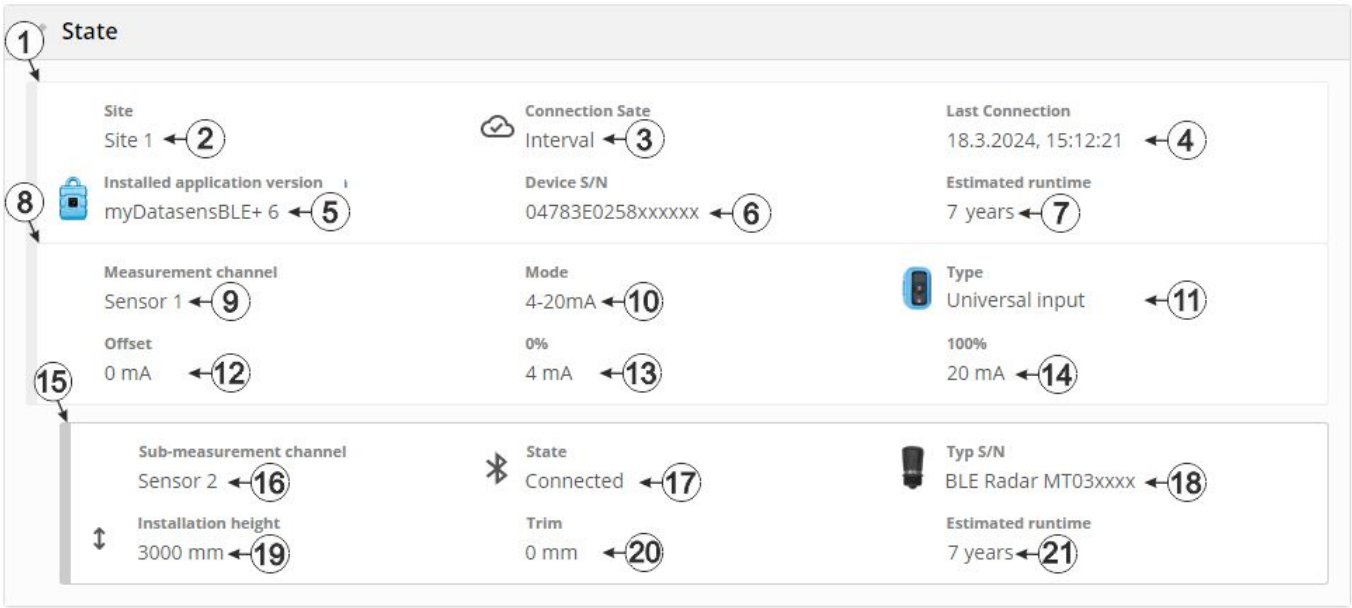
10.2.1 Site configuration

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

Click on the name of the site in the list of sites to open the specific input screen for configuring the site. Clicking on the symbol to edit the site will take you to the default input screen for configuring the site (see "myDatanet Server Manual " 805002).

10.2.1.1 Specific input screen for configuring the site

10.2.1.1.1 State



Configuration section "State" during normal operation

1	Status information on the myDatalogEx LTE-M currently linked to the site	
2	Site designation (not relevant for the device or data assignment) [2-50 characters]	
3	Current operating mode of the device	
	Interval	The device is active and responds to the server as per transmission cycle.
	Synchronising	The device is connected to the server and is transmitting data
	Offline	Transport mode has been activated. I.e. the Activation module (BLE ATM) has been removed from the sensor recess (see "Storage of the product" on page 27). In doing so, all operations (measurement, recording, transmission, ...) have been suspended to minimise the energy consumption during transport or storage.
4	Time of last connection establishment	
5	Name and version number of the IoT application currently installed on the device	
6	Serial number of the device linked to the site	
7	Remaining time until the next battery replacement for the device	
8	Statusinformationen zum mA-Eingang des myDatalogEx LTE-M	
9	Aktuell ausgewählte Kanalbezeichnung für den Messwert, der mittels des mA-Eingangs am myDatalogEx LTE-M erfasst wird. Diese lässt sich über den Konfigurationsabschnitt "Messkanal" (siehe "Measurement channel" on page 80) anpassen.	

10 Basic settings for the measurement channel. Diese lässt sich über den Konfigurationsabschnitt "Messkanal" (siehe "Measurement channel" on page 80) anpassen.

aus	Measurement channel deactivated
0...20mA	Valid input signal range 0...20mA (0mA = 0%, 20mA = 100%)
4...20mA	Valid input signal range 4...20mA (4mA = 0%, 20mA = 100%)

11 Typ des Messkanals

12 aktuell gespeicherter Wert für den Offset. Dieser lässt sich über den Konfigurationsabschnitt "Messkanal" (siehe "Measurement channel" on page 80) anpassen.

13 Start of the measurement range in the measurement unit. Dieser lässt sich über den Konfigurationsabschnitt "Messkanal" (siehe "Measurement channel" on page 80) anpassen.

14 End of the measurement range in the measurement unit. Dieser lässt sich über den Konfigurationsabschnitt "Messkanal" (siehe "Measurement channel" on page 80) anpassen.

15 Status information for the sensor module which is currently linked to the first measurement channel (see "Remote measurement channels" on page 85)

16 Currently selected channel designation for the water level, which is recorded using the sensor module. It can be modified via the configuration section "Remote measurement channels" (see "Remote measurement channels" on page 85).

17 Status of the Bluetooth connection (Bluetooth Low Energy) between device and sensor module

Connected	Device and sensor module are paired correctly
Connected-error	Device and sensor module are paired correctly but the last measurement could not be executed.
Not connected	• Couldn't find the sensor module when trying to pair the equipment. • The Bluetooth connection between device and sensor module has been interrupted. • Transport mode has been activated on the device.

18 Type and serial number of the sensor module.

When hovering the cursor over this area, the version number of the firmware installed on the sensor module is displayed.

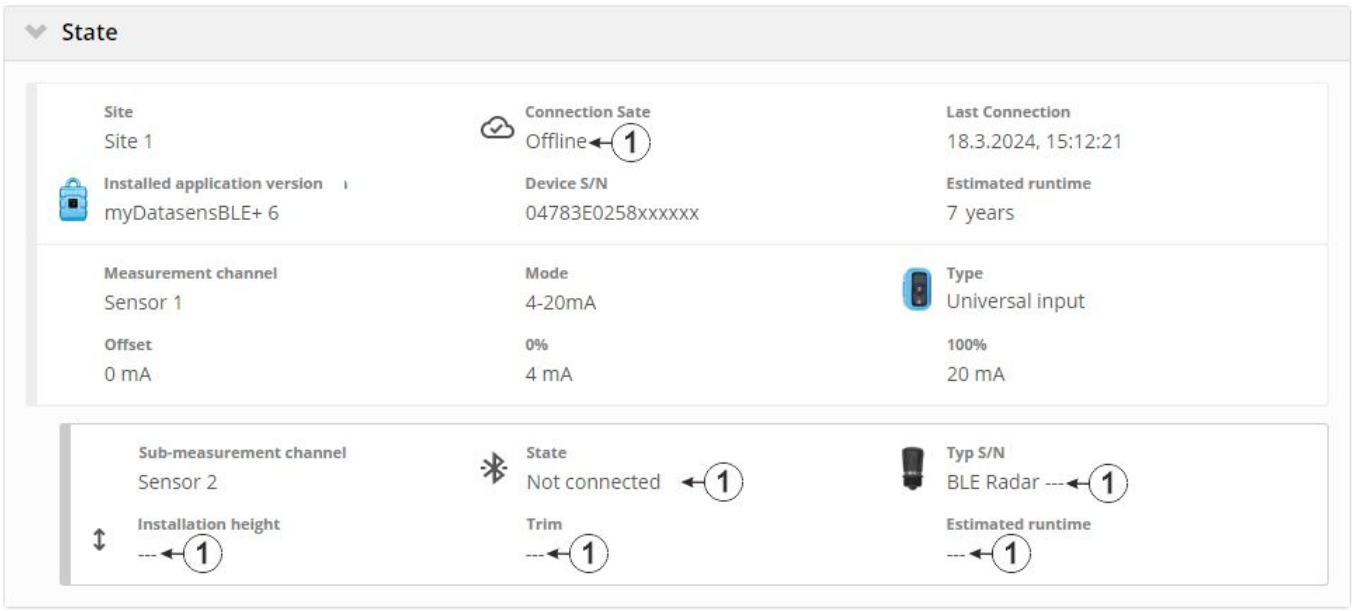
19 Value for the mounting height currently saved in the sensor module. It can be modified via the configuration section "Remote measurement channels" (see "Remote measurement channels" on page 85).

> ***Note:*** *If the value displayed here doesn't correspond to the one entered via the configuration section "Remote measurement channels", the configuration haas not yet been transmitted to the sensor module. If necessary, another connection establishment is required.*

20 Value for trimming (i.e. the zero point adjustment) currently saved in the sensor module. It can be modified via the configuration section "Remote measurement channels" (see "Remote measurement channels" on page 85).

> ***Note:*** *If the value displayed here doesn't correspond to the one entered via the configuration section "Remote measurement channels", the configuration haas not yet been transmitted to the sensor module. If necessary, another connection establishment is required.*

21 Remaining time until the next battery replacement for the sensor module



"State" configuration section when transport mode is activated

1	Transport mode has been activated on the device.

When transport mode is active, "offline" is displayed for the current operating mode of the device and the status of the Bluetooth connection between device and sensor module shows "not connected". In addition, instead of the serial number of the sensor module, the mounting height, trimming and the predicted life span, "---" is displayed.

10.2.1.1.2 Measurement channel

10.2.1.1.2.1 Basic



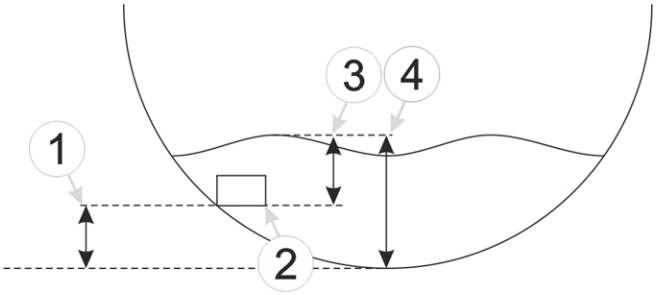
"Measurement channel" configuration section, "Basic" tab

1	Freely selectable channel title for the measurement value determined via the mA input at the myDatalogEx LTE-M .	
2	Drop down list to select the mode for the measurement channel	
	off	Measurement channel deactivated
	0...20mA	Valid input signal range 0...20mA (0mA = 0%, 20mA = 100%)
	4...20mA	Valid input signal range 4...20mA (4mA = 0%, 20mA = 100%)
3	Start of the measurement range in the measurement unit	
4	End of the measurement range in the measurement unit	
5	Allows for a correction of the measurement value by an offset value (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 81)	
6	is used for adjusting the zero point (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 81) ***Note:*** *Additional information on the zero point adjustment (i.e. consideration of trimming) is provided in the user manual of the respective sensor module.*	
7	String that is used as a measurement unit by all of the server display elements [0-8 characters]	
8	Number of decimal places that are used by all of the server display elements	

Note:

Additional explanation on the zero point adjustment and installation height of the sensor

Assumption: *Measurement range of the 4-20mA pressure sensor 0-5m*



Installation situation of the pressure sensor

1 *Installation height: 15cm*	**3** *Output value of the sensor: 6cm*
2 *Pressure sensor*	**4** *Measured fill level: 20cm*

Required configuration

Parameter	*Value*
Mode	*4-20mA*
0%	*0*
100%	*5*
Trim	*-0.01*
Offset	*0.15*
Unit	*m*

Explanation: *When comparing the measured fill level with the output value of the sensor taking the installation height into consideration, it was determined that the value was 1cm too high. As the "Trim" and "Offset" parameters are added to the scaled measurement value, this error can be balanced out by setting the "Trim" parameter value to -0.01m.*

10.2.1.1.2.2 Configuration



"Measurement channel" configuration section, "Configuration" tab

1	Procedure in the event of measurement range violations	
	Ignore	The measurement value is calculated beyond the range limits.
	Silent cutoff	The measurement value is truncated at the range limits.
	NAMUR	0...20mA mode: • The error value "OF" (overflow) is issued if the measurement value is between 20.1mA and 21mA. • If the measurement value is above 21mA, the error value "SC" (short circuit) is issued. 4...20mA mode: • The error value "OL" (open loop) is issued, if the measurement value is below 3.6mA. • The error value "UF" (underflow) is issued, if the measurement value is between 3.6mA and 3.9mA. • The error value "OF" (overflow) is issued if the measurement value is between 20.1mA and 21mA. • If the measurement value is above 21mA, the error value "SC" (short circuit) is issued.
2	specifies the time (in 0,1sec.) for which the sensor supply is switched on before the measurement (see "Technical details about the sensor supply" on page 57)	
3	Selection of the output voltage for the sensor supply	
4	Time in [ms], during which the analogue signal is averaged for signal smoothing, is designed to suppress signal noise (see "Example to explain the filter time in conjunction with the Ext. warmup time" in chapter "Technical details about the sensor supply" on page 57)	

10.2.1.1.2.3 Alarms



"Measurement channel" configuration section, "Alarms" tab

1	A warning is triggered, if the measurement value drops to or below this value.
2	A warning is triggered, if the measurement value meets or exceeds this value.
3	An alarm is triggered, if the measurement value drops to or below this value.
4	An alarm is triggered, if the measurement value meets or exceeds this value.
5	Hysteresis for all-clear in event of alarm/warning (e.g. Hyst=5%, alarm or warning at 100 -> all-clear at 95)

10.2.1.1.2.4 Trigger

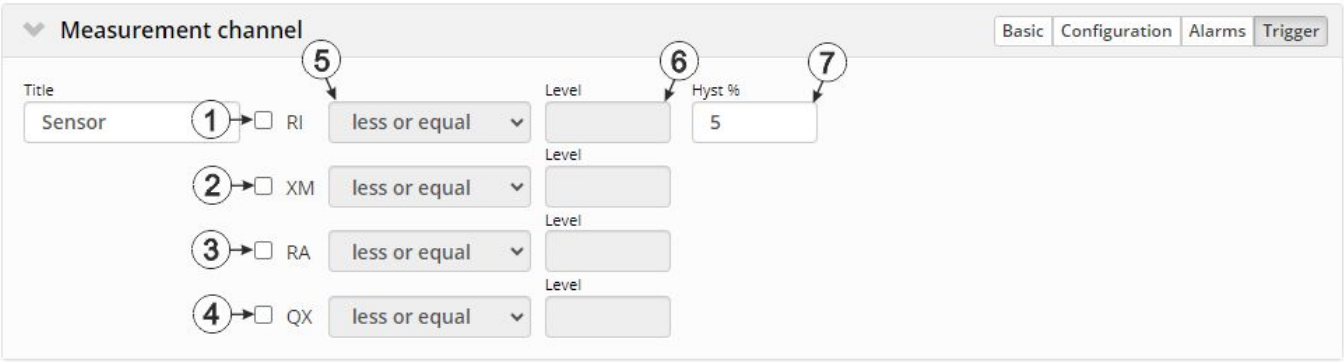
There are two types of triggers:

- Event trigger (RI, XM)

  The relevant operation (e.g. initiate transmission) is only executed once when the trigger event occurs.

- Level trigger (RA, QX)

  The relevant operation (e.g. use alternative record interval) is executed as long as the trigger is active.



"Measurement channel" configuration section, "Trigger" tab

1	Execute recording immediately	
2	Initiate transmission	
3	The alternative record interval should be used.	
4	The alternative transmission cycle should be used.	
5	Selection of whether the corresponding action should be completed when the value exceeds or drops below the value in the "Threshold" field	
	greater or equal	Event trigger (RI, XM): The trigger is initiated if the measurement value meets or exceeds this value. Level trigger (RA, QX): The trigger is active as long as the measurement value is higher than the level or equal to the level.
	less or equal	Event trigger (RI, XM): The trigger is initiated if the measurement value drops to or falls below this value. Level trigger (RA, QX): The trigger is active as long as the measurement value is lower than the level or equal to the level.
6	Levels for initiating the trigger. The hysteresis is used to determine the level to reset the trigger.	
7	Hysteresis for revoking the trigger (e.g. hyst=5%, level = greater or equal, trigger at 100 -> reset at 95) ***Note:*** *The same hysteresis is used for all of the triggers.*	

10.2.1.1.3 Remote measurement channels

10.2.1.1.3.1 Basic



"Remote measurement channels", "Basic" tab

1	Freely selectable channel designation for the water level that is recorded by means of the sensor module assigned to the measurement channel	
2	Serial number of the sensor module used to acquire the measurement values (Read Only)	
3	Type of the sensor module used to acquire the measurement values (Read Only)	
	BLE Radar	BLE Radar (301443): Module to record water levels of fresh, dirty and gray water by means of non-contact measurement using a radar sensor.
4	indicates the mounting height of the sensor. ***Note:*** *Additional explanations regarding the calculation of the water level taking the mounting height into consideration are provided in the user manual of the relevant sensor module.*	
5	is used for adjusting the zero point ***Note:*** *Additional explanations regarding the zero point adjustment (i.e. taking trimming into consideration) are provided in the user manual of the relevant sensor module.*	
6	Selection of the length unit (mm, cm or m) used by all of the server display elements	
7	Number of decimal places that are used by all of the server display elements	
8	Buttons to switch between the individual tabs of the configuration section	

10.2.1.1.3.2 Alarms



"Remote measurement channels" configuration section, "Alarms" tab

1	A warning is triggered, if the measurement value drops to or below this value.
2	A warning is triggered, if the measurement value meets or exceeds this value.
3	An alarm is triggered, if the measurement value drops to or below this value.
4	An alarm is triggered, if the measurement value meets or exceeds this value.
5	Hysteresis for all-clear in event of alarm/warning (e.g. Hyst=5%, alarm or warning at 100 -> all-clear at 95)

10.2.1.1.3.3 Trigger

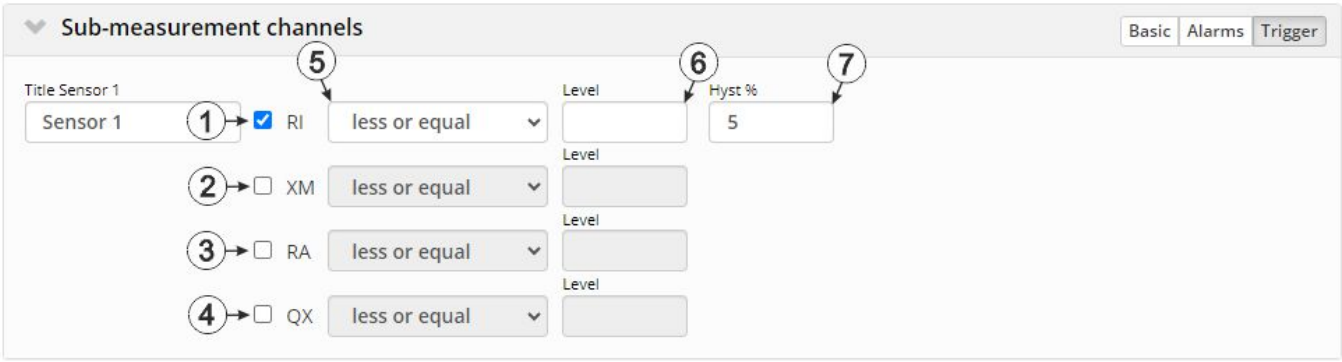
There are two types of triggers:

- Event trigger (RI, XM)

  The relevant operation (e.g. initiate transmission) is only executed once when the trigger event occurs.

- Level trigger (RA, QX)

  The relevant operation (e.g. use alternative record interval) is executed as long as the trigger is active.

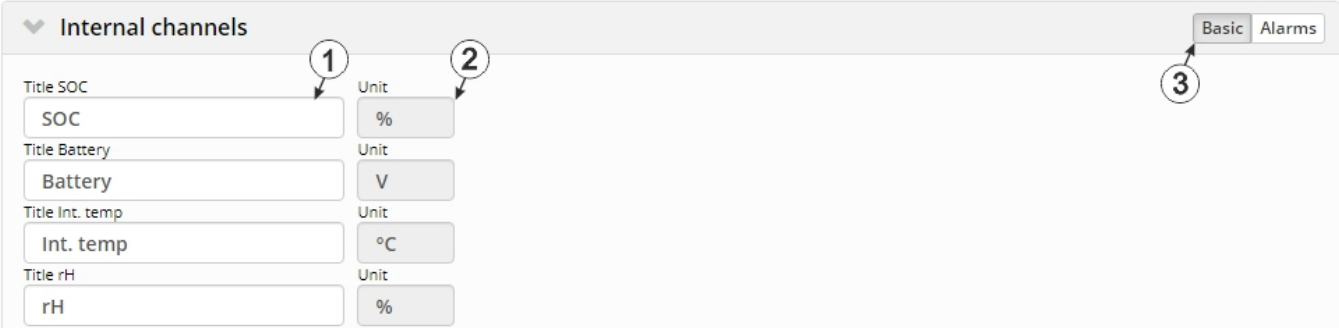


"Remote measurement channels" configuration section, "Trigger" tab

1	Execute recording immediately	
2	Initiate transmission	
3	The alternative record interval should be used.	
4	The alternative transmission cycle should be used.	
5	Selection of whether the corresponding action should be completed when the value exceeds or drops below the value in the "Threshold" field	
	greater or equal	Event trigger (RI, XM): The trigger is initiated if the measurement value meets or exceeds this value. Level trigger (RA, QX): The trigger is active as long as the measurement value is higher than the level or equal to the level.
	less or equal	Event trigger (RI, XM): The trigger is initiated if the measurement value drops to or falls below this value. Level trigger (RA, QX): The trigger is active as long as the measurement value is lower than the level or equal to the level.
6	Levels for initiating the trigger. The hysteresis is used to determine the level to reset the trigger.	
7	Hysteresis for revoking the trigger (e.g. hyst=5%, level = greater or equal, trigger at 100 -> reset at 95) ***Note:*** *The same hysteresis is used for all of the triggers.*	

10.2.1.1.4 Internal channels

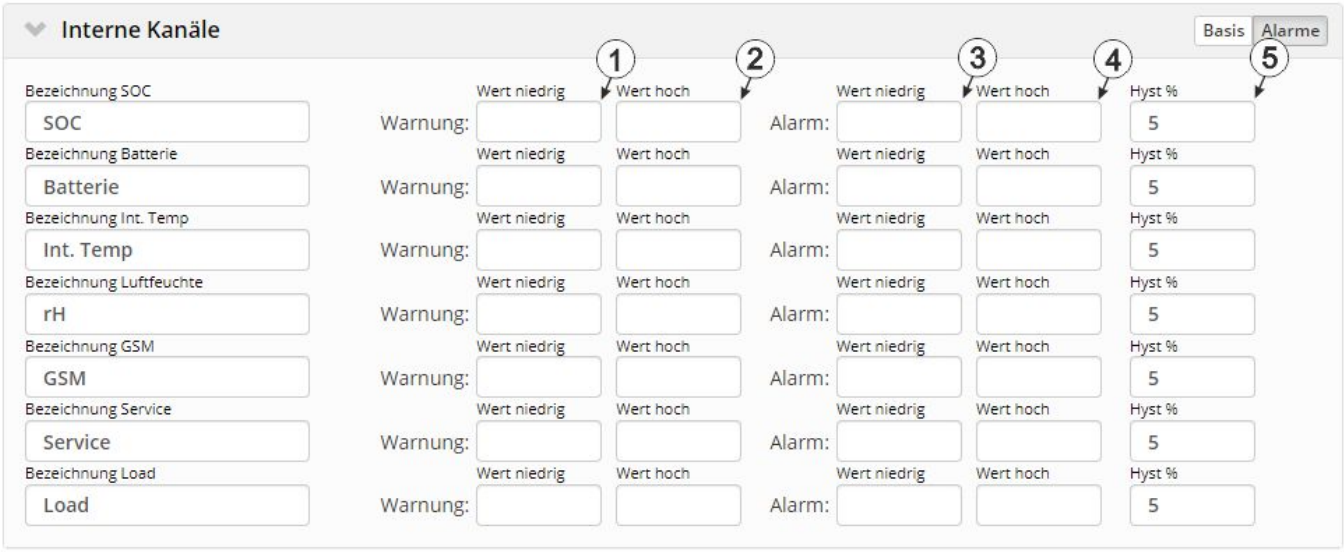
10.2.1.1.4.1 Basic



"Internal channels" configuration section, "Basic" tab

1	Freely selectable channel designation for: SOC: State of Charge of the internal battery of the myDatasensBLE+ Batterie: Internal battery voltage of the myDatasensBLE+ Int. Temp: Internal device temperature of the myDatasensBLE+ rH: Air humidity in the housing of the myDatasensBLE+ GSM: GSM level Service: Remaining days until the batteries of the myDatasensBLE+ need to be replaced Load: Energy consumption between two recordings
2	String that is used as a measurement unit by all of the server display elements
3	Buttons to switch between the individual tabs of the configuration section

10.2.1.1.4.2 Alarms

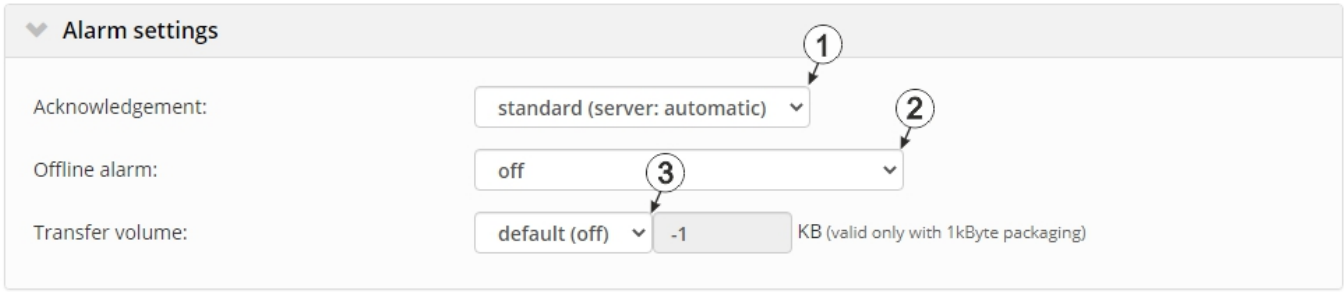


"Internal channels" configuration section, "Alarms" tab

1	A warning is triggered, if the measurement value drops to or below this value.
2	A warning is triggered, if the measurement value meets or exceeds this value.
3	An alarm is triggered, if the measurement value drops to or below this value.
4	An alarm is triggered, if the measurement value meets or exceeds this value.
5	Hysteresis for all-clear in event of alarm/warning (e.g. Hyst=5%, alarm or warning at 100 -> all-clear at 95)

10.2.1.1.5 Alarm settings

Configuration section to determine how to aknowledge alarms and after how much time an "Offline alarm" should be triggered if the device does not report to the server for a longer period of time.



"Alarm settings" configuration section

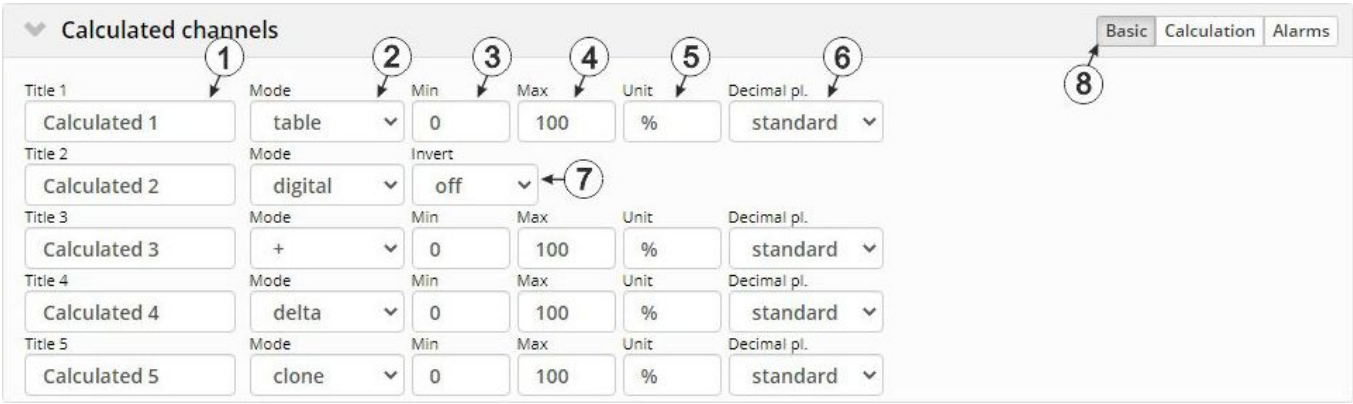
1	Selection of how alarms should be acknowledged	
	Standard	The global server setting is used to determine whether alarms must be acknowledged automatically or manually (see "myDatanet Server Manual " 805002).
	automatic	Alarms are acknowledged automatically as soon as all of the messages have been sent. 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.
2	alarm in the event that the device does not report for longer than the set time (00:00 alarm deactivated).	
3	Freely selectable title for user-defined alarm 1. If the user-defined alarm 1 is triggered by a device connected to the site, the server will use this text to signal the alarm. The same applies to user-defined alarm 2 and 3.	
4	Freely selectable title for user-defined alarm 2	
5	Freely selectable title for user-defined alarm 3	

10.2.1.1.6 Calculated channels

In the "Basic" tab, the basic settings are configured and in the "Calculation" tab the advanced configurations are set, whereas the parameters to configure depend on the "mode" selected in the "Basic" tab.

> ***Note:*** *The values of the calculated channels are directly calculated for every data output (display on the server or download from the server). They are not saved in the server database.*

10.2.1.1.6.1 Basic

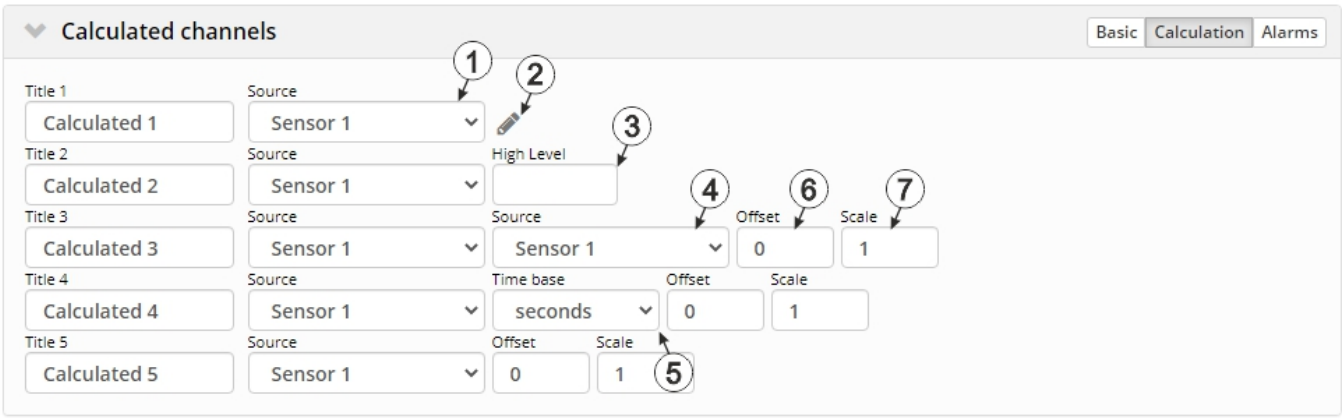


"Calculated channels" configuration section, "Basic" tab

1	Freely selectable channel title for the calculated channels [0-16 characters]	
2	Possible calculation modes for the calculated channels	
	Off	Calculated channel deactivated
	Table	Determines the value for the calculated channel by searching for the row corresponding to the value of a measurement channel in the reference point table. Such a row is made up of the "Measurement channel value" and "Output value for calculated channel" pair of values. Linear interpolation is carried out between the table rows; linear extrapolation is used for values outside the defined table.
	Digital	Converts an analogue value into a digital value. The threshold from which an analogue value is interpreted as "high" can be selected via the "High level" parameter in the "Calculation" tab. In addition the determined digital value can be inverted via the "Invert" parameter.
	+, -, x, /	Links the values of two measurement channels using a mathematic operation (addition, subtraction, multiplication or division)
	Delta	Determines the difference between two measurement values and divides the result by the time difference between the time stamps of the measurement values. The time unit (value/sec., value/min., ...) for the result can be selected via the "Time basis" parameter located in the "Calculation" tab. It is thus possible to convert the counter reading (m^3) of the source in to a flow rate (m^3/min.) (see "Additional explanation: Delta mode" on page 98).
	clone	Creates a clone of a measurement channel. This ensures it is possible to rename channels, to select different ends of the scale for the pointer instruments, to determine a new string as a measurement unit and to adjust the number of decimal places. The measurement values (numerical value without unit) correspond exactly to those of the source.

3	Defines the lower scale end of the pointer instruments
4	Defines the upper scale end of the pointer instruments
5	String that is used as a measurement unit by all of the server display elements [0-16 characters]. It has no direct influence on the values
6	Number of decimal places that are used by all of the server display elements
7	Inverts the input signal (only for calculated channels in "Digital" mode)
8	Buttons to switch between the individual tabs of the configuration section

10.2.1.1.6.2 Calculation



"Calculated channels" configuration section, "Calculation" tab

"Table" calculation mode

1	Selection of the channel from which the input data is used
2	Opens the screen for entering the reference point table (the table rows are interpolated linearly, values outside of the defined table are extrapolated linearly.)

"Digital" calculation mode

1	Selection of the channel from which the input data is used
3	Signal recognition level

Calculation mode "+", "-", "x" or "/"

1	Selection of the channel from which the input data is used
4	Selection of the second channel from which the input data is used
6	Offset that is added following multiplication with the "Factor" parameter.
7	Factor with which the result of the mathematical operation (+, -, x, /) is multiplied. The "Offset" parameter is then added.

"Delta" calculation mode

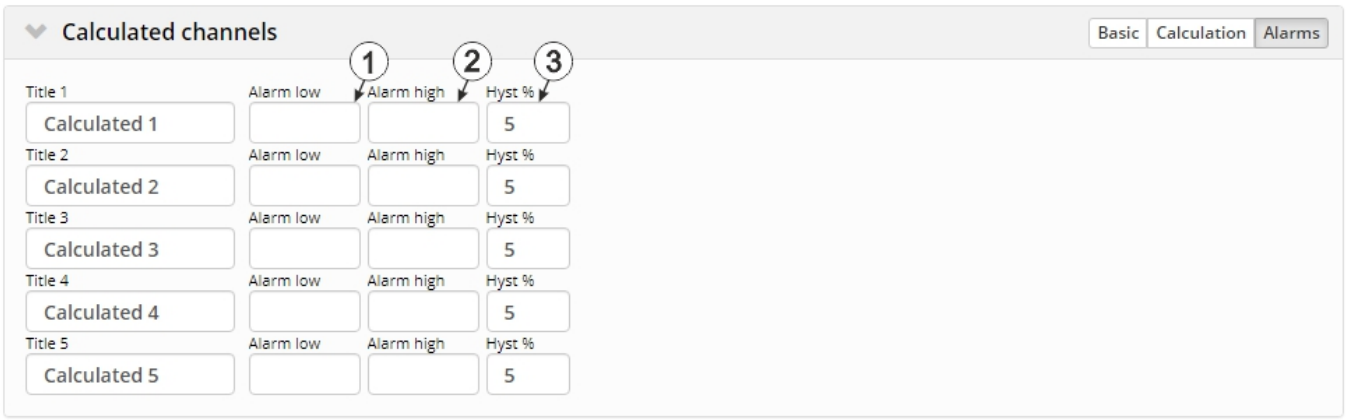
1	Selection of the channel from which the input data is used
5	Specifies the desired time unit (value/sec., value/min., ...) for the result
6	Offset that is added following multiplication with the "Factor" parameter. The result is converted in to the desired time unit before multiplication with the "Factor" parameter
7	Factor with which the result is multiplied once it has been converted into the desired time unit. The "Offset" parameter is then added.

"Clone" calculation mode

1	Selection of the channel that should be cloned
6	Offset that is added following multiplication with the "Factor" parameter.
7	Factor with which the value of the measurement channel to be cloned is multiplied. The "Offset" parameter is then added.

10.2.1.1.6.3 Alarms

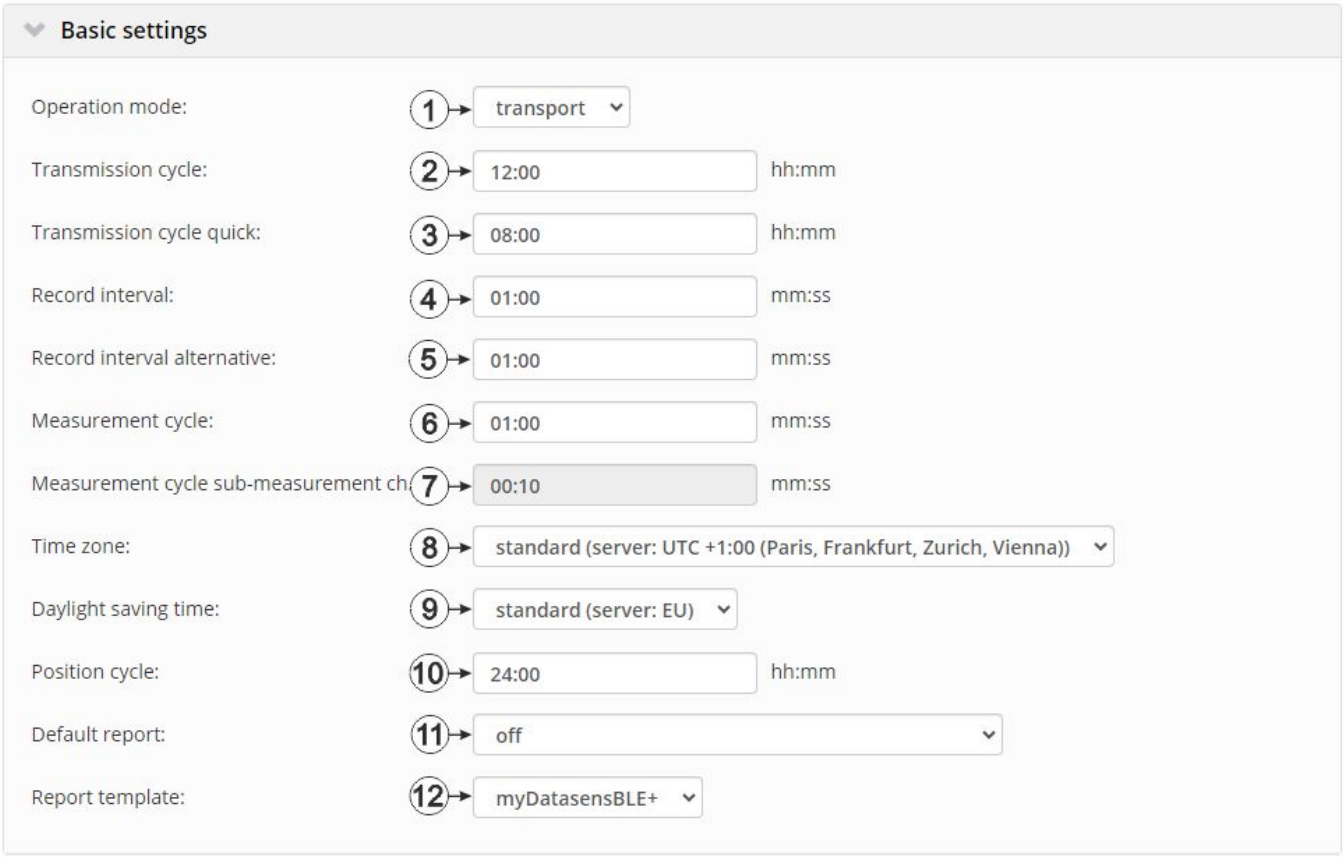
Note: *The evaluation of the alarm thresholds for calculated channels can only occur if the device has transferred the measurement data to the myDatanet server.*



"Calculated channels" configuration section, "Alarms" tab

1	An alarm is triggered, if the measurement value drops to or below this value.
2	An alarm is triggered, if the measurement value meets or exceeds this value.
3	Hysteresis for all-clear in event of alarm/warning (e.g. Hyst = 5%, alarm or warning at 100 -> all-clear at 95)

10.2.1.1.7 Basic settings



"Basic settings" configuration section

1	Selection of the operating mode	
	normal	Operation in accordance with the configuration
	transport	Transport lock activated. This means that all of the operations (measurement, recording, transmission, etc.) are stopped to minimise energy consumption during transport or storage.
2	Time between transmissions	
3	Time between the transmissions, if a alternative transmission cycle should be used because of a trigger being initiated	
4	Time between measurement data recordings	
5	Time between measurement data recordings, if an alternative record interval should be used because of a trigger being initiated	
6	Interval at which the measurement value at the mA input and the internal measurement values (see "Internal channels" on page 87) are determined. (00:00 same as record interval) This interval also allows to recognise alarms, warnings and trigger events for the measurement value at the mA input as well as alarms and warnings for the internal measurement values.	
7	Interval in which the sensor modules execute the measurement. (read only) This interval allows to recognise alarms, warnings and trigger events for the measurement values of the sensor modules.	

8	Regional settings (not relevant for raw measurement data as this is stored in UTC)	
9	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
10	Position update interval (00:00 positioning is completed with every connection)	
11	Selection of the report that is loaded by clicking on the device link in the maps	
	Off	No report is loaded.
	"Name of a report"	The selected report is loaded.
12	Selection of the report template used to display the data when clicking on the symbol to display the measurement data, which is located in the list of sites/applications. 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. The symbol to display the measurement data is only displayed in the list of sites/applications if a report template has been selected.	
	(not assigned)	The symbol to display the measurement data is not displayed in the list of sites/applications.
	"Name of a report template"	Name of the report template used to display the measurement data

10.2.1.2 Default input screen for configuring the site

10.2.1.2.1 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]

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

Application
Name of the IoT application based on which the site was created

Application version
Version number of the IoT application that is currently installed on the site. If the version number of the site is not the same as the version number of the device logic installed on the device then the version number of the device logic installed on the device is displayed in addition to the version number of the site.

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.

10.2.1.2.2 Comments

Comments

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

10.2.1.2.3 Alarm settings

Acknowledgement	Standard	The global server setting is used to determine whether alarms must be acknowledged automatically or manually.
	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.
Transfer volume	Standard	The setting for the transfer volume alarm is taken from the global server settings.
	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 KiB.
Offline alarm after	alarm in the event that the device does not report for longer than the set time (00:00 alarm deactivated).	
Title user alarm 1	Freely selectable title for user-defined alarm 1. If the user-defined alarm 1 is triggered by a device connected to the site, the server will use this text to signal the alarm. The same applies to user-defined alarm 2 and 3.	
Title user alarm 2	Freely selectable title for user-defined alarm 2	
Title user alarm 3	Freely selectable title for user-defined alarm 3	

10.2.1.2.4 Calculated channels

Note: *The values of the calculated channels are directly calculated for every data output (display on the myDatanet server or download from the myDatanet server). They are not saved in the server database.*

10.2.1.2.4.1 Basic

Title 1-5

Freely selectable channel title for the calculated channels [0-16 characters]

Mode

Possible calculation modes for the calculated channels

Off	*---*	*Calculated channel deactivated*
Table	*Min*	*Defines the lower scale end of the pointer instruments*
	Max	*Defines the upper scale end of the pointer instruments*
	Unit	*String that is used as a measurement unit by all of the server display elements [0-16 characters]. It has no direct influence on the values*
	Decimal places	*Number of decimal places that are used by all of the server display elements*
Digital	*Invert*	*Inverts the input signal*
+, -, x, /	*Min*	*Defines the lower scale end of the pointer instruments*
	Max	*Defines the upper scale end of the pointer instruments*
	Unit	*String that is used as a measurement unit by all of the server display elements [0-16 characters]. It has no direct influence on the values*
	Decimal places	*Number of decimal places that are used by all of the server display elements*
Delta	*Determines the difference between two measurement values and divides the result by the time difference between the time stamps of the measurement values. The time unit (value/sec., value/min., ...) for the result can be selected via the "Time basis" parameter located in the "Calculation" tab. It is thus possible to convert the counter reading (m^3) of the source in to a flow rate (m^3/min.) (see "Additional explanation: Delta mode" on page 98).*	
	Min	*Defines the lower scale end of the pointer instruments*
	Max	*Defines the upper scale end of the pointer instruments*
	Unit	*String that is used as a measurement unit by all of the server display elements [0-16 characters]. It has no direct influence on the values*
	Decimal places	*Number of decimal places that are used by all of the server display elements*
Clone	*Creates a clone of a measurement channel. This ensures it is possible to rename channels, to select different ends of the scale for the pointer instruments, to determine a new string as a measurement unit and to adjust the number of decimal places. The measurement values (numerical value without unit) correspond exactly to those of the source.*	
	Min	*Defines the lower scale end of the pointer instruments*
	Max	*Defines the upper scale end of the pointer instruments*
	Unit	*String that is used as a measurement unit by all of the server display elements [0-16 characters]. It has no direct influence on the values*
	Decimal places	*Number of decimal places that are used by all of the server display elements*

10.2.1.2.4.2 Calculation

Off	---	Calculated channel deactivated
Table	Source	Selection of the channel from which the input data is used
		Opens the screen for entering the reference point table (the table rows are interpolated linearly, values outside of the defined table are extrapolated linearly.)
Digital	Source	Selection of the channel from which the input data is used
	High level	Signal recognition level
+, -, x, /	Source	Selection of the channel from which the input data is used
	+, -, x, /	
	Source	Selection of the second channel from which the input data is used
	Offset	Offset that is added following multiplication with the "Factor" parameter.
	Factor	Factor with which the result of the mathematical operation (+, -, x, /) is multiplied. The "Offset" parameter is then added.
Delta	Source	Selection of the channel from which the input data is used
	Time basis	Specifies the desired time unit (value/sec., value/min., ...) for the result
	Offset	Offset that is added following multiplication with the "Factor" parameter. The result is converted in to the desired time unit before multiplication with the "Factor" parameter.
	Factor	Factor with which the result is multiplied once it has been converted into the desired time unit. The "Offset" parameter is then added.
Clone	Source	Selection of the channel that should be cloned
	Offset	Offset that is added following multiplication with the "Factor" parameter.
	Factor	Factor with which the value of the measurement channel to be cloned is multiplied. The "Offset" parameter is then added.

Note:

Additional explanation: Delta mode

Assumption: *The source channel contains the counter reading of an infinite counter in m^3. The calculated channel 1 should contain the flow rate in m^3/s and calculated channel 2 should contain the flow rate in l/h.*

Required configuration

Parameter	*Value channel 1*	*Value channel 2*
Basis -> mode	*Delta*	*Delta*
Basis -> unit	*m^3/s*	*l/h*
Calculation -> time basis	*Seconds*	*Hours*
Calculation -> offset	*0*	*0*
Calculation -> factor	*1*	*1000*

Source		*Calculated channel 1*	*Calculated channel 2*
Date/time	*Infinite counter [m^3]*	*Flow rate [m^3/s]*	*Flow rate [l/h]*
26.03.2013 12:50	*900*	*0 1)*	*0 1)*
26.03.2013 12:51	*960*	*1*	*3,600,000*
26.03.2013 12:52	*990*	*0.5*	*1,800,000*
26.03.2013 12:53	*1005*	*0.25*	*900,000*
26.03.2013 12:54	*1065*	*1*	*3,600,000*

1) Calculation not possible as there is no measurement value before 12:50.

Explanation: *No values can be determined for the measurement at 12:50 for the calculated channels as there is no previous value and the difference between the counter readings cannot be determined. For the measurement at 12:51, the difference to the counter reading is 60m^3 and the time difference is 60sec.*

Result = { (value difference / time difference [sec.]) * time basis [sec] * factor } + offset

The result for calculated channel 1 (time basis "Seconds", offset "0" and factor "1") is calculated as follows:

Channel 1 = { (60m^3 / 60sec.) * 1 * 1 } + 0 = 1m^3/s

The result for calculated channel 2 (time basis "Hours", offset "0" and factor "1000") is calculated as follows:

Channel 2 = { (60m^3 / 60sec.) * 3600 * 1000 } + 0 = 3,600,000l/h

10.2.1.2.4.3 Alarms

Note: *The evaluation of the alarm thresholds for calculated channels can only occur if the device has transferred the measurement data to the myDatanet server.*

Alarm low	An alarm is triggered, if the measurement value drops to or below this value.
Alarm 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)

10.2.1.2.5 Basic settings

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.
	Off	Automatic time adjustment deactivated
	USA	Predefined setting for the American area
	EU	Predefined setting for the European area
Default report	Selection of the report that is loaded by clicking on the device link in the maps	
	Off	No report is loaded.
	"Name of a report"	The selected report is loaded.
Report template	Selection of the report template used to display the data when clicking on the symbol to display the measurement data, which is located in the list of sites/applications. 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. The symbol to display the measurement data is only displayed in the list of sites/applications if a report template has been selected.	
	(not assigned)	The symbol to display the measurement data is not displayed in the list of sites/applications.
	"Name of a report template"	Name of the report template used to display the measurement data
Bidirectional alive ping	Using "Bidirectional alive ping", both the device and the server can easily recognise whether the online connection is still active.	
	standard	The configuration for the bidirectional alive ping is adopted from the global server settings
	off	"Bidirectional alive ping" is deactivated
	on	"Bidirectional alive ping" is activated. I.e. the server responds correspondingly to each keep alive ping of the device.
Change log configuration	Selection of which changes to the configurations should be logged	
	web api	Changes that were implemented via the server interface or REST-API are logged.
	web device api	Changes that were implemented via the server interface, by the device itself or the REST-API are logged.

10.2.1.2.6 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	

10.2.2 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, contact the myDatanet server administrator.*

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

10.2.2.1 Comments

Comments

Free comment field (is also displayed below the site name in the site/application list)

10.2.2.2 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	
Last connection	In each case, the last time stamp of the affected operation	
Last wakeup		
Last disconnection		
Last transmission error		
Last Aloha connection		
Wakeup SMS count	Number of wakeup SMS sent to this device since the last connection. This counter is reset at/during each successfully established connection.	
Device Logic sync	Productive	If the Device Logic installed on the device and saved on the server do not match, the Device Logic saved on the server is loaded in to the device.
	Development (sync)	The Device Logic on the device and server are synchronised. The one with the latest time stamp is transferred to the other one.
	Development (no sync)	The Device Logic 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).
Identification	String specifying the hardware platform implemented in the device and the corresponding hardware version (i.e. the rapidM2M module identification).	
Prod. rev.	Product rev. of the myDatasensBLE+	

10.2.2.3 GPRS

SIM tariff
Selected SIM tariff

10.2.2.4 Features

Features
List of activated chargeable features.

Chapter 11 DeviceConfig

11.1 General

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

www.microtronics.com/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

11.2 Prerequisites

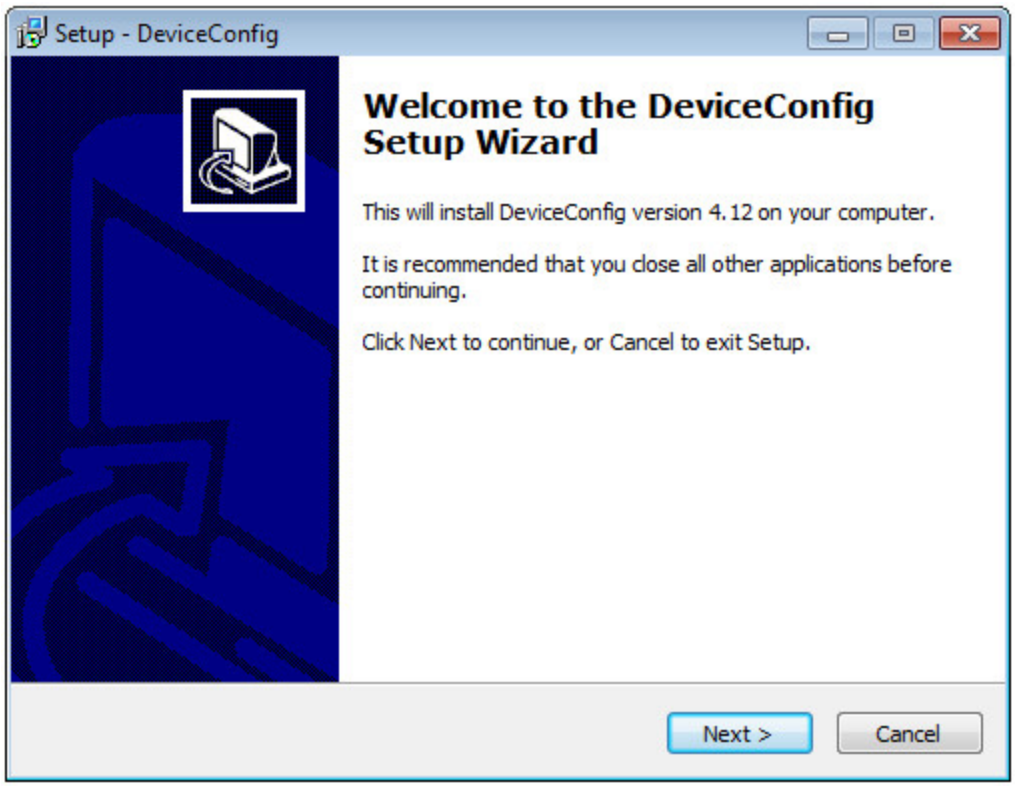
Interfaces	1 x USB
Operating system	Win XP Windows Vista Windows 7 Windows 8 Windwos 10
Internet connection	Recommended
Required disk space	approx. 50 MB

11.3 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 (300685) to your PC once the installation process has completed as the required drivers are only installed during this process.*



DeviceConfig setup wizard

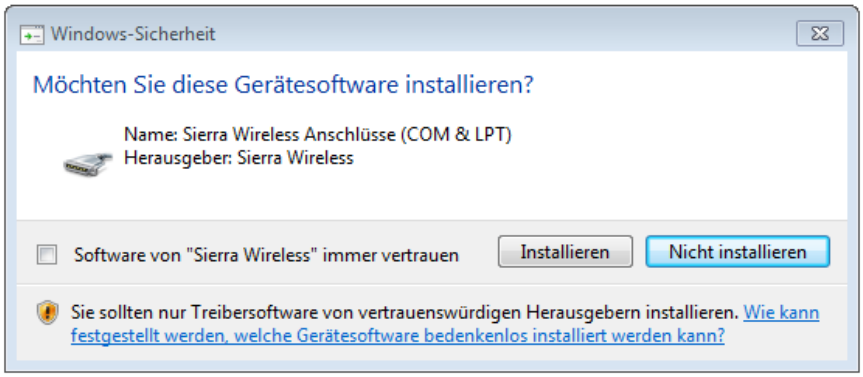
2. Follow the instructions of the setup wizard until the following screen is displayed. The following drivers must be installed to ensure correct operation.



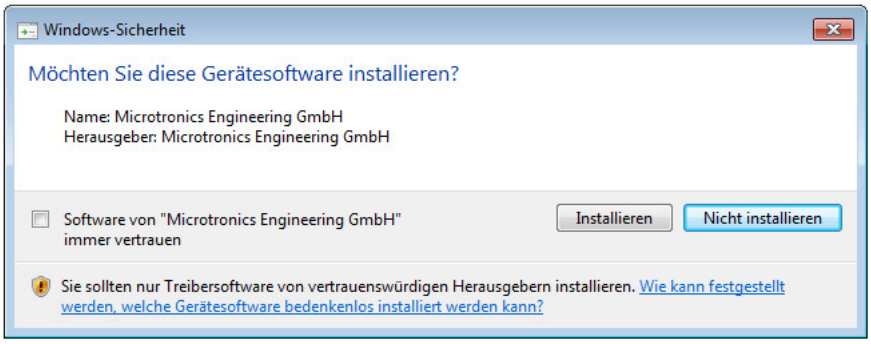
Installation of the USB drivers for the devices



Installation of the drivers for the USB BLE-Adapter

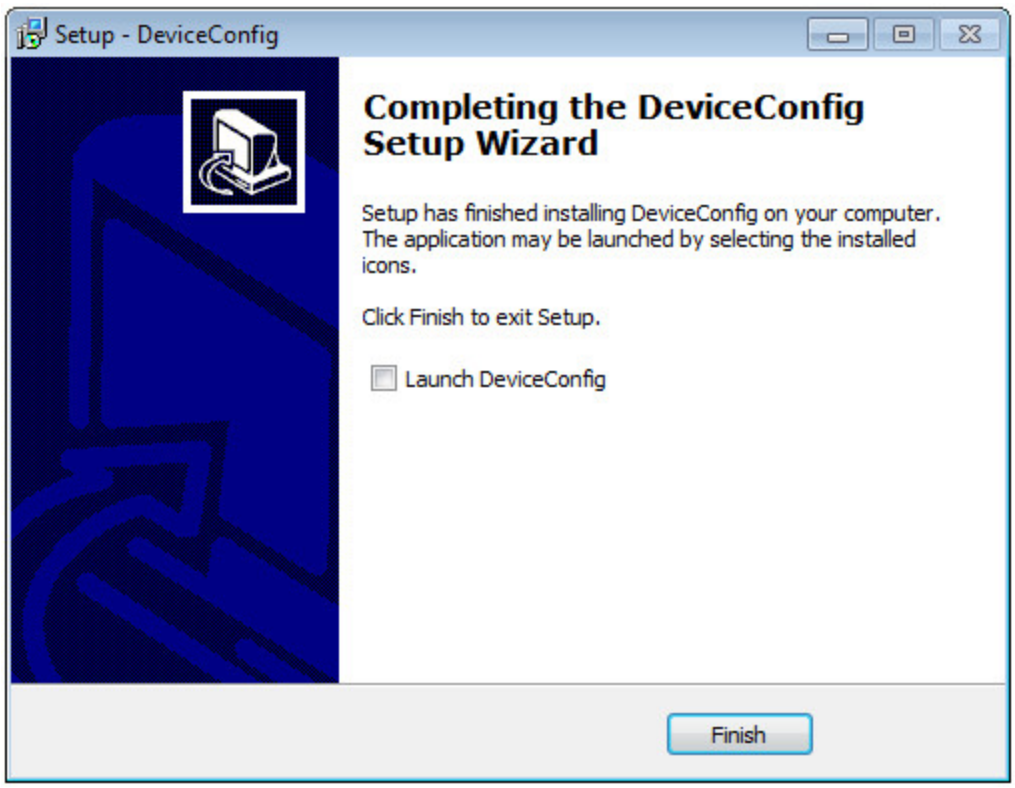


Installation of the USB drivers for the devices on a M1 basis



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

11.3.1 Installing USB BLE-Adapter driver

> ***Note:*** *Information on the USB BLE-Adapter (300685) is provided in chapter "USB BLE-Adapter " on page 110.*

The following chapter describes the installation process in Windows 7.

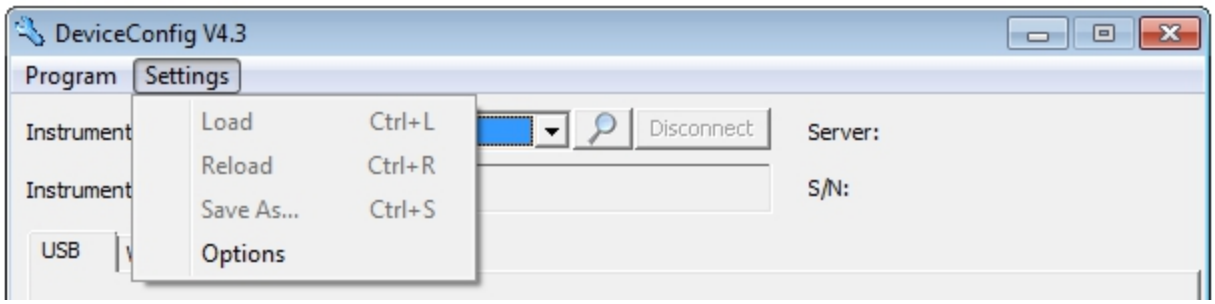
1. Complete all of the steps described in chapter "Installation" on page 104.
2. Close the DeviceConfig configuration program, if, when completing the installation, you selected the option for the program to be started following completion of the installation process.
3. Connect the USB BLE-Adapter (300685) 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 (300685) 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.

11.4 Menu of the DeviceConfig

11.4.1 Settings

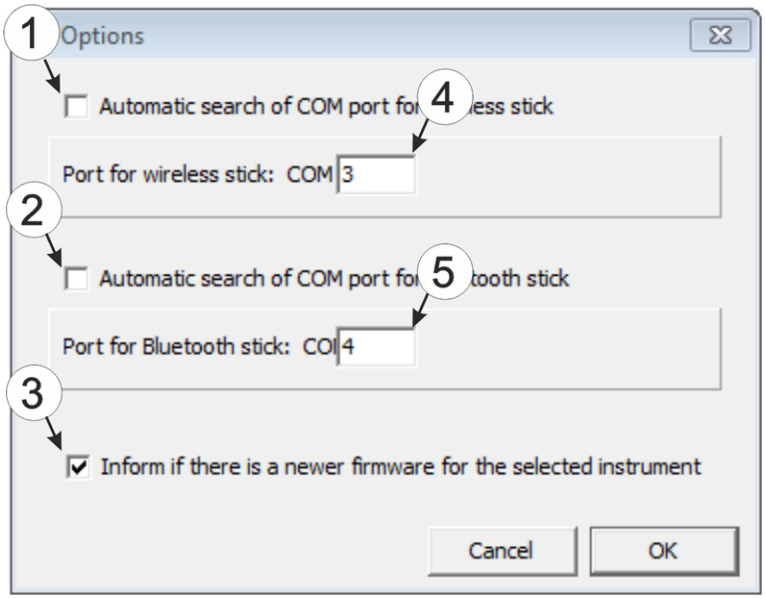


"Settings" menu item

11.4.1.1 Options

The settings for the COM ports to which the USB radio transmitter (206.657) or the USB BLE-Adapter (300685) 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 (300685) 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.

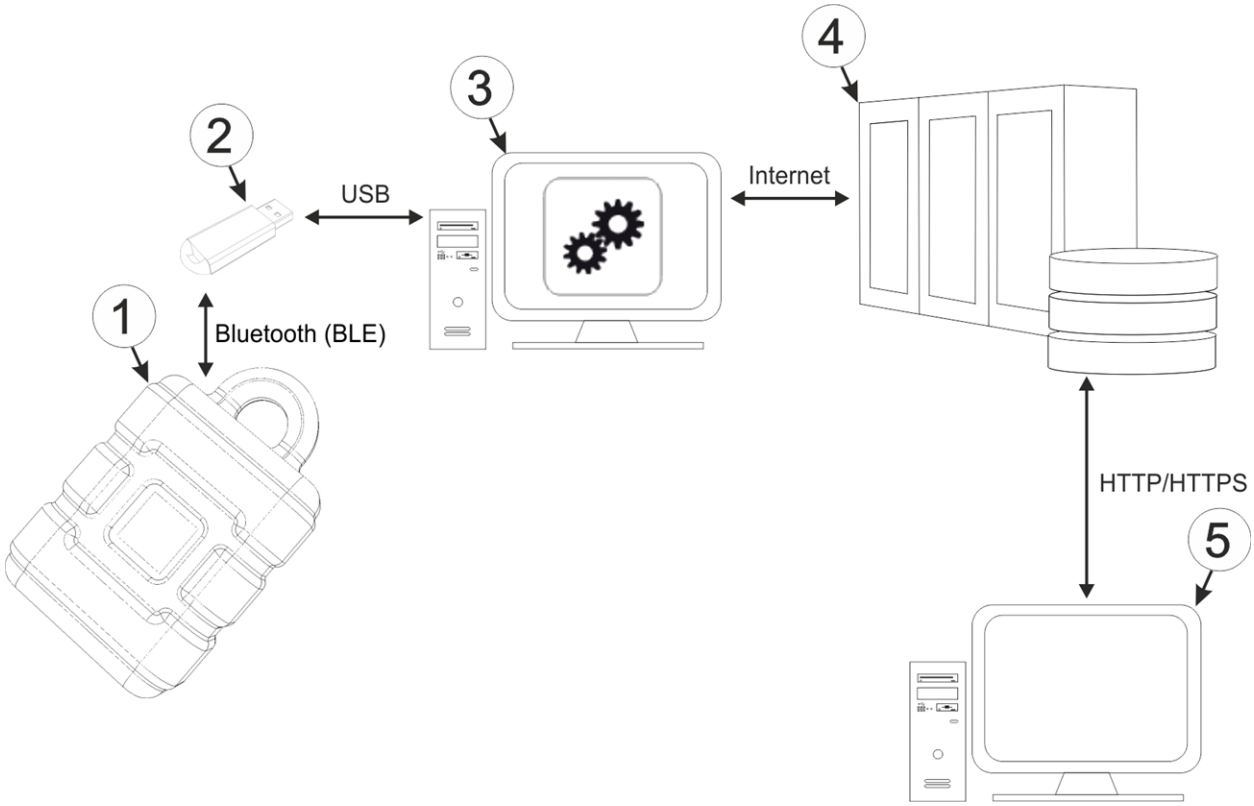


"Settings -> Options" menu item

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 (300685) on all of the available COM ports	**5**	COM port that is connected with the USB BLE-Adapter (300685) (only visible when the automatic search is deactivated)
3	Activates/deactivates the automatic search for available firmware versions		

11.5 Functional principle (communication with a myDatasensBLE+)

The following description specifically refers to the use of the configuration program DeviceConfig in conjunction with the myDatasensBLE+ .



Functional principle

1	myDatasensBLE+	**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		

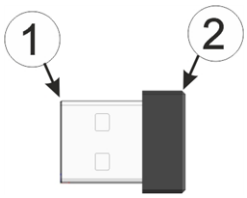
The DeviceConfig configuration program communicates wirelessly (Bluetooth Low Energy) with the myDatasensBLE+ using the USB BLE-Adapter (300685). The functions provided with the DeviceConfig configuration program include:

- Read out and analysis of the device log (see ""Log" tab" on page 112)
- Update the firmware(see ""Firmware" tab" on page 114)
- Synchronisation of measurement data and configuration between device and server (see ""Sync" tab" on page 114)

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.

11.5.1 USB BLE-Adapter

The USB BLE-Adapter (300685) is not included in the scope of delivery of the myDatasensBLE+ . It is required because standard PCs and laptops often do not have a Bluetooth Low Energy interface that is necessary for communication with the myDatasensBLE+ .



USB BLE-Adapter

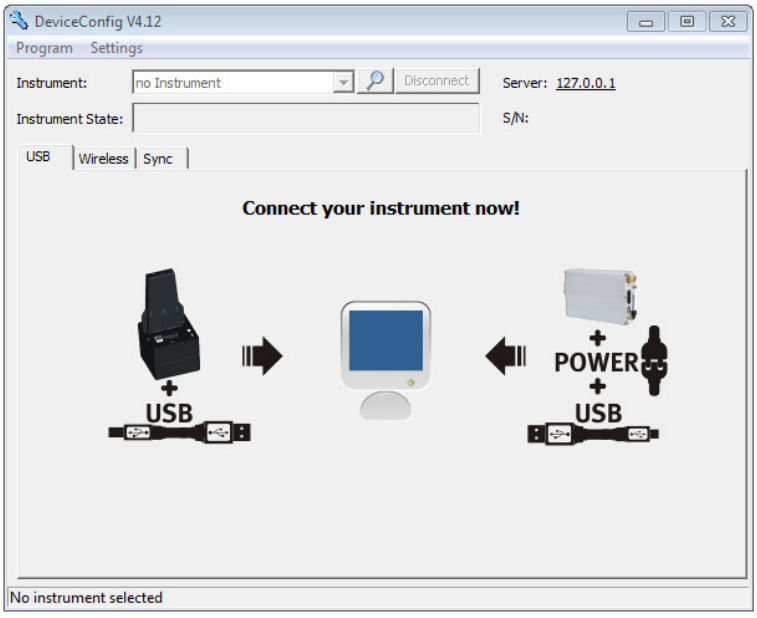
1 USB connector (type A)	**2** Antenna

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

11.5.2 Connecting a Device via Bluetooth Low Energy

The USB BLE-Adapter (300685) 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 USB BLE-Adapter driver" on page 106 to install the drivers required to operate the USB BLE-Adapter .

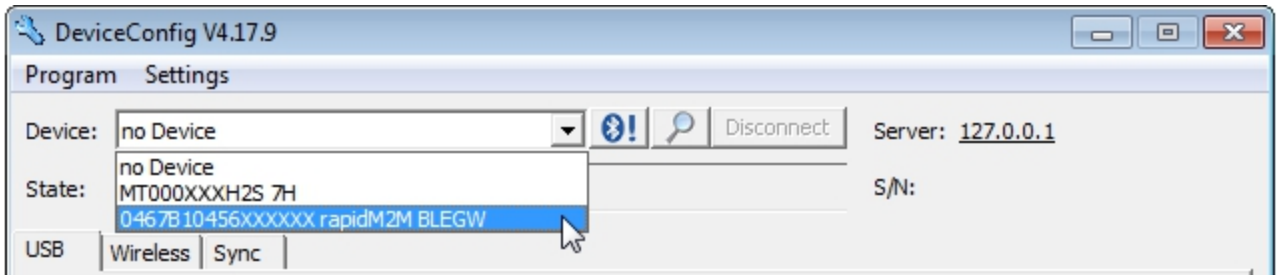
1. Connect the USB radio transmitter (206.657) to the USB interface of your PC.
2. Start the DeviceConfig configuration program.



DeviceConfig

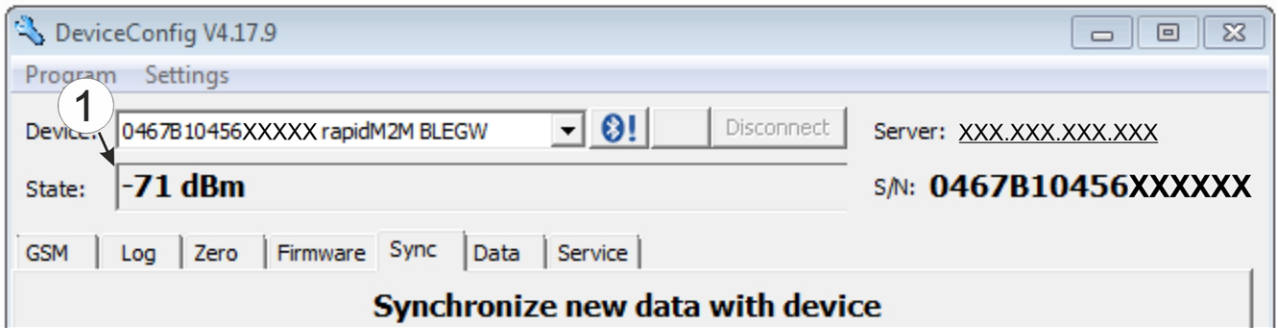
3. Select your device based on the serial number from the list of devices found.

   Important note: *Please note that, depending on the environmental conditions, the range of the radio transmitter of the myDatasensBLE+ 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.



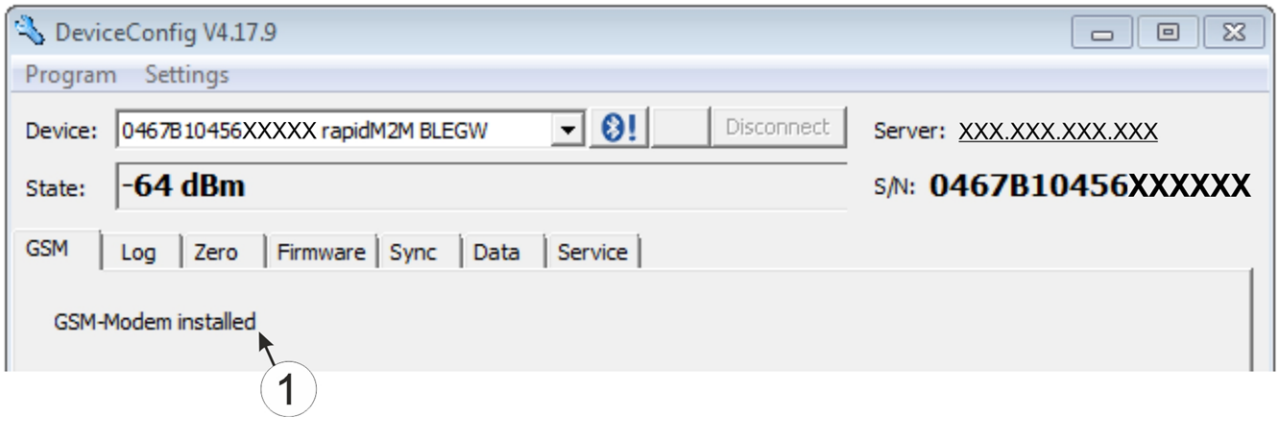
"Sync" tab when actively connected to the myDatasensBLE+

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 myDatasensBLE+ and USB BLE-Adapter , and avoiding obstacles such as walls and similar.*

11.5.3 "GSM" tab

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

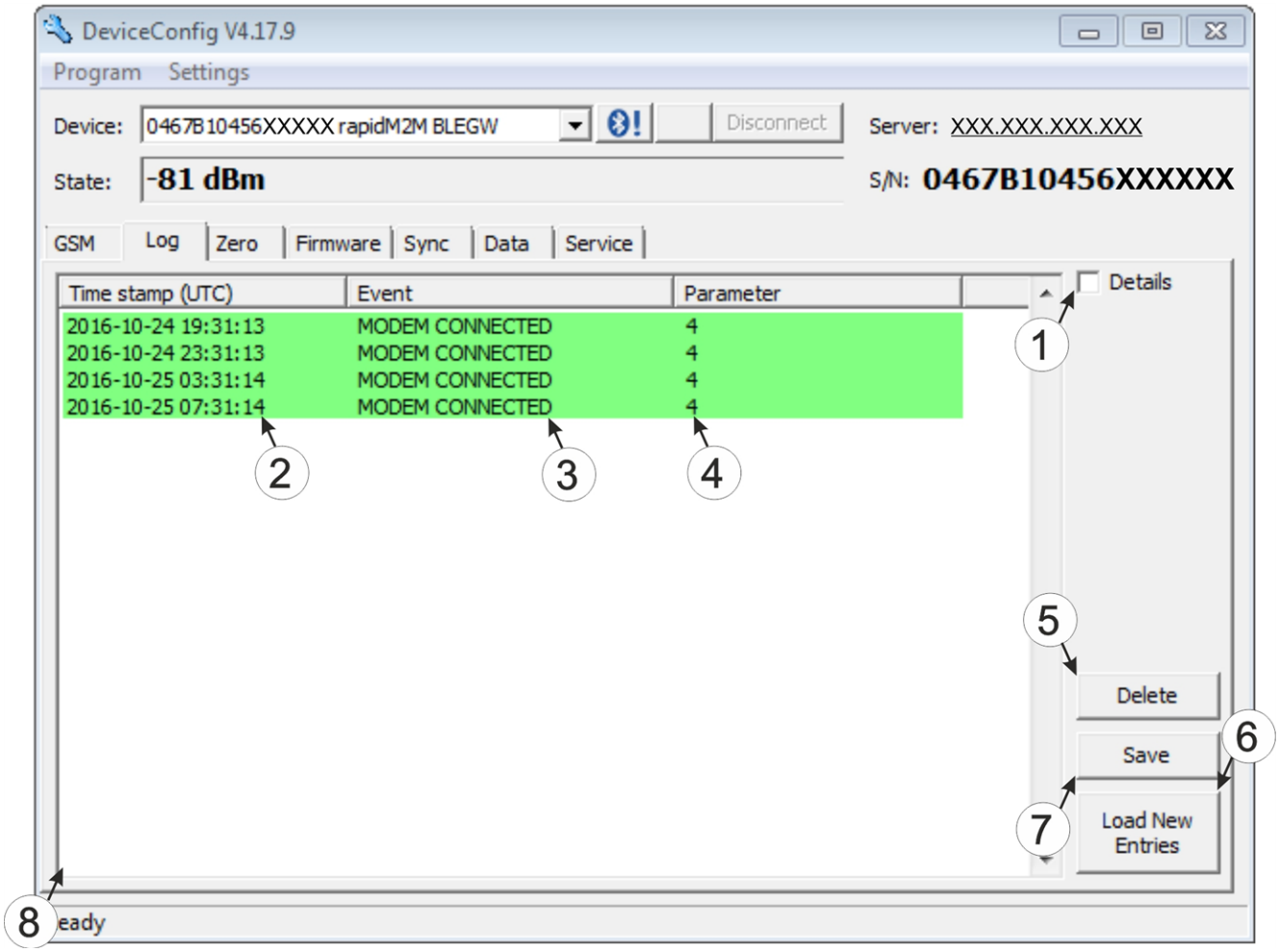


"GSM" tab

1 Indicates whether a mobile network modem is installed	

11.5.4 "Log" tab

This tab is designed to manage log entries. It enables the entries to be loaded from the myDatasensBLE+ , to be saved as a *.tsv file and entries to be deleted from the memory of the myDatasensBLE+ .

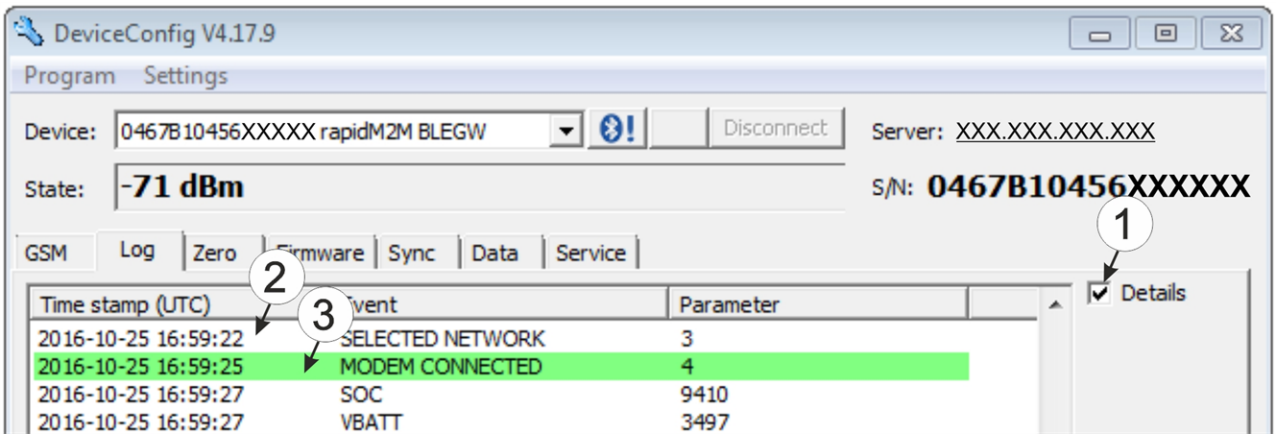


"Log" tab

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 113).

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



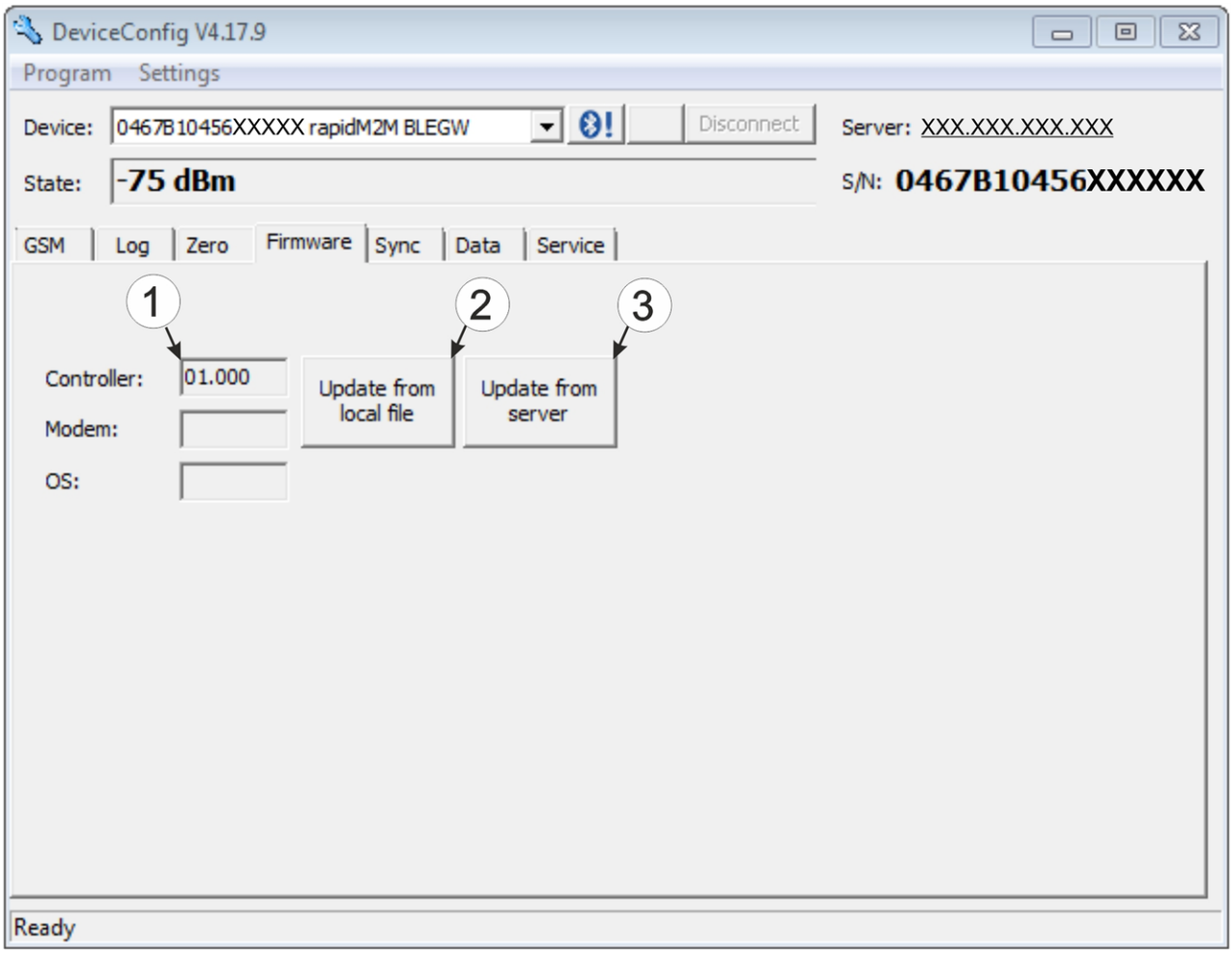
"Log" tab with detailed view activated

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	

11.5.5 "Firmware" tab

This tab enables firmware to be installed directly via the USB interface or 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 from the server and installed on the device.
2 Button to install a previously downloaded firmware package	

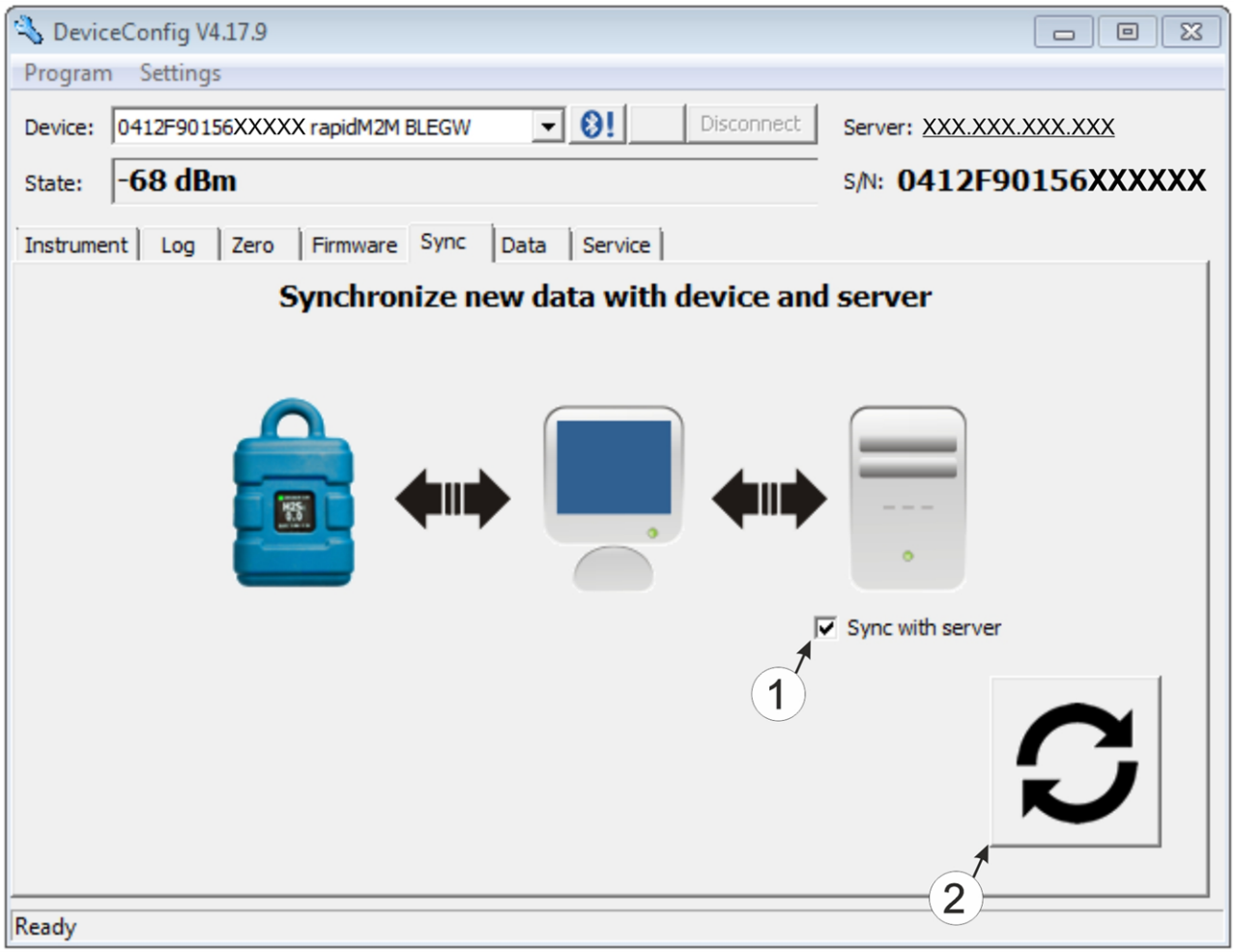
11.5.6 "Sync" tab

This area is designed to synchronise measurement data and configurations between myDatasensBLE+ , 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 myDatanet server" on page 117.

11.5.6.1 Existing connection to the myDatasensBLE+

If there is an existing connection to the myDatasensBLE+ , 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 myDatasensBLE+ 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 116).

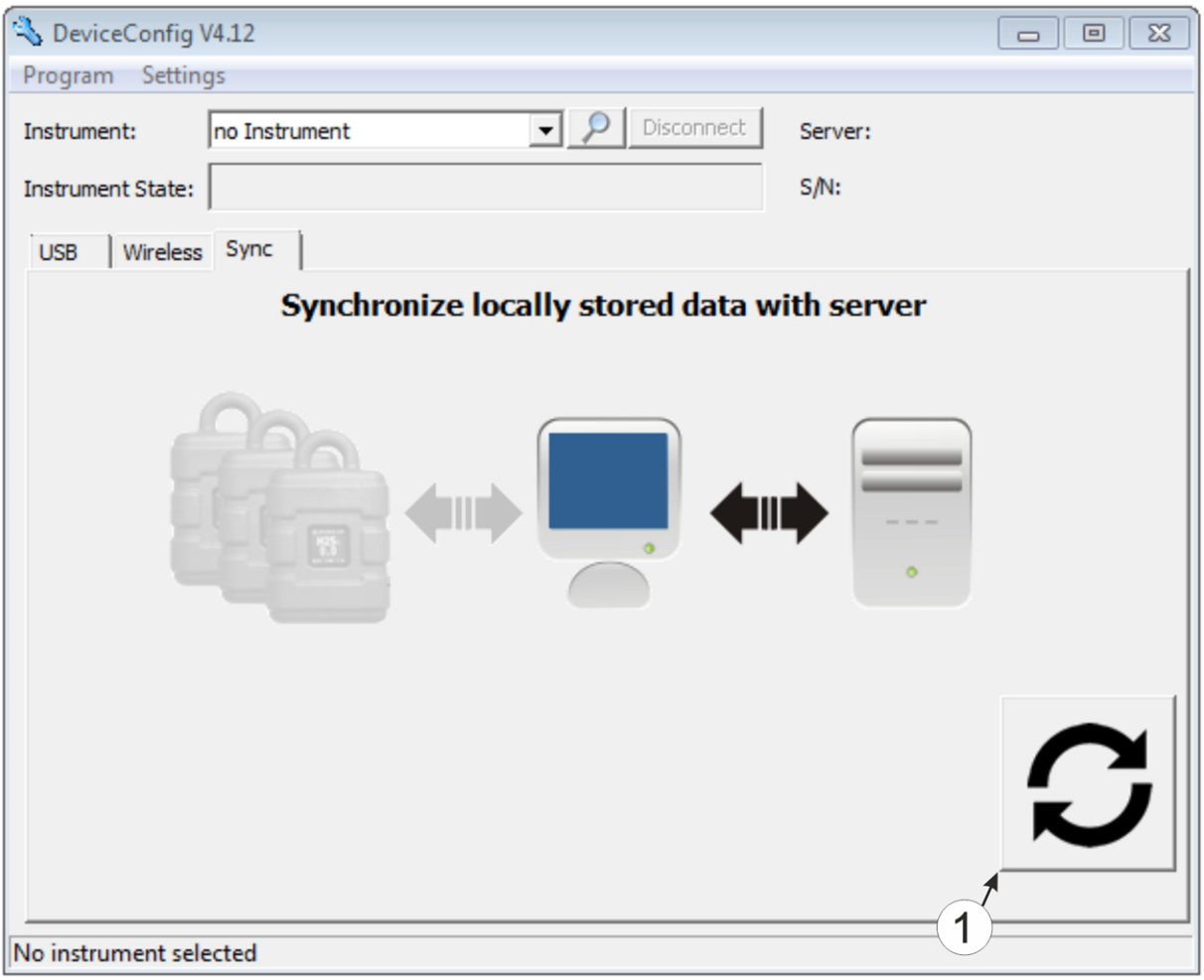


"Sync" tab when connected to the myDatasensBLE+

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

11.5.6.2 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 myDatasensBLE+ .



"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.

11.5.7 Recommended procedure

11.5.7.1 Synchronisation with the myDatanet server

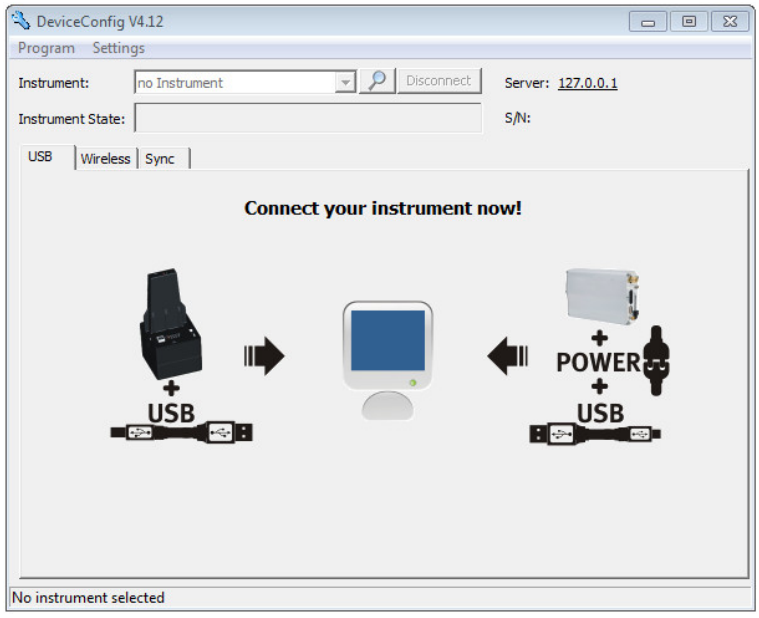
To ensure a more comprehensive management and display of the data, the DeviceConfig configuration program also provides the option of forwarding the measurement data and configurations to a central myDatanet server. The next two chapters describe the possible scenarios when reading out the data from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

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

11.5.7.1.1 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 myDatasensBLE+ on the myDatanet server for this purpose. Detailed instructions are provided in chapter "Creating the site" on page 133. Another prerequisite for this is that your PC is connected to the Internet while reading out the data from the myDatasensBLE+ . If this is not possible, follow the procedure described in chapter "No Internet connection when reading out the data" on page 121.

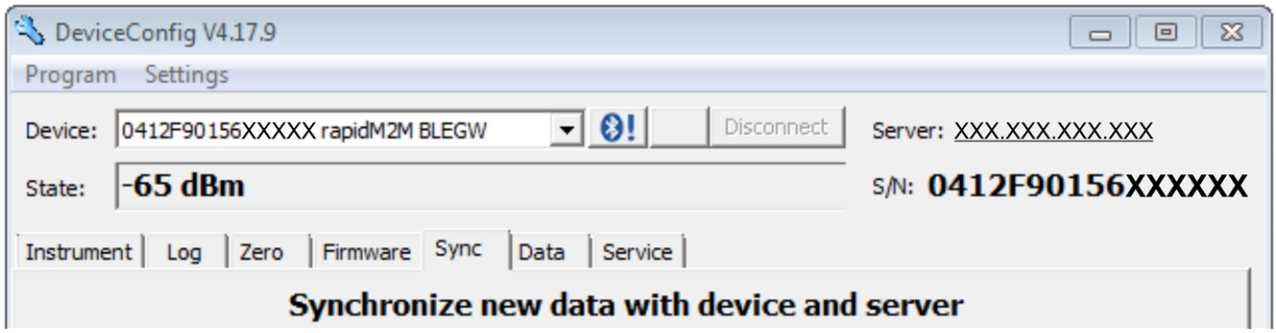
1. Connect the USB BLE-Adapter (300685) to the USB interface of your PC.
2. Start the DeviceConfig configuration program.



DeviceConfig

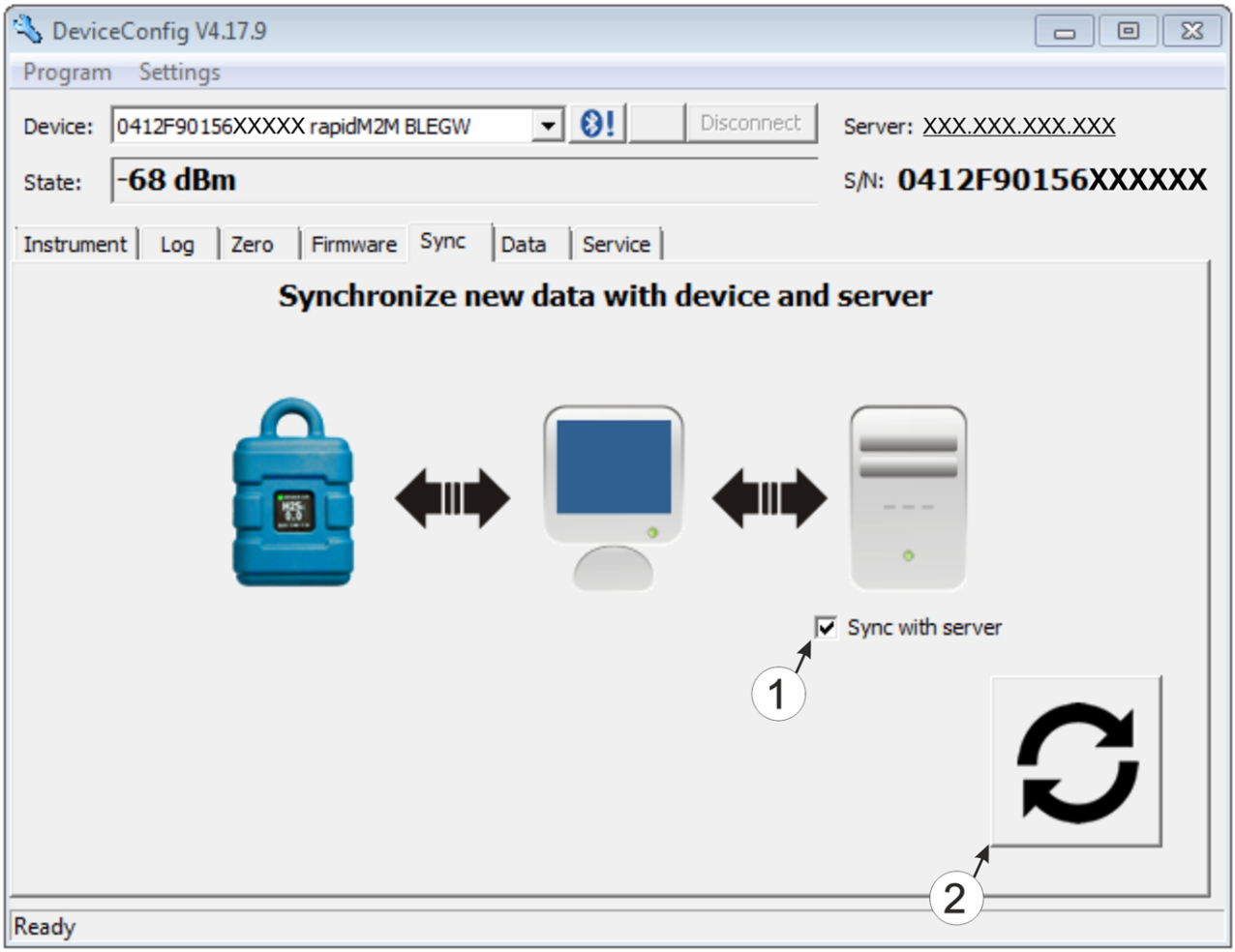
3. Connect the myDatasensBLE+ to the PC using the USB BLE-Adapter (300685) supplied (see "Connecting a Device via Bluetooth Low Energy" on page 110).

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



myDatasensBLE+ 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.

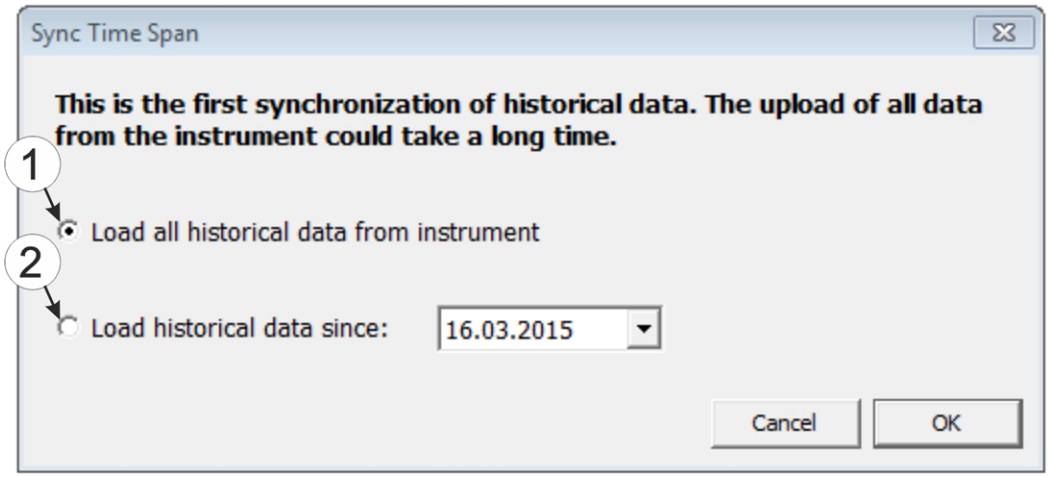


"Sync" tab when connected to the myDatasensBLE+

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 myDatasensBLE+ " on page 118).

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

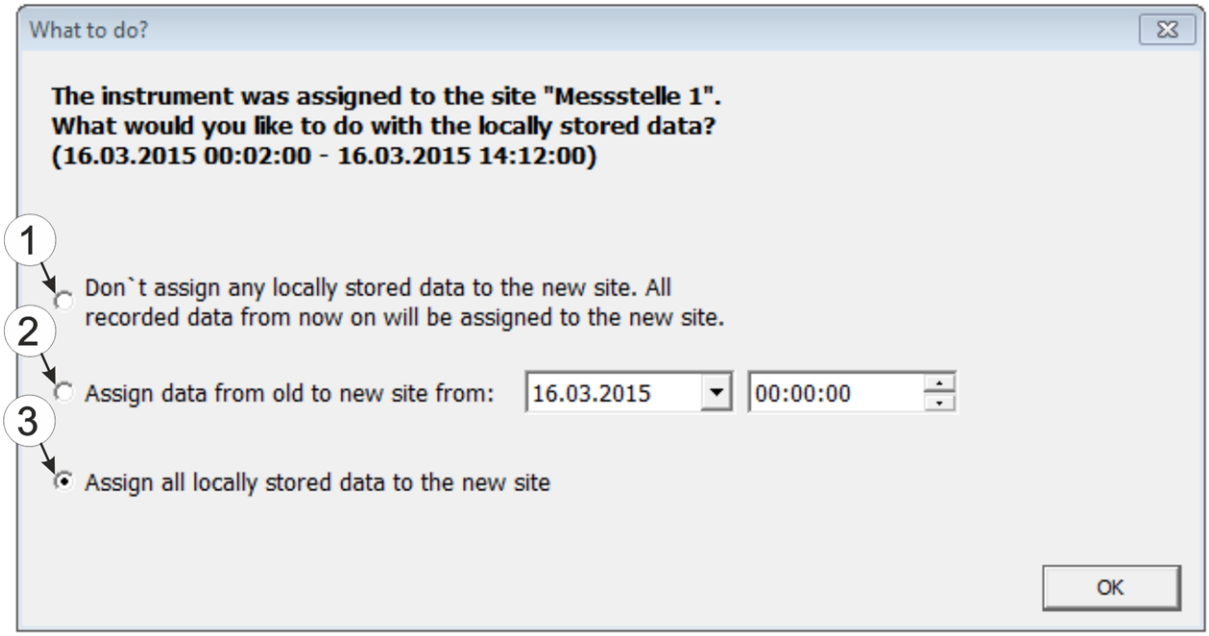


Selecting the time period for which the data should be read out (only during first synchronisation)

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 myDatasensBLE+ 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.

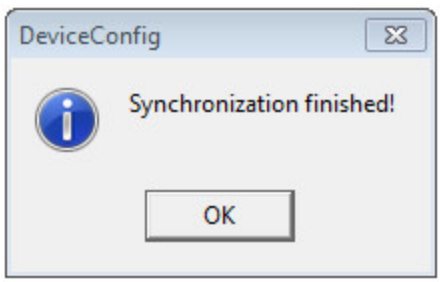
Important note: *If a site already contains data, then only the measurement data that is newer than the current measurement data record for the site is synchronised.*



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 myDatasensBLE+ 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.



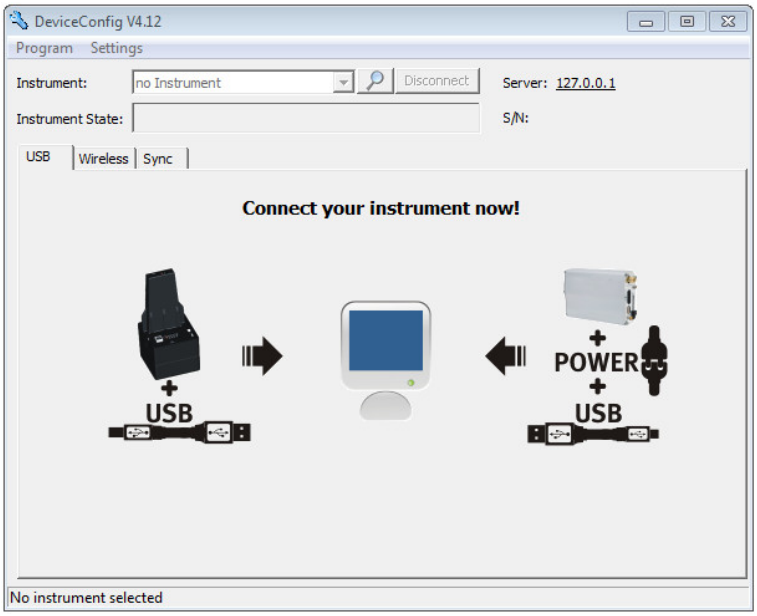
Synchronisation completed

11.5.7.1.2 No Internet connection when reading out the data

> ***Important note:*** *The method described in the following requires that the myDatasensBLE+ myDatanet has already been assigned a site on the myDatanet server. Detailed instructions are provided in chapter "Creating the site" on page 133.Additionally, a synchronisation must already have been completed during which the DeviceConfig configuration program simultaneously established a connection to the myDatasensBLE+ and the myDatanet server (see "Internet connection available when reading out the data" on page 117).*

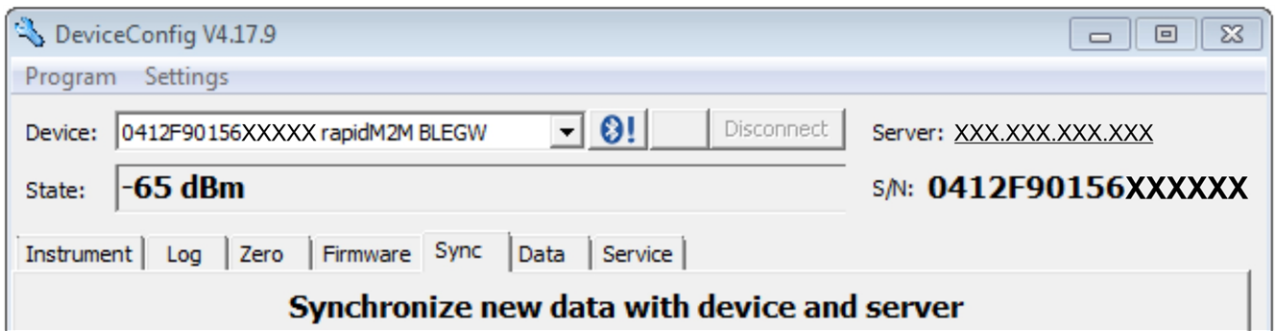
This procedure is recommended, if an Internet connection cannot be established on the site while reading out the data from the myDatasensBLE+ . During this procedure, the data on the site is initially only synchronised with the DeviceConfig configuration program. The data is then transferred to the myDatanet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

1. Connect the USB BLE-Adapter (300685) to the USB interface of your PC.
2. Start the DeviceConfig configuration program.



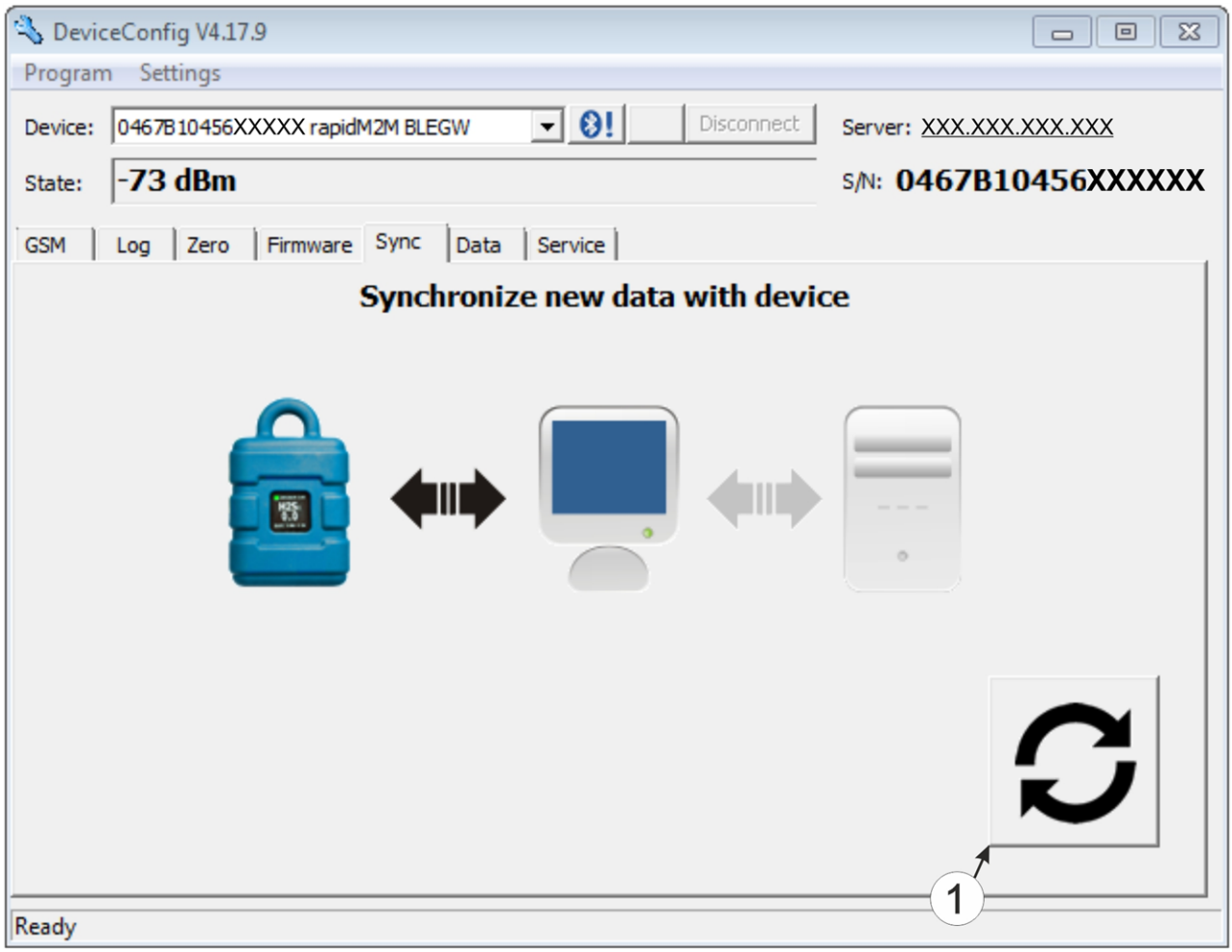
DeviceConfig

3. Connect the myDatasensBLE+ to the PC using the USB BLE-Adapter (300685) supplied (see "Connecting a Device via Bluetooth Low Energy" on page 110).
4. Additional tabs are displayed if the connection was established successfully. Now select the "Sync" tab.



myDatasensBLE+ specific tab

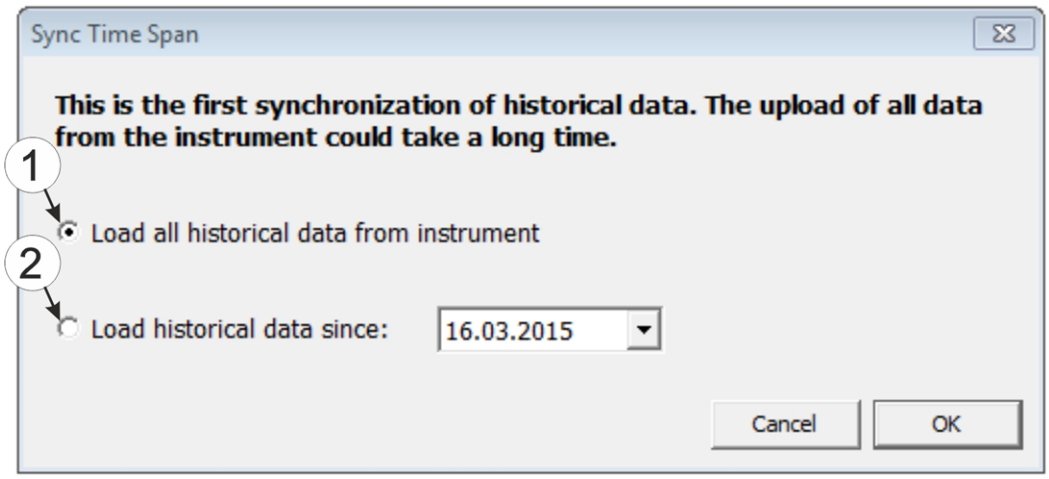
5. Click on the button to trigger synchronisation.



"Sync" tab when connected to the myDatasensBLE+ although there is no connection to the myDatanet server

1	Button to trigger synchronisation

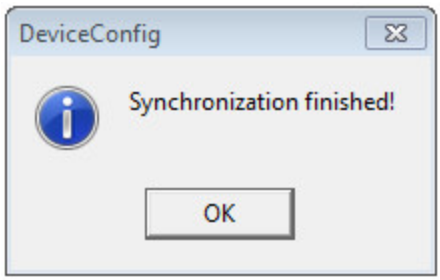
When you read out the data for the first time from a myDatasensBLE+ , you can choose whether all of the saved data or only the data up to a certain date are read out from the myDatasensBLE+ . During the following synchronisation processes, the DeviceConfig configuration program always reads out the data 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.*

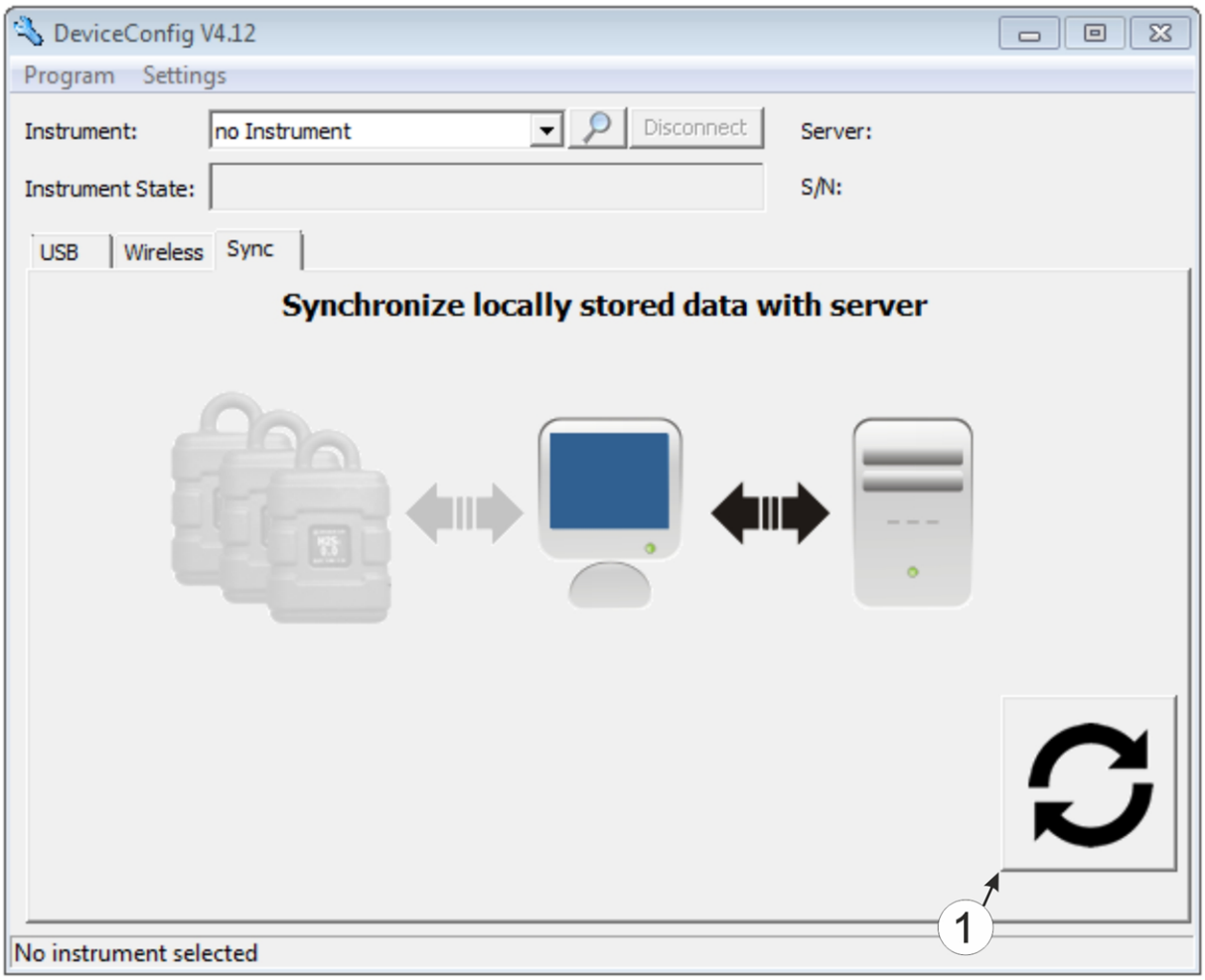
6. Wait until the DeviceConfig configuration program indicates that the synchronisation process is complete.



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.

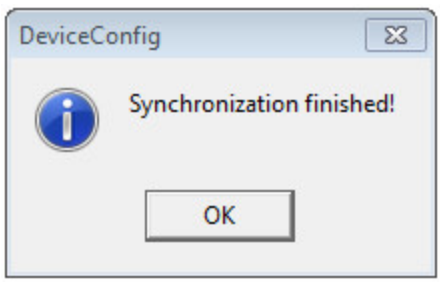
9. Select the "Sync" tab and click on the button to trigger synchronisation.



"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.

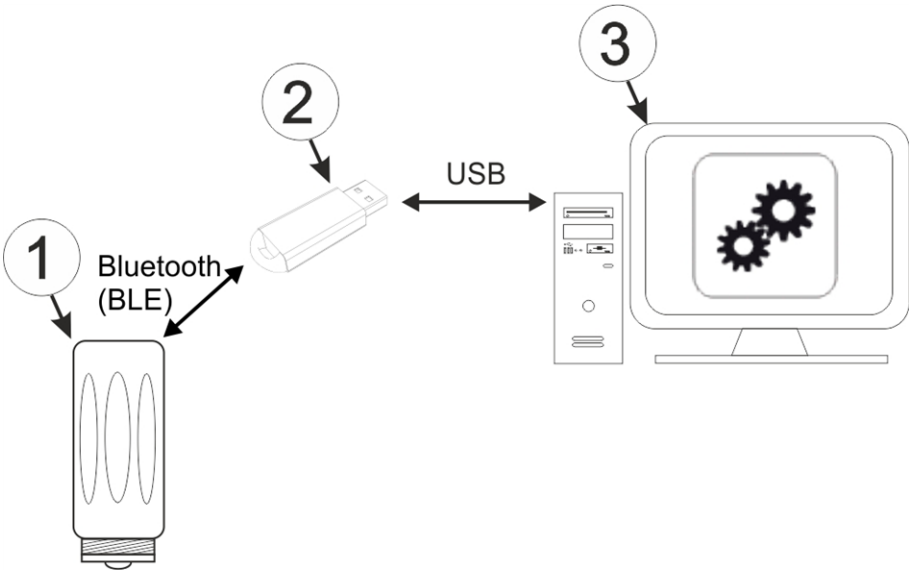
10. Wait until the DeviceConfig configuration program indicates that the synchronisation process is complete.



Synchronisation completed

11.6 Functional principle (communication with a sensor module)

The following description refers specifically to the use of the DeviceConfig configuration program in combination with a sensor module.



Functional principle

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

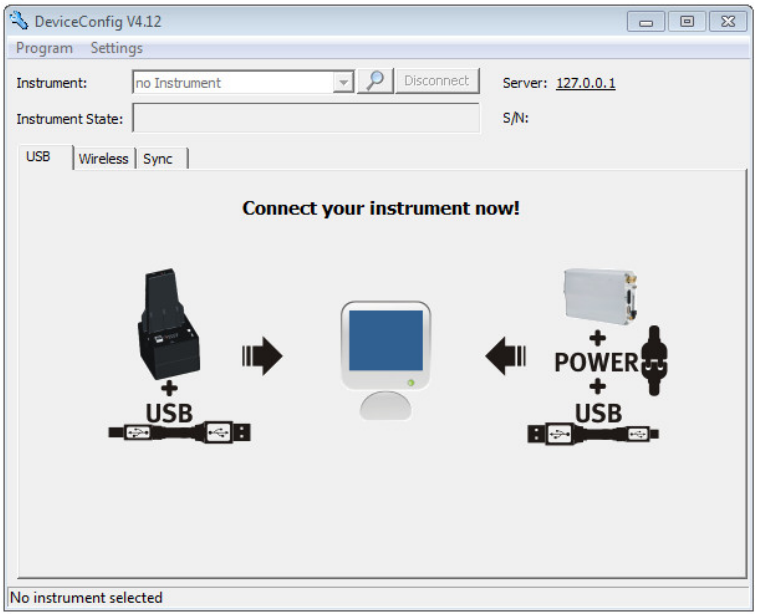
The DeviceConfig configuration program communicates wirelessly (Bluetooth Low Energy) via USB BLE-Adapter (300685) with the sensor module. The functions provided via the DeviceConfig configuration program include:

- Update the firmware(see ""Firmware" tab" on page 128)

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

The USB BLE-Adapter (300685) 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 USB BLE-Adapter driver" on page 106 to install the drivers required to operate the USB BLE-Adapter .

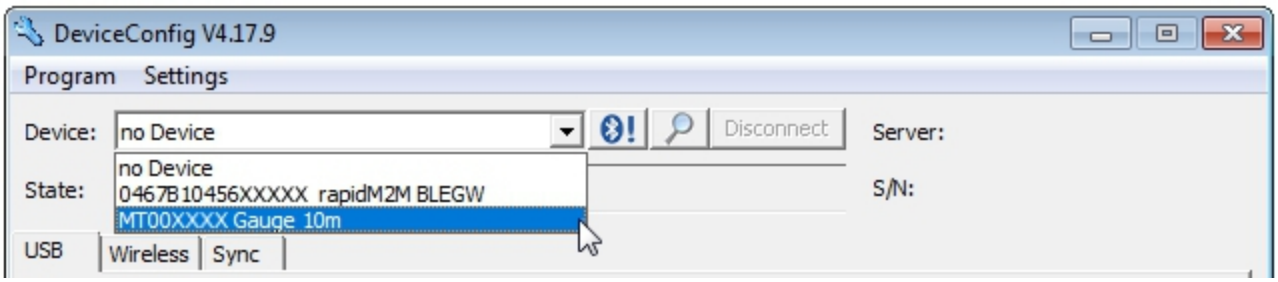
1. Connect the USB BLE-Adapter (300685) to the USB interface of your PC.
2. Start the DeviceConfig configuration program.



DeviceConfig

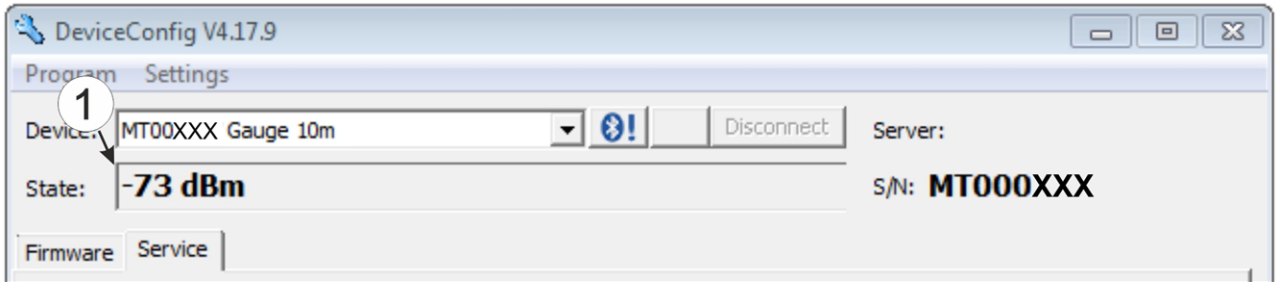
3. Select your sensor module based on the serial number from the list of devices found.

> ***Important note:*** *Sensor modules that are successfully coupled with a myDatasensBLE+ are not displayed by the DeviceConfig .*



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.



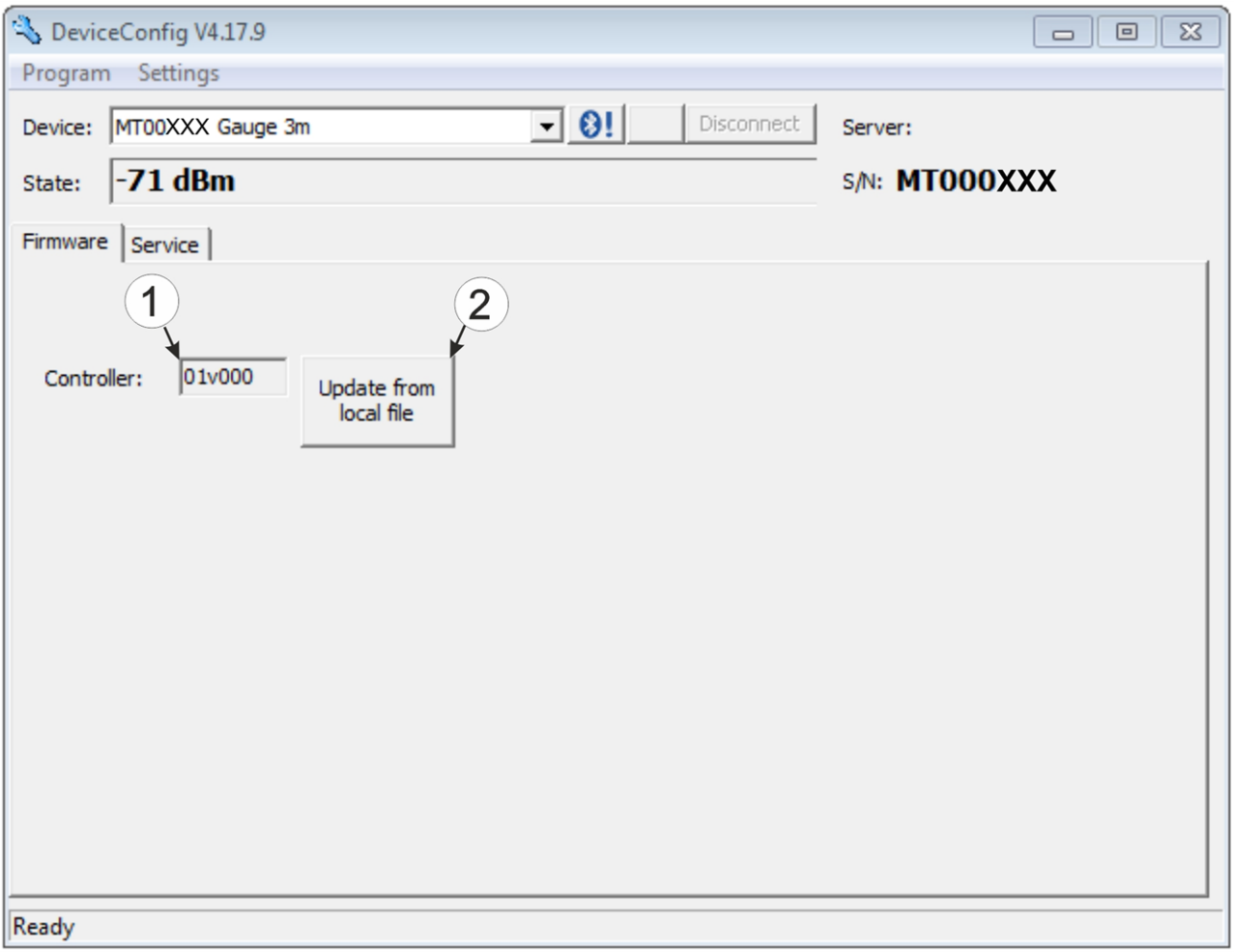
"Instrument" tab when actively connected to the sensor module

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.*

11.6.2 "Firmware" tab

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



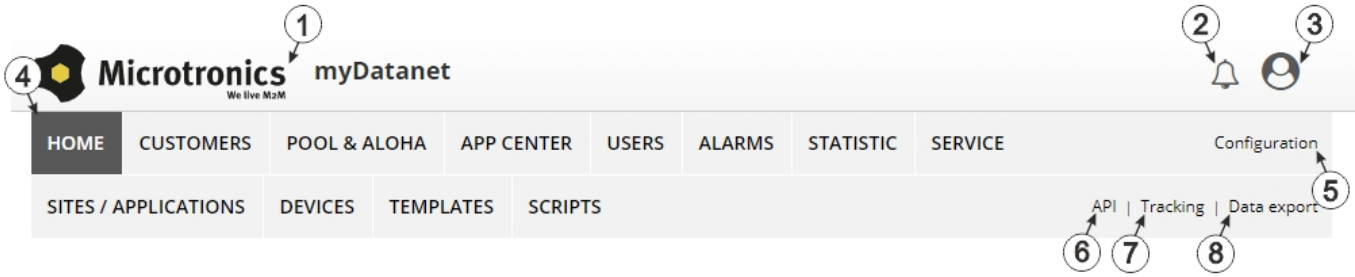
"Firmware" tab

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

Chapter 12 myDatanet server

Note: *All of the screenshots show version 50v007 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	Opens the window in which the notifications created by the system and intended for the currently logged-in user are summarized	**6**	Opens the rapidM2M Playground
3	Displays the menu for adjusting the user settings and for logging out the currently active user	**7**	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.
4	Tabs to switch between the individual server areas	**8**	Opens the input screen to upload a XML file. This tab is only visible if the licence for the XML import is available.

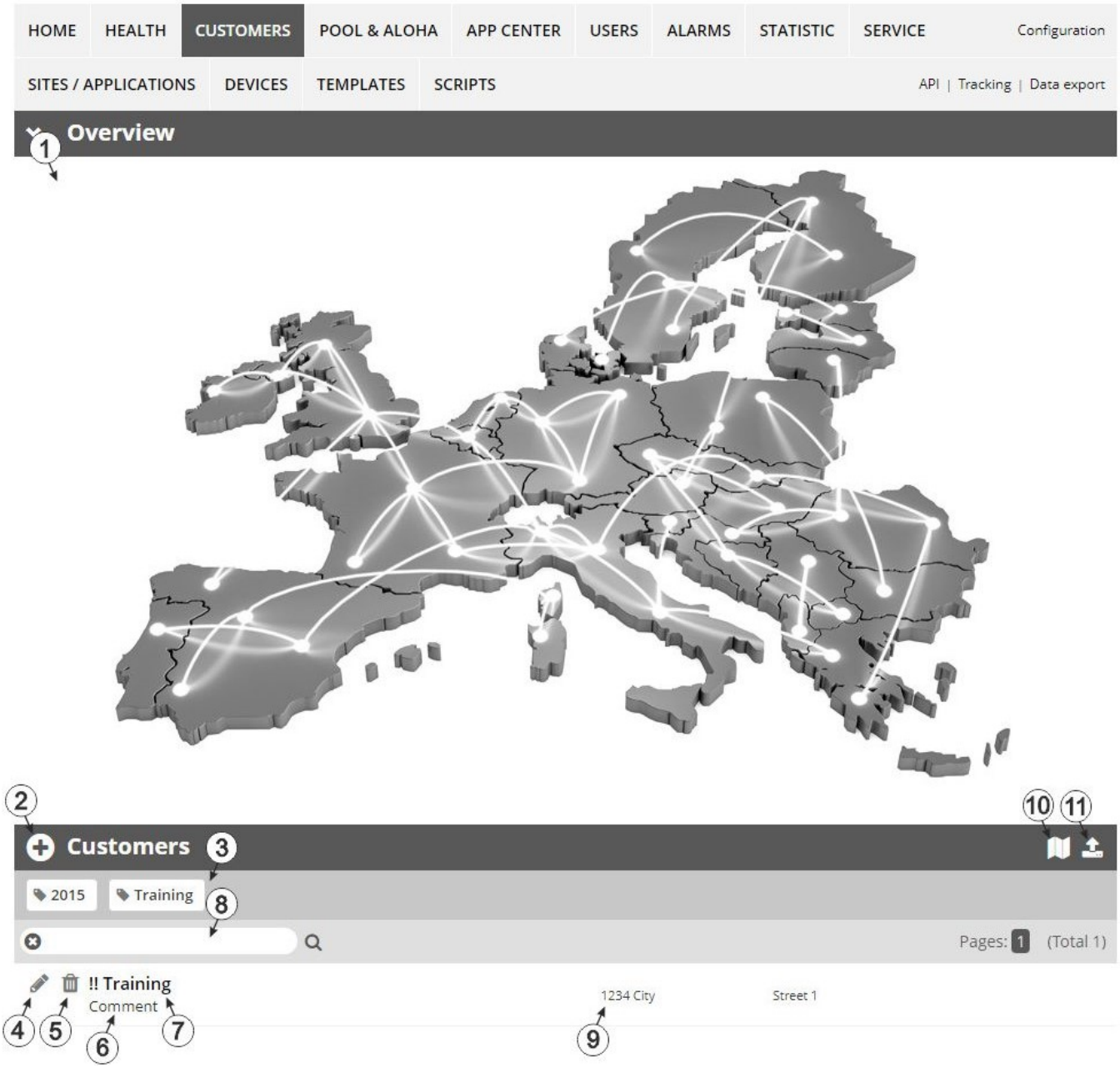
12.1.1 Explanation of the symbols

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

Deletes the adjacent element (report, site, user, etc.) from the list.

Calls up the input screen to edit the adjacent element (report, site, user, etc.).

12.2 "Customer" area

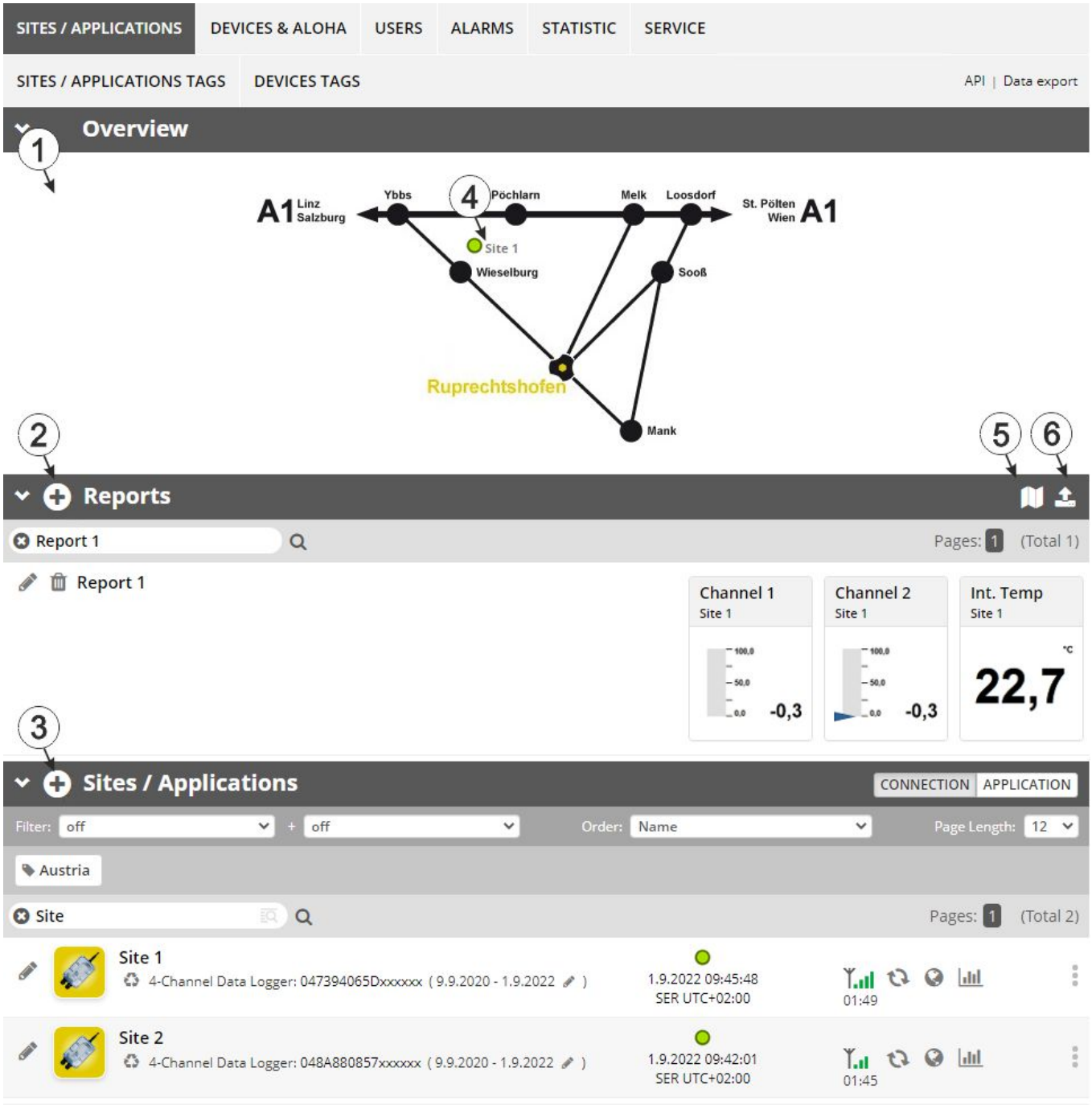


Overview of the "Customer" area

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 / Applications" area at customer level is opened by clicking on the name of the customer (see ""Sites / Applications" area at customer level" on page 132 or "Reports" on page 133).
8	Search field to filter the customer list
9	Customer's address that can be entered via the input screen for configuring the customer
10	Symbol via which a OpenStreetMaps map, on which the sites are displayed, can be loaded. (see "Map view" on page 133)
11	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.

12.3 "Sites / Applications" area at customer level



Overview of the "Sites / Applications" 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 133)
3	List of sites/applications (see "Site" on page 94)
4	Symbol that represents a site on the "Map"
5	Symbol via which a OpenStreetMaps map, on which the sites are displayed, can be loaded. (see "Map view" on page 133)
6	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 myDatanet server 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 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).

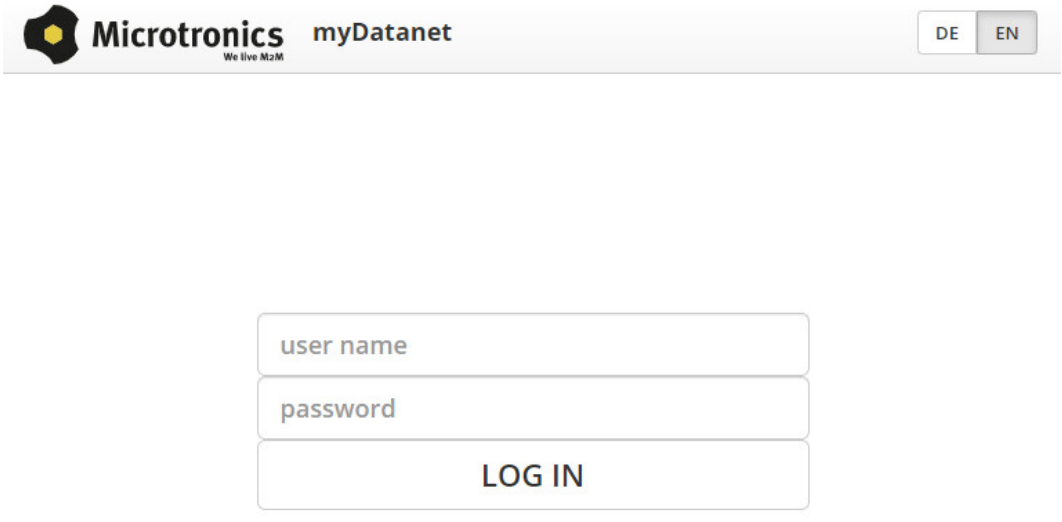
12.4 Recommended procedure

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.*

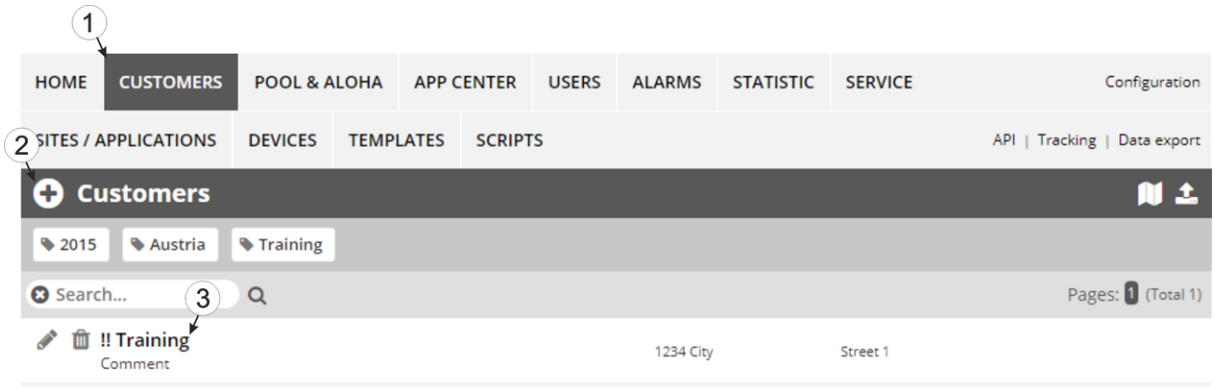
Detailed instructions on creating a new site are provided in myDatanet Server Manual (805002).

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.

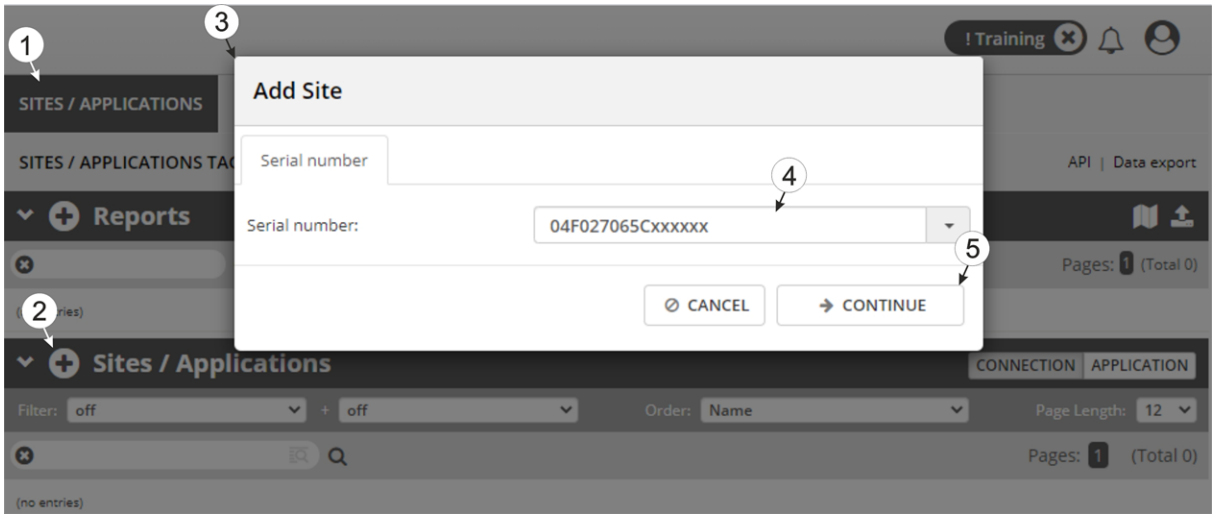


Selecting the customer

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 myDatanet server to call up the list of existing sites / applications. Open the input window for creating a new site by clicking the "Add new site / application" symbol, enter the serial number of your device in the appropriate field and then click the "Continue" button.

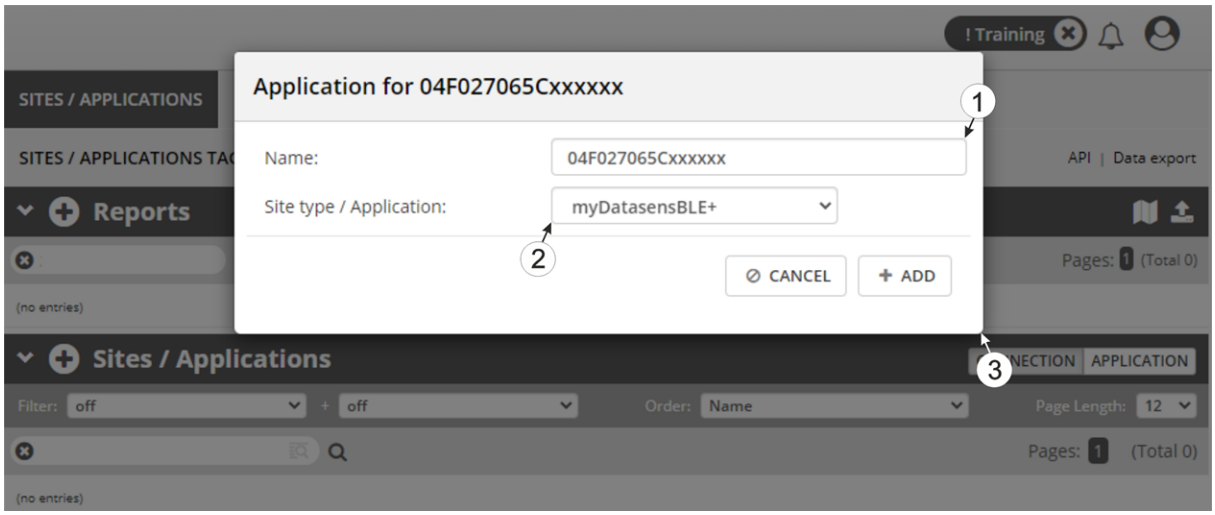
Note: *The serial number is on the type plate of the device (see "Device labelling" on page 26)*



Creating the site

1 Menu item to call up the list of existing sites / applications	**4** Field for entering the serial number
2 "Add new site / application" symbol	**5** "Continue" button
3 Input window for creating a new site	

4. If necessary, change the suggested name of the site, select the desired site type or the desired application from the drop-down list and then click the "Add" button.



Completing site creation

1 Name of the site (freely selectable)	**3** "Add" button
2 Drop-down list of available applications, templates and site types	

Chapter 13 API

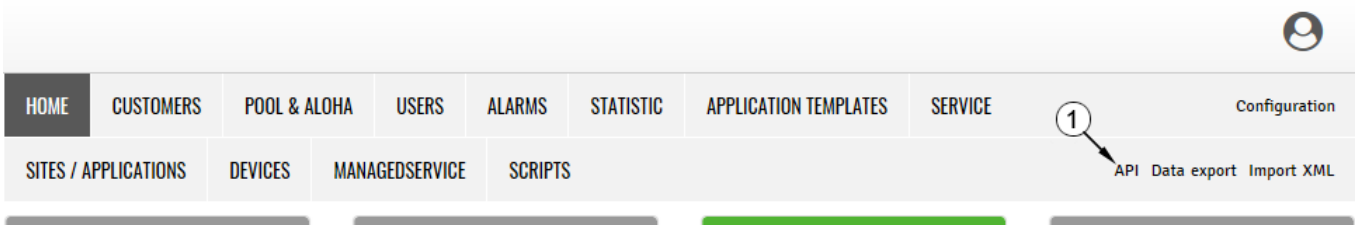
Important note: *The relevant licences are required on the myDatanet server to use the API (Application Programming Interface). For future information contact your responsible sales partner.*

13.1 Backend API

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.

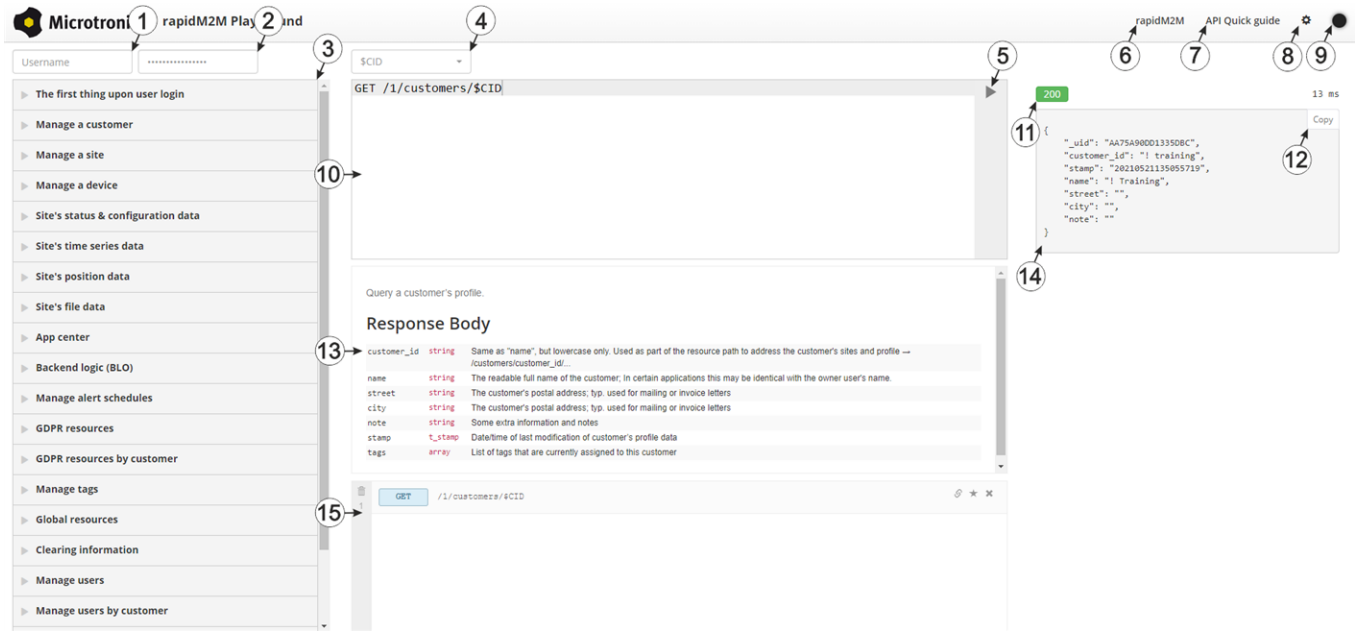
13.2 rapidM2M Playground

The rapidM2M Playground enables you to familiarise yourself with the API of the myDatanet server and to test the provided functions. One click on the "API" button will take you to rapidM2M Playground .



1	Opens the rapidM2M Playground

13.2.1 Overview



rapidM2M Playground

1	Input field for the user name
2	Input field for the password
3	List of the available HTTP commands. The HTTP commands are grouped according to their fields of application.
4	Depending on the selected HTTP command, the drop down lists for selecting the customer, user and site that should replace the corresponding wild cards ("$CID"...customer , "$UID"...user, "$SID"...site) in the resource path of the HTTP command are displayed.
5	Button to execute the HTTP command
6	Opens the website "http://rapidm2m.com/" that includes additional information for developers
7	Opens the quick guide for the API
8	Button for displaying the menu that contains the global settings
9	Button to change the colour scheme of the rapidM2M Playground
10	Window displaying the selected HTTP command
11	Response code sent by the myDatanet server as an answer to the HTTP command
12	Copies the JSON object generated as a response to the HTTP command on to the clipboard
13	Window displaying the documentation for the selected HTTP command. Depending on the selected command, this includes a description of the action being executed, information that must be observed and a description of the request body and response body.
14	Window displaying the JSON object that is generated as a response to the HTTP command
15	Window displaying the last executed HTTP commands

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 myDatasensBLE+ for mechanical damage.
- Check all of the connections for leaks or corrosion on a regular basis.
- Check all of the cables for mechanical damage at regular intervals.
- Clean the myDatasensBLE+ with a soft, moist cloth. Use a mild cleaning agent, if necessary.

Important note: *Due to the electrostatic effects, the myDatasensBLE+ must not be rubbed with cloths in the Ex zone.*

14.2 Maintenance of the myDatasensBLE+

Important note: *Only the manufacturer is permitted to open the enclosure to carry out maintenance work, which must also be completed strictly outside the Ex area.*

The myDatasensBLE+ itself does not require any cyclic maintenance work other than the actions listed in chapter "General maintenance" on page 139 and replacement of the batteries after max. 10 years. In the event of unfavourable environmental conditions (e.g. low temperatures), it may occur that the battery capacity is depleted before this period of time has elapsed. The remaining time until the next battery replacement is shown on the display of the myDatasensBLE+ (see "Display" on page 72). The batteries must only be replaced by the manufacturer (see "Contact information" on page 161) or a certified service partner. The device must be returned in its original packaging for this purpose.

14.3 Maintenance of the sensor module

Information on the maintenance of the sensor module is provided in the user manual of the relevant sensor module.

Chapter 15 Removal/disposal

Material separation only by qualified personnel!

- Be careful when disassembling the device, you may injure yourself.
- Take the separated components to the appropriate recycling.

Incorrect disposal can cause environmental hazards.

Dispose of the device components and packaging material in accordance with the locally valid environmental regulations for electronic products (e.g. according to European waste code 16 02 14).

1. Disconnect any connected cables using a suitable tool.



Logo of the EU WEEE Directive

This symbol indicates that the requirements of Directive 2012/19/EU regarding the scrap disposal of waste from electric and electronic equipment must be observed. Microtronics Engineering GmbH supports and promotes recycling and environmentally friendly, separate collection/disposal of waste from electric and electronic equipment in order to protect the environment and human health. Observe the local laws and regulations on disposal of electronic waste at all times.

Microtronics Engineering GmbHreleases goods brought onto the market in Austria from the obligations via EAR, which means that collection points that cooperate with ERA Elektro Recycling Austria GmbH (https://www.era-gmbh.at/) can be used for disposal in Austria.

The device includes a battery or rechargeable battery (lithium) that must be disposed of separately.

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 myDatasensBLE+ and PC)	• Reduce the distance between the myDatasensBLE+ and the 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 "Connecting a Device via Bluetooth Low Energy" on page 110). • The capacity of the battery pack is virtually depleted.
Communication problems (between myDatasensBLE+ and myDatanet server)	• Evaluate the error code shown on the display (see "Display" on page 72). • Load the device log from the myDatasensBLE+ or from the myDatanet server and use DeviceConfig for the report (see "Evaluating the device log" on page 153). • 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 72). • Load the device log from the myDatasensBLE+ or from the myDatanet server and use DeviceConfig for the report (see "Evaluating the device log" on page 153). • 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 94 or "Creating the site" on page 133).
The data on the mA input is not plausible.	• Check the cable connections (see "Connecting the sensor" on page 52). • Check whether the output signal of the sensor used is compatible with the electrical characteristics of the mA input (see "Technical details about the universal input" on page 56 • Check whether the configuration of the mA input is suitable for the output signal of the sensor (see "Measurement channel" on page 80). • Check the filter settings of the universal input (see "Measurement channel" on page 80). • Check whether the ext. warmup time chosen is suitable for the sensor used (see "Measurement channel" on page 80).

Problem	Cause/solution
Communication problems (between myDatasensBLE+ and sensor module)	• Reduce the distance between the myDatasensBLE+ and the sensor module, and try to avoid obstacles such as walls and similar • The capacity of the battery of the sensor module is virtually depleted. Check on the display the number of remaining days until the next time the battery needs to be replaced (see "Display" on page 72).
Water level is not plausible.	• Check the values for "mounting height" and "trimming" currently saved in the sensor module. • Check whether the values for "mounting height" and "trimming" correspond to the current installation situation. • The capacity of the battery of the sensor module is virtually depleted. • Information on further possible error sources and corresponding solution approaches are provided in chapter "Troubleshooting and repair" in the manual of the relevant sensor module.
Alarm state of a measurement value was not detected.	• 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 another reason. 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 161).
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).
1035	EXCEPTION	##	---	An internal system error was detected that caused the device to restart. The parameter specifies the type of system error. Contact the manufacturer if the device log contains this error with the same parameter code several times (see "Contact information" on page 161).
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.

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1039	UV MODEM RECOVER	---	---	The rechargeable battery or battery voltage once again suffices to guarantee a stable connection. This is achieved by replacing the rechargeable battery or battery pack.
1046	CONTROLLER UPDATE ERROR	##	---	Error updating the firmware of the controller
		0	CRC	The CRC of the firmware pack couldn't be verified
		1	SIGNATURE	The signature of the firmware pack couldn't be verified
		2	TLV	The data structure of the firmware pack is invalid
		3	FW INFO	The firmware pack is not suitable for this device
		4	MIN VERSION	The version of the firmware package is below the minimum version stored in the firmware currently installed on the device.
1126	MODEM COPS MODE	---	---	The modem has changed the mode for the operator selection. Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 161).
1161	LOG REFORMATFILE	##	---	Errors in file system have 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 161).
1192	FUTURE TIMESTAMP	##	---	Internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 161).
1194	RTC TIME SET BY DLO	---	---	The system time has been set manually via the device logic.
1195	RTC TIME SET BY SERVER	---	---	A manually set system time has been overwritten during the sync with the server with the time received from the server.
1196	RTC TIME INVALID	---	---	When starting the module, it was recognised that the system time is invalid.
1200	MODEM ERROR			Modem error (see "Modem error" on page 151)

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1201	MODEM NOT FOUND	---		Internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 161).
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. The parameter specifies the MCC (Mobile Country Code) and the MNC (Mobile Network Code) of the selected GSM network.
1207	GSM NETWORK REGISTRATION	0	NOT REGISTERED	Not registered, modem is currently not looking for any new operators to register
		1	HOME	Registered, home network
		2	SEARCHING	Not registered, but the modem is currently looking for a new operator with which it can register
		3	DENIED	Registration denied
		4	UNKNOWN	Unknown (e.g. outside the GERAN/UTRAN/E-UTRAN cover)
		5	ROAMING	Registered, roaming
1208	GPRS NETWORK REGISTRATION	0	NOT REGISTERED	Not registered, modem is currently not looking for any new operators to register
		1	HOME	Registered, home network
		2	SEARCHING	Not registered, but the modem is currently looking for a new operator with which it can register
		3	DENIED	Registration denied
		4	UNKNOWN	Unknown (e.g. outside the GERAN/UTRAN/E-UTRAN cover)
		5	ROAMING	Registered, roaming
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	
1219	LTE NETWORK REGISTRATION	0	NOT REGISTERED	Not registered, modem is currently not looking for any new operators to register
		1	HOME	Registered, home network
		2	SEARCHING	Not registered, but the modem is currently looking for a new operator with which it can register
		3	DENIED	Registration denied
		4	UNKNOWN	Unknown (e.g. outside the GERAN/UTRAN/E-UTRAN cover)
		5	ROAMING	Registered, roaming
1227	WC NWREG PAUSED	0	---	A corresponding log entry is generated again for each change of state of the network registration.
		1	---	The limit for the log entries for the changes of state of the network registrations has been reached. From this point onward, a maximum of one log entry per hour is generated.
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 161).
1281	ZLIB STREAMPROCESS ERR	##	---	Internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 161).
1282	ZLIB STREAMFINISH ERR	##	---	Internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 161).
1284	BYTE STUFF PENDING	---	---	internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 161).
1317	BLE CONNECTED	---	---	Bluetooth connection to a PC established
1318	BLE DISCONNECTED	---	---	Bluetooth connection was terminated

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1325	BLE ADVERTISING	0	BLE ADVERTISING OFF	Advertising deactivated
		1	BLE ADVERTISING ON	Advertising has been activated
1335	LOG_SHT2X_ STATE	0	SHT2X SENSOR OK	The internal temperature and air humidity sensor is returning valid values again
		1	SHT2X RH ERROR	A communication error occured when reading the air humidity value from the internal temperature and air humidity sensor.
		2	SHT2X TEMP ERROR	A communication error occured when reading the temperature value from the internal temperature and air humidity sensor.
		3	SHT2X RH+TEMP ERROR	A communication error occured when reading the measurement value from the internal temperature and air humidity sensor.
		4	SHT2X PLAUSIBILITY ERROR	The values received from the internal temperature and air humidity sensor are not plausible (rH <0% rH or >100% rH or temperature <-40°C or >125°C)
1336	SHT2X COM ERR	---	---	Communication with the internal temperature and air humidity sensor is not possible (sensor not present or faulty)
1337	SHT2X COM ERR1	---	---	Starting the internal temperature measurement failed
1338	SHT2X COM ERR2	---	---	Starting the internal air humidity measurement failed
1339	SHT2X TEMP RAW	##	---	Temperature raw value (register value from the internal temperature and air humidity sensor) if a plausibility error (SHT2X PLAUSIBILITY ERROR) was detected
1340	SHT2X RH RAW	##	---	Air humidity raw value (register value from the internal temperature and air humidity sensor) if a plausibility error (SHT2X PLAUSIBILITY ERROR) was detected

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
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).
1910	ACCU 0 E2PROM ERROR	0	---	Rechargeable battery not available
		1	---	Invalid length of the data structure in the EEPROM of the rechargeable battery
		2	---	No charging profile available in the EEPROM (only with Li-ion rechargeable batteries)
		3	---	Error when reading the SoC-value
		4	---	Error when writing the SoC-value
		5	---	The charging profiles of the rechargeable batteries inserted do not match (only with devices that support the simultaneous use of multiple rechargeable batteries)
		6	---	• Permissible charging time exceeded • When restarting the device, it was recognised that the rechargeable battery currently in use has already exceeded the permissible charging time once. The battery is probably defective and should be checked by the manufacturer.
2000 - 2199	MODULE ERR	##	---	reserved for extensions
2200 - 2399	MODULE WARNING	##	---	reserved for extensions
2400 - 2599	MODULE INFO	##	---	reserved for extensions

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
2600 - 2799	MODULE DEBUG	##	---	reserved for extensions
3000 - 3099	SCRIPT ERROR	##	--	Internal system error If these errors appear several times with the same parameter code in the device log, contact the manufacturer (see "Contact information" on page 161).

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.com/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.com/footprint).

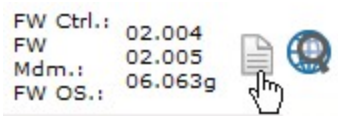
Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1200	NETLOCK ERROR	-966		Error when selecting the network. Check whether the device is in the coverage area. Internal SIM chip: see www.microtronics.com/footprint
TCP channel error				
1200	CHANNEL ABORTED	-965	---	An attempt is being 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
	MODEM POSITION UPDATE ERROR	-943	---	Timeout during determination of the GSM position data
	MODEM NETINFO STALL	-941	---	Error detected during online connection Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 161).
	MODEM RESETLOOP	-940	---	Restart loop on modem detected. Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 161).

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
	MODEM UNDERVOLTAGE	-939	---	Undervoltage on the modem detected. The power supply should be checked.
	MODEM OVERHEAT	-938	---	Overheating of the modem detected.

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 myDatasensBLE+ 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
Anchor clamp 5,5 - 10,5mm	1	301017

17.2 Antennas

Description	Quantity	Order number
Flat antenna Disc Multi Band FME-F 2m	1	300629
Multi band antenna with bracket	1	300787

17.3 Cable

Description	Quantity	Order number
Connection cable 7-pins for sensors 2,8m	1	206.602
Cable connector 7-pins for myDatalogMobile	1	206.654
Pressure compensation tube	1	300131
Clamping tube	1	300256

17.4 Sensor modules

Note: *The required sensor module must be specified when ordering the myDatasensBLE+ as it has to be paired with the measurement channel of the myDatasensBLE+ during production. The sensor module cannot be replaced by the user.*

Description	Quantity	Order number
BLE Radar	1	301443

17.5 Other accessories

Description	Quantity	Order number
MDN Magnet	1	206.803
USB extension cable USB-A/USB-A 1,8m	1	206.664
DeviceConfig	1	300264
BLE Gateway MDN Protection casing	1	300662
USB BLE-Adapter	1	300685

Chapter 18 Dokument history

Rev.	Date	Changes
01	21.03.2024	**First version**

Chapter 19 Glossary

App centre

Area of the myDatanet server for the installation and management of the IoT apps. The app models that serve as a basis for the IoT apps are obtained via the rapidM2M Store . When installing an IoT app on the myDatanet server the default settings defined when developing the app models are initially applied. These default settings can then be adjusted. Any number of IoT apps can be created based on a single app model by setting the appropriate default settings.

App model

An app model is developed in the rapidM2M Studio and forms the basis for creating IoT apps. It essentially contains the executable program files (device logic, backend logic, portal view, etc.) from which an IoT is created by adding the default settings. Distribution to the individual myDatanet servers is carried out via the rapidM2M Store . The available app models are displayed in the app centre of the respective myDatanet server.

Footprint

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

Device logic

The device logic is the intelligence installed on the device that determines the local functionality of the device. The device logic is part of the app model and is created in a C-like scripting language built on "PAWN".

Hardware ID string

Specifies the hardware platform installed in the device and its hardware version (e.g. rapidM2M M2 HW1.4). The part of the hardware ID string, that specifies the hardware version, is only increased if changes relevant to the rapidM2M firmware have been made to the hardware platform. When developing an app model, it can be specified on which hardware platform the app model can be installed and which version of the hardware platform is required as a minimum. The hardware ID string is displayed in the TESTbed of the rapidM2M Studio or in the "Identification" field of the input screen for configuring the device.

IoT app

IoT apps form the basis for creating sites. They consist of an app model and corresponding default settings that are applied as default values for the site when the site is created. The app centre can be used to create any number of IoT apps based on a single app model by setting the appropriate default settings. This makes sense if several use cases need to be covered by a single app model and they each require a different default site configuration (e.g. if a data logger with different external sensors is to be sold as a package).

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.

Product revision

Specifies the revision of the product. The revision is increased every time the product is modified (i.e. electronic system, mechanics, etc.) and is marked on the type plate of the product.

rapidM2M Store

Is responsible for distributing the app models to the individual myDatanet servers. When installing and updating IoT apps the myDatanet server access the app models provided in the rapidM2M Store . The developer of the respective app model defines which myDatanet servers are allowed to access an app model via the rapidM2M Studio .

rapidM2M timestamp

Depending on the required accuracy, one of two special encodings can be used for the time stamp in rapidM2M. If the accuracy requirements are moderate, the "stamp32" data type (seconds since 1999-12-31 00:00:00 UTC) can be used. If a higher accuracy is required, the "stamp40" data type (1/256 seconds since 1999-12-31 00:00:00 UTC) can be used. Converting the "stamp32" data type into the UNIX timestamp (seconds since 1970-01-01 00:00:00 UTC) can be achieved by adding 946598400.

Chapter 20 Contact information

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Certified by TÜV AUSTRIA: EN ISO 9001:2015, EN ISO 14001:2015, ISO/IEC 27001:2013, EN ISO 50001:2011 for myDatanet | TÜV SÜD: ATEX Directive 2014/34/EU

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