User manual
myDatalogEx

Valid from:

- **Firmware version: 01v018**
- **App. version: 01v000**
- **Server version: 47.1**
- **Hardware version: 1.0**



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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

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 MT 20 CERT0001 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 One or more of the associated listed in the Type Examination Certificate MT 20 CERT0001 X standards have been replaced by new editions.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 MT 20 CERT0001 X étaient replacées par des nouvelles éditions. Le producteur déclare pour le produit décrit ci-dessus la conformité aux exigences des nouvelles éditions des normes.

		Europäische Norm	Ausgabedatum
(2014/30/EU)	**EMC Directive**		
		ÖVE/ÖNORM EN61326-1	2013-08
(2014/35/EU)	**LVD Directive**		
		ÖVE/ÖNORM EN61010-1	2011-08
(2014/53/EU)	**RED Directive**		
	Safety & Health 3.1a	ÖVE/ÖNORM EN60950-1 ÖVE/ÖNORM EN62311 ÖVE/ÖNORM EN62479	2014-09 2008-11 2011-10
	EMC 3.1b	ÖVE/ÖNORM EN301489-1 V2.1.1 ÖVE/ÖNORM EN301489-1 V1.9.2 ÖVE/ÖNORM EN301489-17 V2.1.1 EN301489-52 V1.1.1	2017-04 2011-12 2012-11
	Radio spectrum efficiency 3.2	ÖVE/ÖNORM EN301511 V9.0.2 ÖVE/ÖNORM EN301908-1 V11.1.1 ÖVE/ÖNORM EN301908-2 V11.1.1 ÖVE/ÖNORM EN300328 V2.1.1	2003-06 2016-10 2016-10 2017-02
(2014/34/EU)	**ATEX Directive**		
		ÖVE/ÖNORM EN 60079-0 ÖVE/ÖNORM EN 60079-11	2014-07 2012-07
(2011/65/EU)	**RoHS Directive**		
	Prevention 4.1	ÖVE/ÖNORM EN 50581	2013-03
	Kennzeichnung/ Markings/ Marquage CE Ex II 3G Ex ic IIB T3 Gc		

Ruprechtshofen, den 14.01.2020

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
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Nom et signature de la personne autorisée

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2.1 Declaration of conformity - Appendix

Anlage / Schedule / Pièces Jointes:

Sicherheitsbeschreibung / Safety Description / Description de Sécurité:

Umgebungstemperatur / ambient temperature / température ambiante:	-20...+50°C (see manual)
Feuchte / humidity / humidité:	15...90%rH r.H., n.C.
Schutzart / protection class / classe de protection:	IP66 / IP68 (see manual)

Elektrische Kenngrößen

- U_o: 25,6V
- I_o: 82mA
- P_o: 0,523W
- C_o: 0,37µF
- L_o: 2000µH

Besondere Bedingungen für den Einsatz in Zone 2:
Special conditions for the installation in zone 2:
Conditions spéciales pour l'installation en zone 2

Es dürfen nur Originalersatzteile des Herstellers verwendet werden.
Only the manufacturer's original spare parts must be used.
N'utilisez que des pièces d'origines de fabriquant.

Die Batterien dürfen nur durch zertifizierte, baugleiche Produkte ersetzt werden.
The battery may only be replaced by certified parts of identical construction.
Les batteries ne doivent être remplacées seulement par des produits certifiés et de construction identique.

Mögliche Gefahr der elektrostatischen Aufladung - Reinigen Sie das Gerät mit einem feuchten oder elektrostatisch ableitenden Tuch.
Potential electrostatic charging hazard - Clean the device with moist or electrostatically dissipative cloth.
Risque possible de charge électrostatique - Nettoyez l'appareil avec un chiffon humide ou dissipateur électrostatique.

Das Gerät muss vor UV-Strahlung geschützt sein.
The device shall be protected against UV radiation.
L'appareil doit être protégé des rayons UV.

Chapter 3 Specifications

Voltage supply	Battery: 2 x Li-SOCl2 cells with a total of 25,74Ah
Enclosure	Material: Noryl GTX 973 / PC (enclosure/cover) Weight: 730g Protection class: IP66 / IP68 Dimensions (WHD): 106 x 169 x 61mm (with protective armour)
Ex certification	 II 3G Ex ic IIB T3 Gc
Operating temperature	-20...+50°C
Air humidity	15...90%rH non-condensing
Storage and transport temperature	-20...+70°C
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
Universal inputs	1 x analogue Modes: • 0...20mA: Resolution 1µA , max. 25,6mA , load 4Ω • 4...20mA: Resolution 1µA , max. 25,6mA , load 4Ω Additional information is provided in "Technical details about universal input" on page 39.
Sensor supply	1 x switchable and adjustable sensor supply (0...22V) • U_o: 25,6V • I_o: 82mA • P_o: 0,523W • C_o: 0,37µF • L_o: 2000µH Additional information is provided in "Technical details regarding the sensor supply" on page 40.
Data memory	Internal flash memory for up to 66.856 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. 2G/3G modem (Europe): 2G GPRS 900MHz / 1800MHz UMTS B1, B8

SIM	Integrated SIM chip
Monthly data volume	Approx. tbd at 5min. measurement interval and 12h transmission interval
Device operating time	Up to 24 months battery life at 5min. measurement interval, 1sec. heat up and 12h transmission interval

Chapter 4 General specifications

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

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

4.1 Translation

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

4.2 Copyright

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

4.3 General descriptive names

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

4.4 Ex protection

The portable myDatalogEx is designed for use in areas with a zone 2explosive atmosphere.

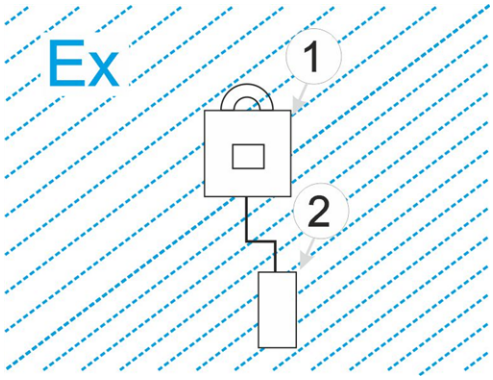
The following conditions must be observed:

- 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 3G Ex ic IIB T3 Gc

Important note: *The Ex approval is only valid if the corresponding marking is provided on the type plate of the measurement instruments .*

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



1 myDatalogEx	**2** Sensor approved for the Ex zone

4.5 Safety instructions

For the connection, commissioning and operation of the myDatalogEx , 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 outdoor use include extensive protection against moisture and dust penetration.*

4.5.1 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.*

4.5.2 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 GSM/GPRS modem contained in the device.

4.5.3 Safety and preventative measures for handling GSM/GPRS modems

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

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

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

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

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

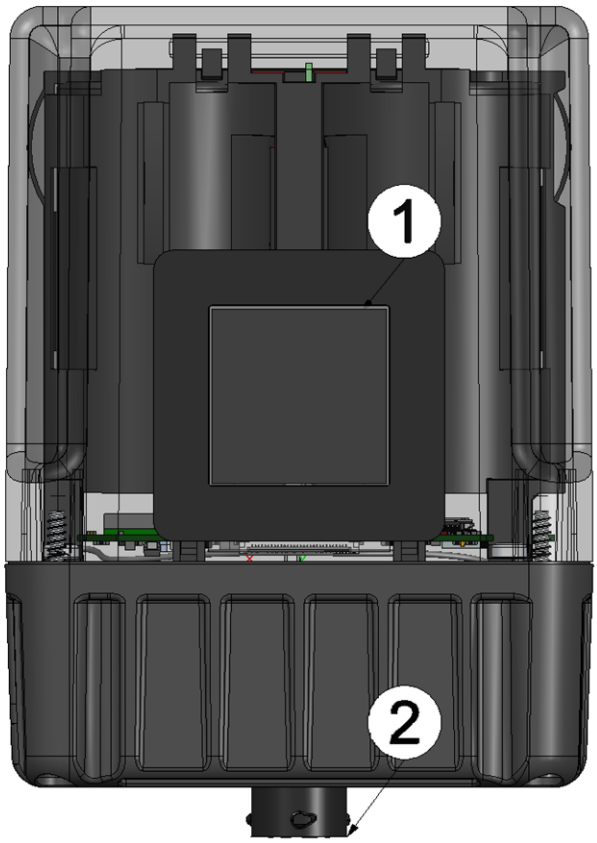
4.5.3.1 Safety and precautionary measures for the GSM/GPRS modem installation

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

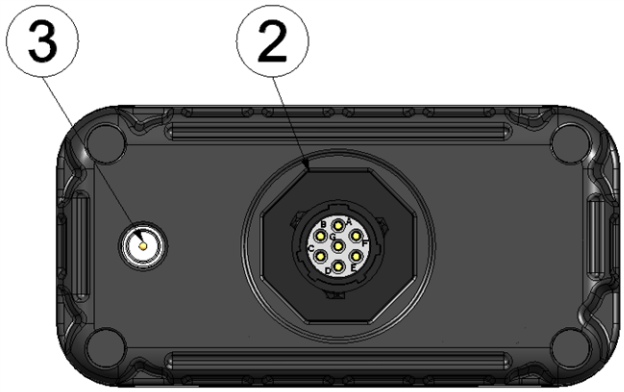
4.5.3.2 Safety measures for installing the antenna

- 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!

4.6 Overview



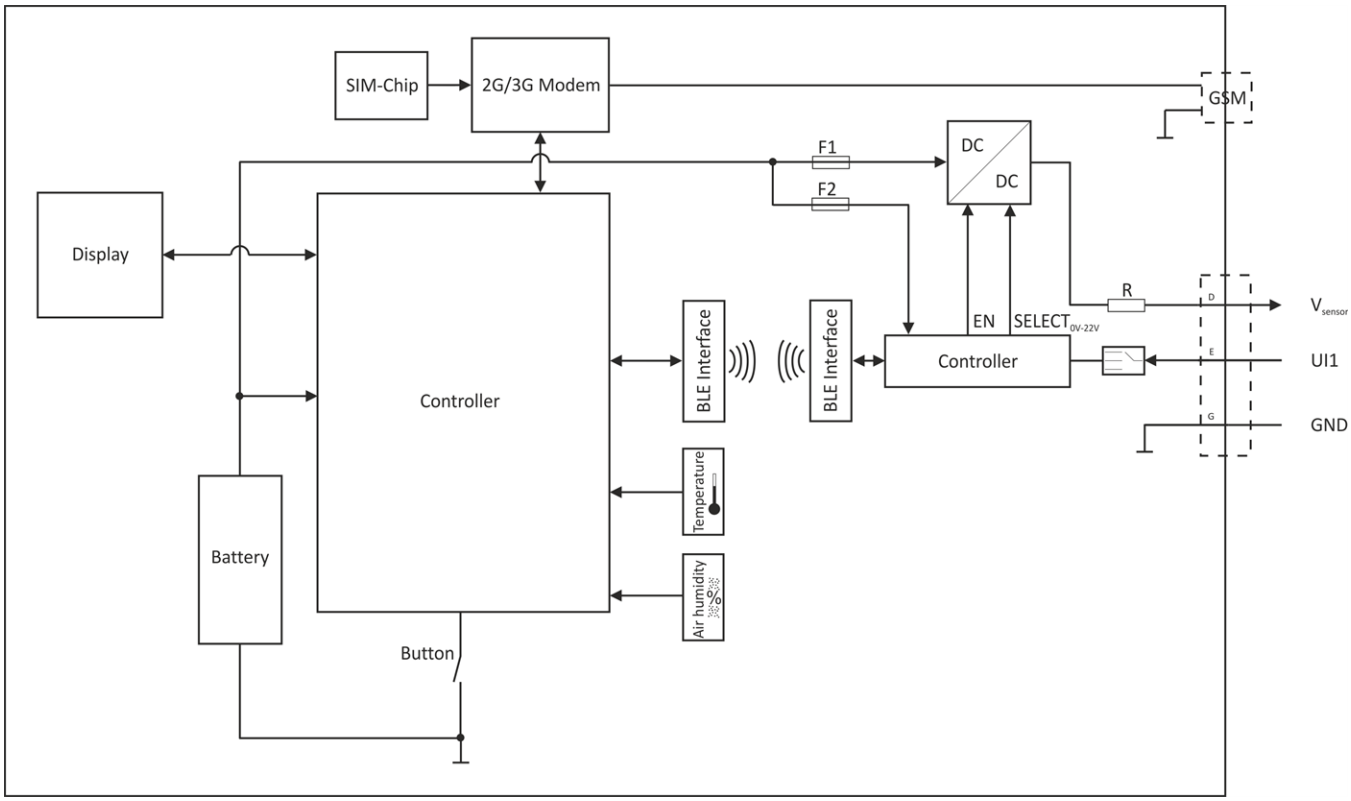
Front of the myDatalogEx
(view without protective armour)



Bottom of the myDatalogEx
(view without protective armour)

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

4.6.1 Block diagram



Block diagram of the myDatalogEx

4.7 Intended use

The portable measurement instrument is used to capture analogue signals. The device is battery-operated. The measured and recorded data is stored on a non-volatile memory medium. This stored data is sent via the mobile network to a central server for further processing. The device is equipped with an integrated SIM chip for this purpose. The maximum permissible limit values specified in chapter "Specifications" on page 9 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.*

4.8 General product information

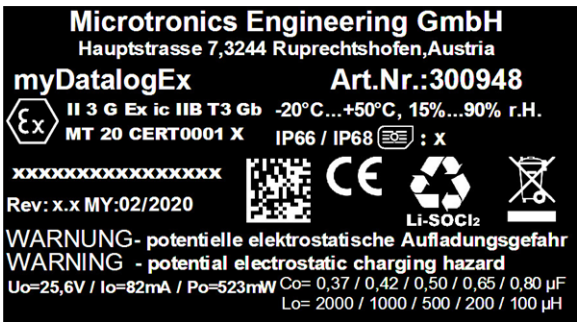
The device is a compact, portable ATEX data logger for recording and transferring analogue signals. A universal input is available that can be operated in various analogue modes. The device operates without mains power and has an adjustable (0...22V) voltage output to supply the sensors. To save energy, the voltage output can be configured in such a way that it is only activated just before and during a measurement. In addition to the measurement data of the universal input, the internal measurement values "SOC"(State of Charge), "Battery", "Int. Temp", "rH" (relative air humidity in the enclosure), "GSM" (GSM level), "Service" (days remaining before battery replacement) and "Load" (energy consumption between two recordings)are determined . The generated measurement data is recorded in an adjustable interval , temporarily saved in the internal data memory and is then transferred at a freely selected interval to a central myDatanet server via a mobile connection. The device is equipped with an integrated SIM chip for this purpose. The device is configured via the interface of the relevant myDatanet server. More information is provided in the server manual ("myDatanet Server Manual " 805002).

The myDatalogEx has a 1,5" OLED display to show the current measurement value at the universal input (incl. unit) and a variety of status information (e.g. remaining days until the battery will next be replaced in the device). The display is activated via the reed switch. Detailed information on this is provided in chapter "Display" on page 48.

4.9 Device labelling

The specifications in this user manual apply exclusively to the myDatalogEx device type. The type plate is located on the rear side of the device and contains the following specifications:

- Name and address of the manufacturer
- Type designation
- Item number
- Ex protection designation as specified in chapter "Declaration of conformity" on page 7
- 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 "Declaration of conformity - Appendix" on page 8



Type plate myDatalogEx

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.

4.10 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.*

4.11 Storage of the product

To store the myDatalogEx , activate the transport mode in the in the input screen of the myDatanet server for configuring the device. Then activate the setup mode (see "Setup mode" on page 23) via the reed switch so that the amended configuration is transferred to the myDatalogEx . During this process, all of the data that has not yet been transferred to the myDatanet server is transferred. The sensor cable and antenna can be removed as soon as the GPRS connection has been terminated - indicated by "Transport mode" being shown on the display (see "Display" on page 48). 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 47). Store the myDatalogEx in its original packaging. Do not remove the protective armour during this process (i.e. for storage).

The myDatalogEx is placed in a highly 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 reactivating the setup mode and the myDatalogEx resumes operation according to the configuration settings. 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.

4.12 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.

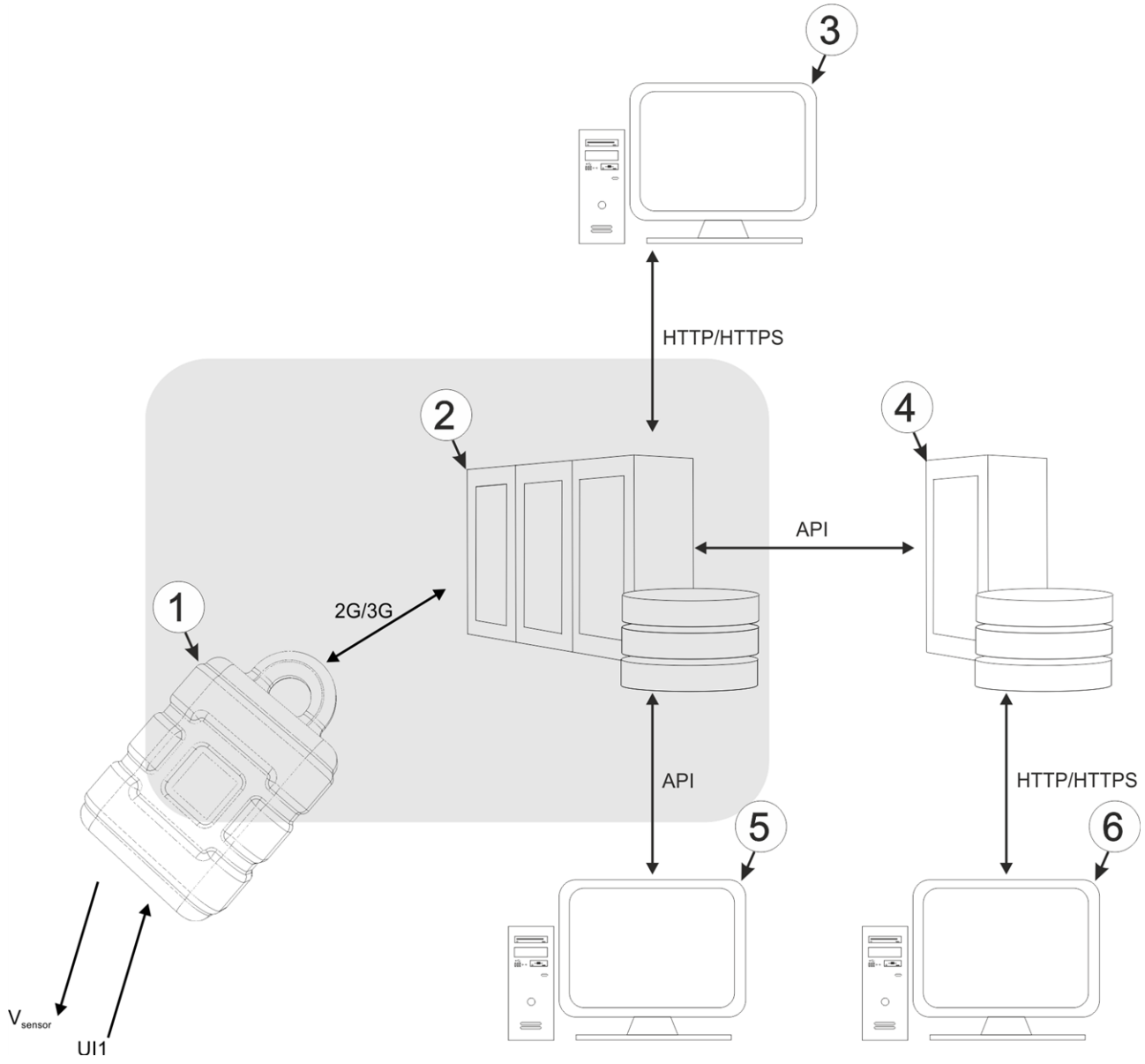
In addition, the operator must comply with the local legal requirements for

- 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.

Chapter 5 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	myDatalogEx with integrated managed service SIM chip
2	myDatanet server to which the data is transferred
3	Client that accesses the interface of the myDatanet server via the web browser
4	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 61).
5	Client, on which a PC program is running, that obtains its data via the API interface of the myDatanet server (see "API" on page 61)
6	Client that accesses the interface of the customer-specific server via the web browser

Functions and components provided by myDatanet :

- myDatalogEx

  The device is a measurement instrument approved for Ex zone 2 for connecting a sensor (UI1) to the myDatanet server (2G/3G).

- Managed Service

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

- myDatanet server

  Database for saving the measurement data and configurations. Data is either accessed via the API of the server (see "API" on page 61) or web interface of the server.

Functions and components provided by the customer:

- Sensor

  Sensor that has an interface that is compatible with the specifications listed in the chapter "Technical details about the universal input" (see "Technical details about universal input" on page 39). If the device is operated in areas with a zone 2 explosive atmosphere, only sensors that are also approved for zone 2 and for which the Ex parameters are compatible with those of the myDatalogEx 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 (see "API" on page 61) by the customer-specific server.

5.1 Functionality of the internal data memory

Structure	Circular buffer
Total size	66.856 measurement cycles
Number of sectors	8
Sector size	8.357 measurement cycles

The internal data memory of the myDatalogEx is designed as a circular buffer with 8 sectors. If the maximum number of data records (66.856) 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 58.499 cycles, however at most the measurement values of the last 66.856 cycles.

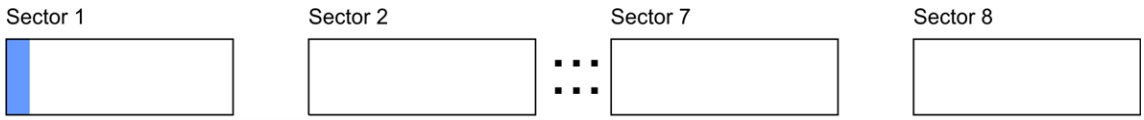
For this reason, it is recommended to coordinate the transmission cycle and record interval in such a way that a maximum of 58.499 measurement cycles have to be recorded between two transmissions. Note, that if the measurement cycle is shorter than the record interval, the record interval still has to 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.

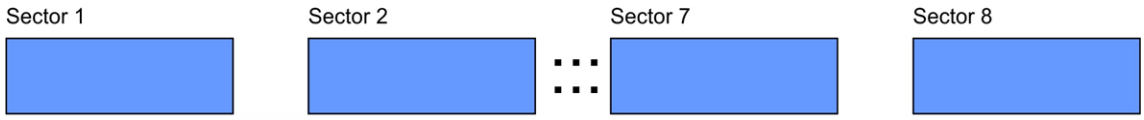
Note:

Additional explanation regarding the functionality of the circular buffer

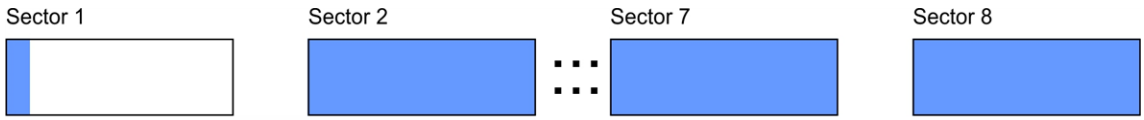
Data memory after the first measurement cycle:



Data memory after 66.856 measurement cycles:



Data memory after 66.856 +1 measurement cycles:



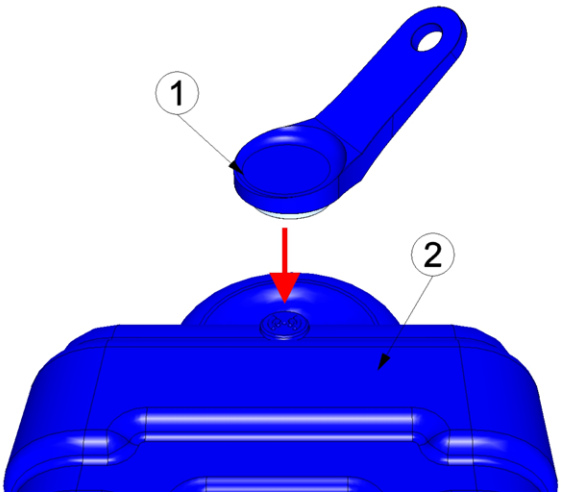
5.2 Procedure in case of connection aborts

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

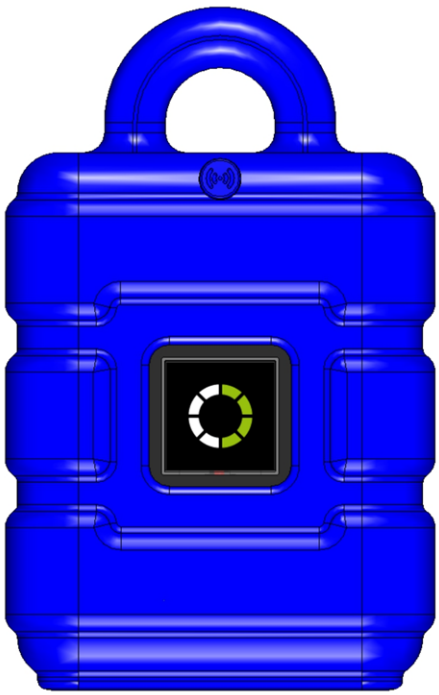
5.3 Setup mode

Setup mode is an operating mode specifically developed for testing the GSM signal quality in the final installation position of the myDatalogEx . Setup mode is activated by pressing the reed switch for at least three seconds. (see "Reed switch" on page 47). A connection to the myDatanet server is thus initially established to inform it about setup mode being activated. A speech bubble with the title "Setup" is then displayed for the relevant site in the list of sites (see ""Site" area at customer level" on page 56). The myDatalogEx then terminates the connection to the server again and starts to measure the GSM level for a period of up to 3min. . The remaining time until the measurement is terminated is shown on the display of the device and in the "Setup data" configuration section (see "Setup data" on page 50). Once the time has elapsed, the myDatalogEx establishes another connection with the myDatanet server to transfer the determined values. These are then displayed in the "Setup data" configuration section. The background colour of the speech bubble with the "Setup" inscription changes from white to red if a new connection cannot be established within the timeout of 5min. , as, for example, the GSM signal quality deteriorates too much when the cover of the sewer, in which the device is located, is closed. In this case, the note "Setup mode failed (enhance antenna position)" is shown above the GSM level display in the "Setup data" configuration section.

1. Place the device and the antenna in the final installation position (with the shaft lid open).
2. Activate setup mode by pressing the reed switch for at least three seconds. (see "Reed switch" on page 47). The time for which the reed switch was pressed is visualised by a circle on the display in which the segments change from white to green. Setup mode is activated once all of the segments have switched from white to green.



Activating setup mode

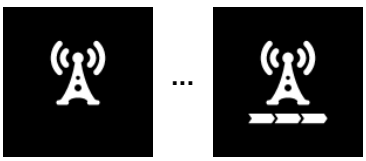


Visualisation of the time for which the reed switch was pressed

1 MDN Magnet (206.803)	**2** myDatalogEx

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

> ***Note:*** *To check the current operating state, you may need to activate the display again by briefly pressing (approx. 1 sec.) the reed switch (see "Reed switch" on page 47).*

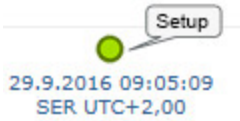


Connection establishment



Data synchronisation

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

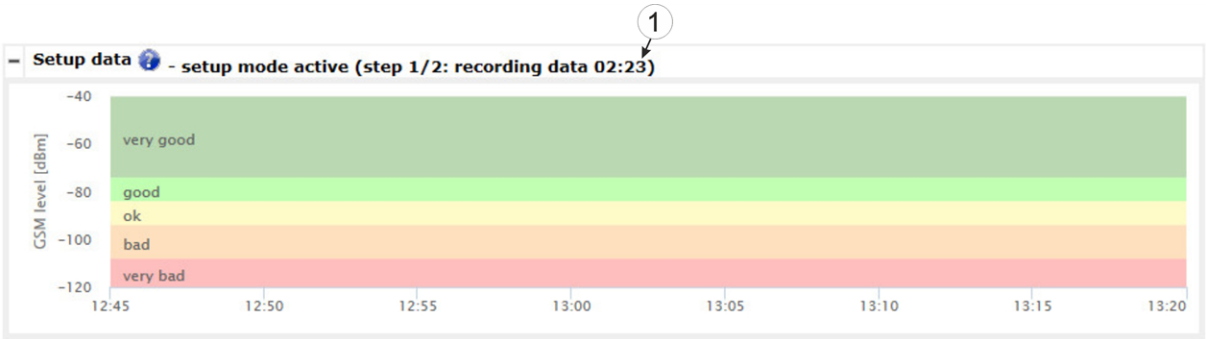


The myDatalogEx terminates the connection to the server and starts to measure the GSM level for a period of up to 3min. . The speech bubble with the "Setup" inscription continues to be displayed during this process. The remaining time until the second connection to the server completed as part of setup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

> ***Note:*** *You must first open the site settings to access the "Setup data" configuration section (see "Site configuration" on page 50).*



Current GSM level and remaining duration of the GSM level measurement

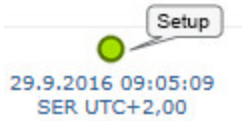


"Setup data" configuration section: Setup mode phase 1 (GSM level measurement)

1	Remaining duration of the GSM level measurement

4. Close the shaft lid.

5. Either wait until the speech bubble is hidden again (setup mode completed successfully) or until the background colour of the speech bubble changes from white to red (problem detected). In both cases, this can take up to 8min. . If a problem is detected, it is advisable to improve the position of the antenna (see "Optimum antenna positioning for assembly in a shaft" on page 38) and to start setup mode again.



Setup mode active



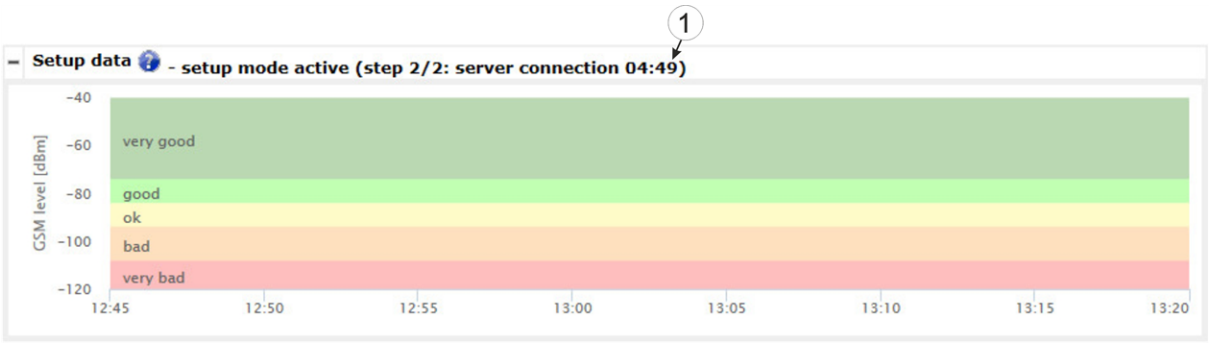
Setup mode completed successfully



Problem detected

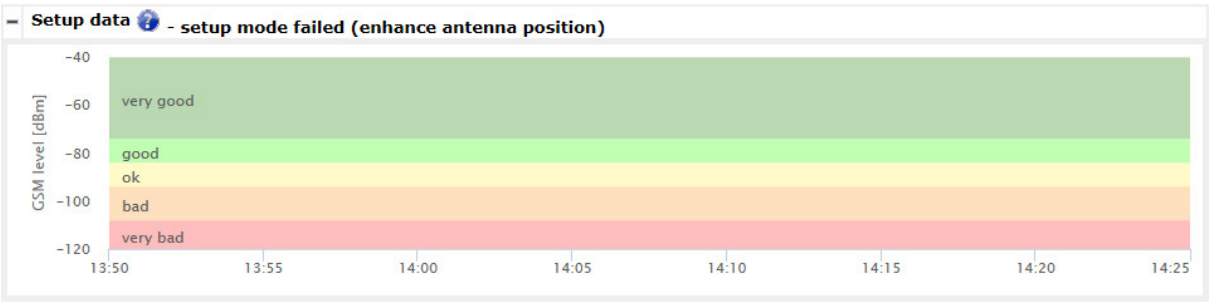
Once the GSM level measurement has been completed, another connection is established to transmit the measurement results to the myDatanet server. The background colour of the speech bubble with the "Setup" inscription changes from white to red and the note "Setup mode failed (enhance antenna position)"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

> ***Note:*** *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 38.*



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

1	Remaining time during which a new connection must be established

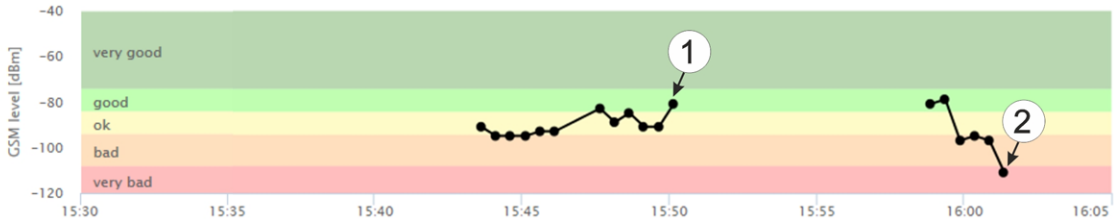


"Setup data" configuration section: Problem detected

6. Open the site settings (see "Site configuration" on page 50) and click on "Setup data" to display the GSM level determined during setup mode.

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

   Note: *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 38.*



Display of the GSM level determined during setup mode

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

5.4 Automatic selection of the GSM network

The GSM network to which the device should register must be selected, as the myDatalogEx 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.

Chapter 6 Storage, delivery and transport

6.1 Inspection of incoming deliveries

Check the shipment immediately upon receipt to ensure it is complete and intact. Immediately report any discovered transport damages to the delivering carrier. Also notify Microtronics Engineering GmbHin writing about this without delay. Report any incompleteness of the delivery to the responsible representative or directly to the company headquarters of the manufacturer within two weeks (see "Contact information" on page 81).

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

6.2 Scope of supply

The standard scope of delivery of the myDatalogEx (300948) includes:

- myDatalogEx with pre-installed device logic "myDatalogEx"
- BLE Gateway MDN Protection casing (300662)
- MDN Magnet (206.803)
- Connection cable 7-pins for sensors 2,8m (206.602)

Check additional accessories, such as installation kit, antennae, etc., based on the order and against the delivery slip.

6.3 Storage

The following storage conditions must be adhered to:

myDatalogEx	Storage temperature	-20...+70°C
	Humidity	15...90%rH

Note: *The battery remains in the myDatalogEx during storage.*

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

6.4 Transport

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

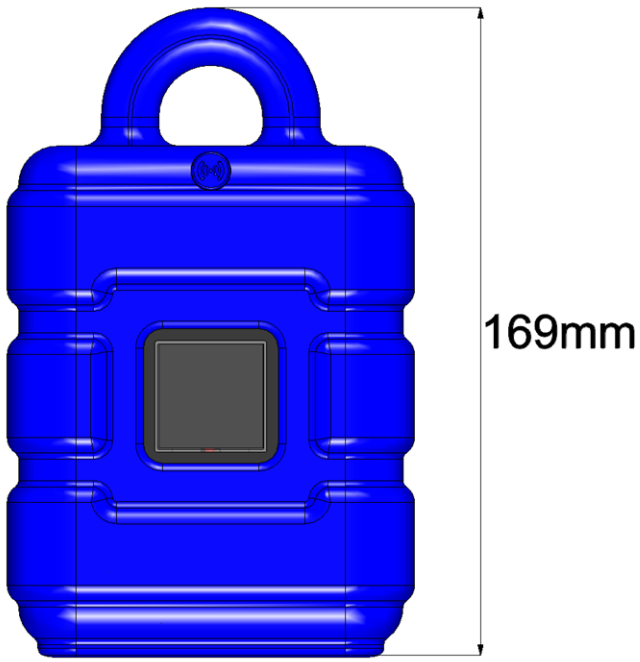
6.5 Return

Every return must be accompanied by a fully field-out return form. This return form is available in the service area of the myDatanet server. An RMA number is mandatory for any returns and can be obtained from the Support & Service Centre (see "Contact information" on page 81). The return shipment of the myDatalogEx must occur in the original packaging and with freight and insurance paid to Microtronics Engineering GmbH (see "Contact information" on page 81). Insufficiently cleared return shipments will otherwise not be accepted!

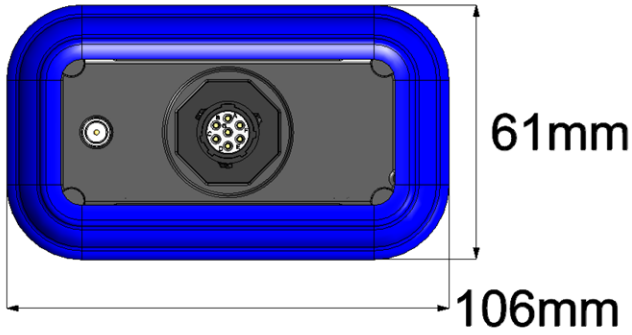
Chapter 7 Installation

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

7.1 Dimensions



Dimensions: Height
(view with protective armour)



Dimensions: Width and depth
(view with protective armour)

7.2 Installing the myDatalogEx

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 myDatalogEx 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.*

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

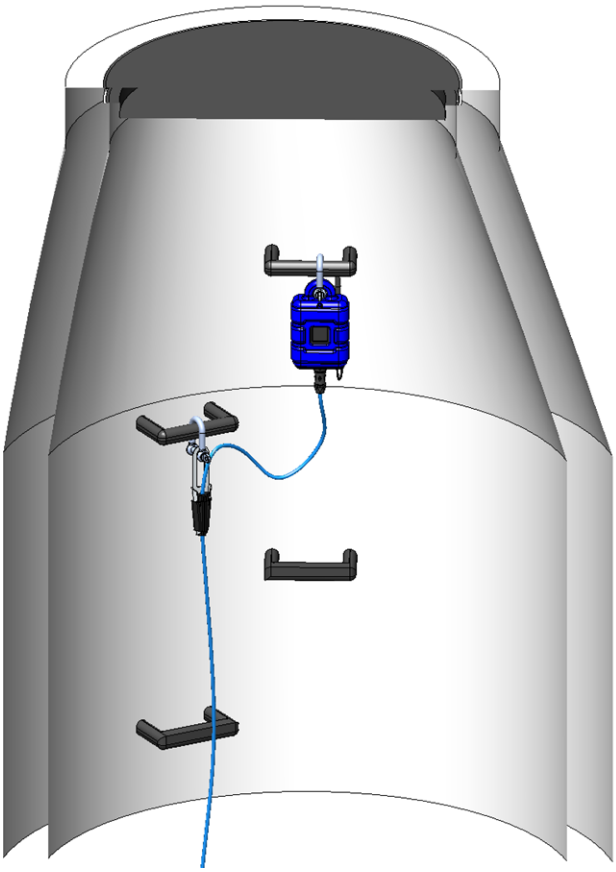
- Direct sunlight
- Direct influence of weather (rain, snow, ...)
- Objects that radiate intense heat (maximum ambient temperature: -20...+50°C)
- Objects with a strong electromagnetic field (frequency converter or similar)
- Corrosive chemicals or gases (with the exception of H2S that is to be measured)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

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

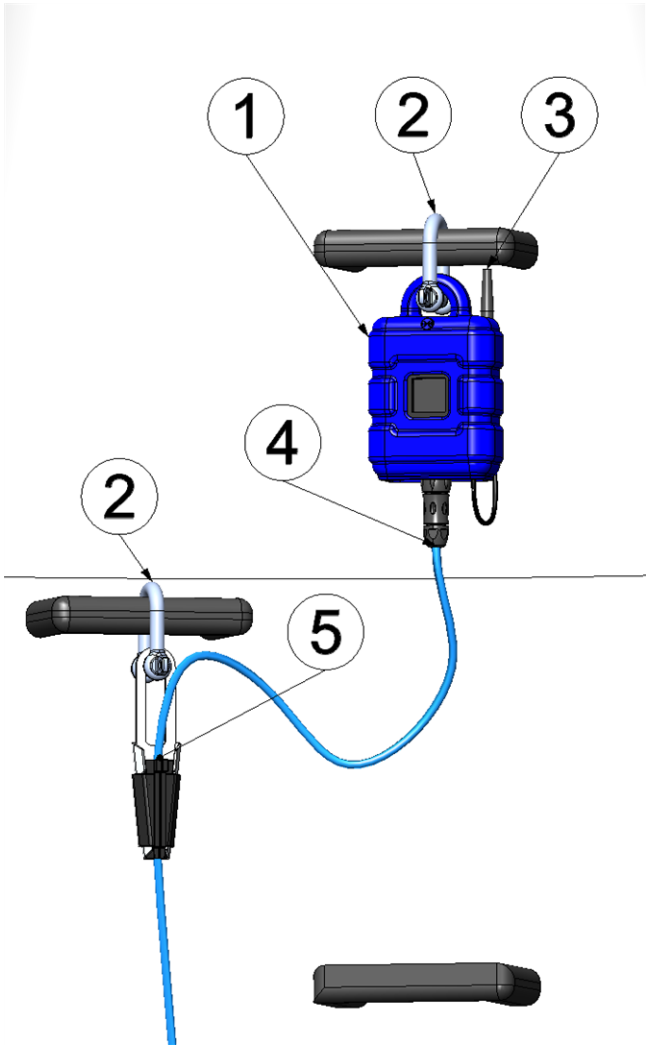
7.2.1 Suspended installation

The 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 myDatalogEx	**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 myDatalogEx .
2. Use the Niro shackle (206.325), to attach the myDatalogEx 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 33.

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 33 .

   Important note: *The sensor connection of the myDatalogEx 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 myDatalogEx .

   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 myDatalogEx (see "Use of the clamping tubes" on page 37).*

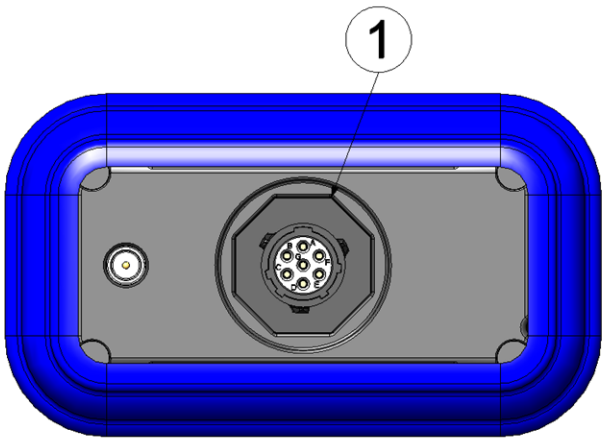
7.3 Electrical installation

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

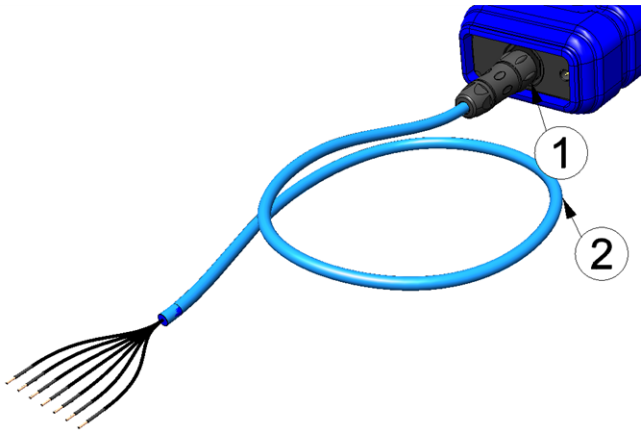
7.3.1 Connecting the sensor

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.*



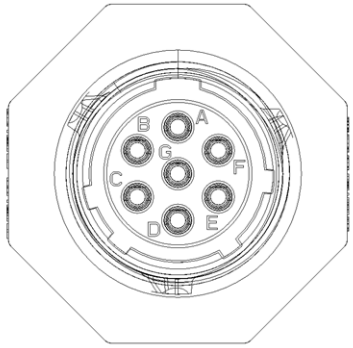
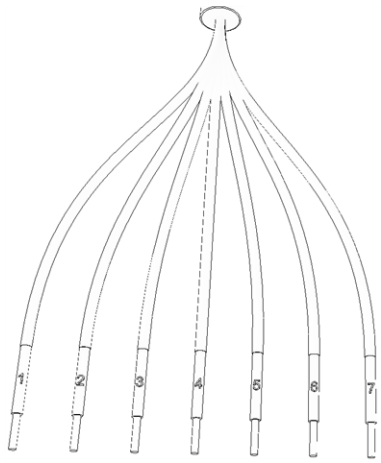
Connecting the sensors



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. 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) included in the scope of delivery. Further accessories are detailed in the chapter "Spare parts and accessories" on page 75.

   Important note: *If you operate the myDatalogEx 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 37).*

2. Connect the antenna (see "Connecting the GSM antenna" on page 37).

3. Activate setup mode using the reed switch (see "Setup mode" on page 23). Afterwards, the symbol for connecting should be displayed on the device display.



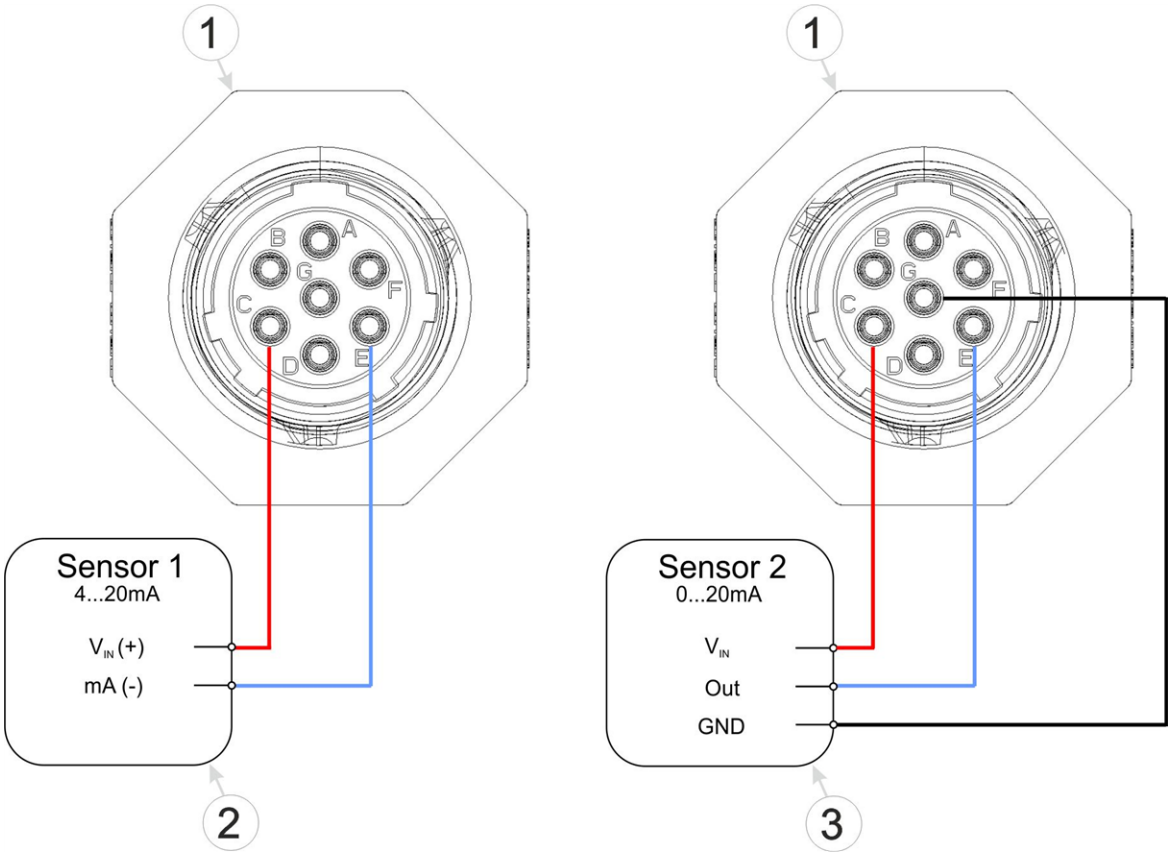
Note: *If the myDatalogEx is still in transport mode, the transport lock is deactivated by activating setup mode and the device resumes operation according to the configuration settings.*

The following step is not mandatory.

4. Check whether the connection to the myDatanet has worked correctly (see "Testing communication with the device" on page 45).

7.3.1.1 Connection examples

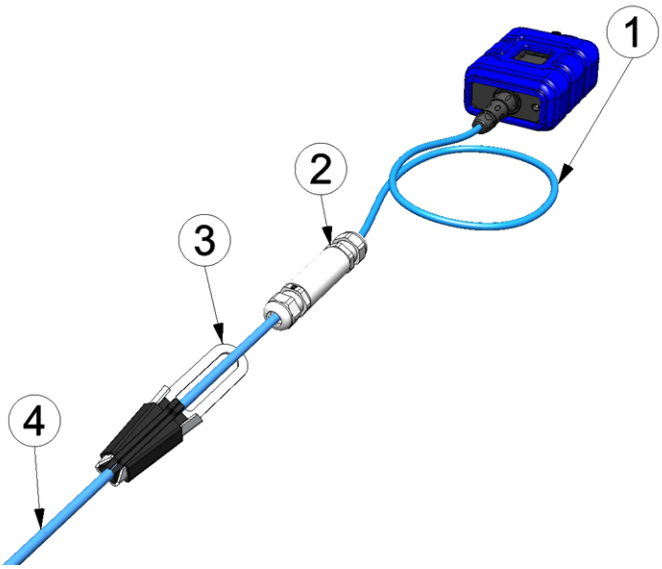
Important note: *This only applies if the sensor is also approved for operation in areas with a zone 2 explosive atmosphere and if the ATEX requirements (e.g. distances between the signal lines) are observed and maintained when the sensor is connected.*



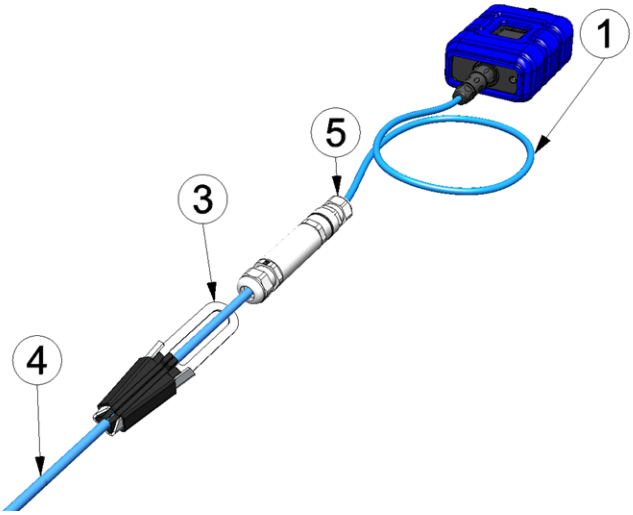
Connection examples

1 myDatalogEx	**3** 3-wire mA sensor
2 2-wire mA sensor	

7.3.1.2 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.

7.3.2 Connecting the GSM antenna

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

The standard antenna is directly connected to the antenna connector (see "Overview" on page 15) of the myDatalogEx .

1. Connect the connection cable of the antenna directly to the antenna connector of the myDatalogEx (see "Overview" on page 15).

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 45).

7.3.2.1 Optimum antenna positioning for assembly in a shaft

7.3.2.1.1 Typical influences on the signal quality

Signal losses compared to the reference measurement

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

Note: *Practical example:*

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

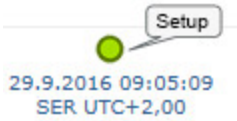
7.3.2.1.2 Possibilities for improving the signal quality

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

7.3.2.1.3 Procedure for determining the optimum position of the antenna

1. Install the myDatalogEx as described in chapter "Installing the myDatalogEx " on page 32. During this process, also observe the notes regarding the influences on the signal quality (see "Typical influences on the signal quality" on page 38).
2. Activate setup mode (see "Setup mode" on page 23).

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



Setup mode active

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



Setup mode completed successfully

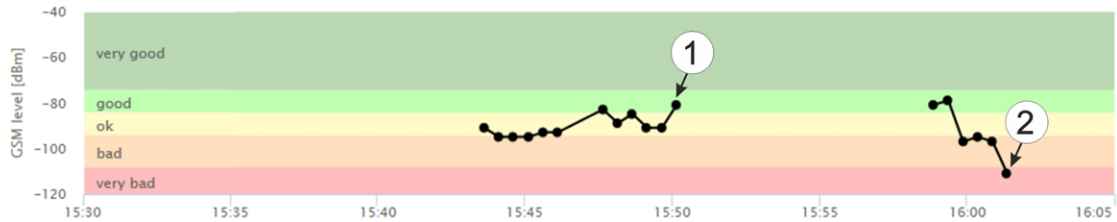


Problem detected

5. Open the site settings (see "Site configuration" on page 50) and click on "Setup data" to display the GSM level determined during setup mode.

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

> ***Note:*** *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 38.*



Display of the GSM level determined during setup mode

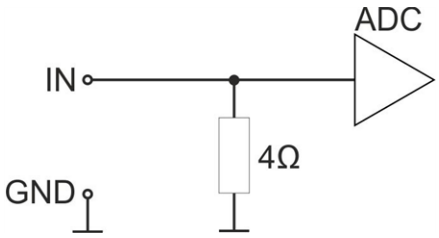
1 Position of antenna is OK	**2** Position of antenna should be improved

7.3.3 Technical details about universal input

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

> ***Important note:*** *If the myDatalogEx 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 myDatalogEx is equipped with a 16 bit ADC.

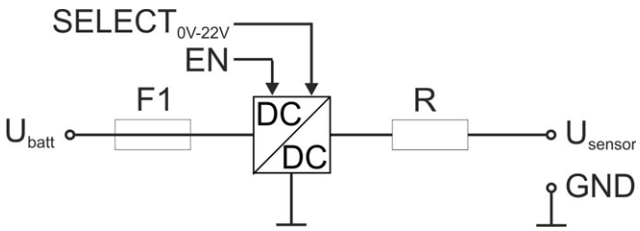


Schematic diagram of an universal input

7.3.3.1 0/4...20mA mode

Resolution	1µA
I_{max}	25,6mA
Load	4Ω

7.3.4 Technical details regarding the sensor supply



Schematic diagram of the sensor supply

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

Ex parameter

U_o	25,6V	
I_o	82mA	
P_o	0,523W	
	L_o [µH]	**C_o [µF]**
	2000	0,37
	1000	0,42
	500	0,50
	200	0,65
	100	0,80

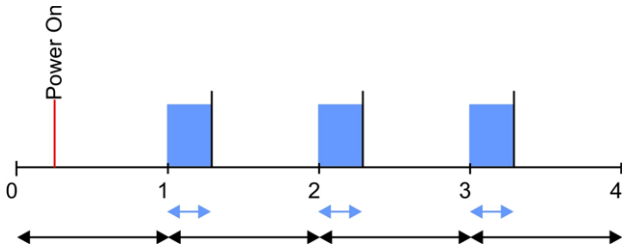
The sensor supply is activated by setting the warmup time in the "Sensor config" configuration section. The warmup time specifies how long the sensor supply is switched on before the measurement. If the setting is 0 seconds, the sensor supply is not activated before or during the measurement.

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 relationship between the warmup time and the record interval (warmup time < record interval):

System settings	↔	*Record interval*	*1 min.*
Sensor config	↔	*Warmup time*	*20 sec.*
Output on the device	■	*Sensor supply*	



Explanation: *The sensor supply is activated once the record interval has elapsed. The actual measurement and recording is only completed once the warmup time has elapsed, i.e. in the current example 20 seconds after the record interval has elapsed.*

Chapter 8 Initial Start-Up

8.1 User information

Before you connect the myDatalogEx 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 myDatalogEx .

Contact Microtronics Engineering GmbH(see "Contact information" on page 81) if anything is unclear or if you encounter difficulties with regard to installation, connection or configuration.

8.2 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.

8.3 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 myDatalogEx and the input screens of the myDatanet server before you begin with the configuration.

8.4 Placing the system into operation

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

Note: *It is recommended that the myDatalogEx is first placed into operation in the office before moving the device to the place of use. During this process, you should set a site for the later operation on the myDatanet server (see "myDatanet Server Manual " 805002) and determine a site setting (see "Site configuration" on page 50). 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 the myDatalogEx 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 selected customer, use the "myDatalogEx" application template to create a new site/application for operation on the myDatanet server (see "Creating the site" on page 57).
3. Configure the created site/application according to your requirements (see "Site configuration" on page 50).
4. Connect the antenna (see "Connecting the GSM antenna" on page 37).
5. To establish a connection, activate setup mode (see "Setup mode" on page 23) using the reed switch. The myDatalogEx is supplied with the transport mode activated (measurement and transmission "OFF") and should also always be stored in this state (see "Storage of the product" on page 18). Activating setup mode deactivates transport mode and the myDatalogEx starts operation according to the stored configuration settings.
6. Move the myDatalogEx from the pool to the desired customer (see "Assigning a device to the customer" on page 59).
7. Link the myDatalogEx with the created site/application (see "Creating the site" on page 57).
8. Initiate another connection by activating setup mode again (see "Setup mode" on page 23) so that the site configuration settings are transferred to the myDatalogEx .

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

9. Remove the antenna again.

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

10. Complete all of the steps detailed in the chapter "Connecting the sensor" on page 34.
11. If you intend to install the myDatalogEx in a shaft, you must check that the device can also establish a GPRS connection in the final installation position when the manhole cover is closed before you leave the worksite.

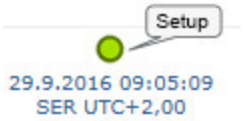
    Proceed as follows during this process:

    1. Place the device and the antenna in the final installation position (with the shaft lid open).
    2. Activate setup mode using the reed switch (see "Setup mode" on page 23).
    3. Wait until the symbol for connecting is displayed on the device.

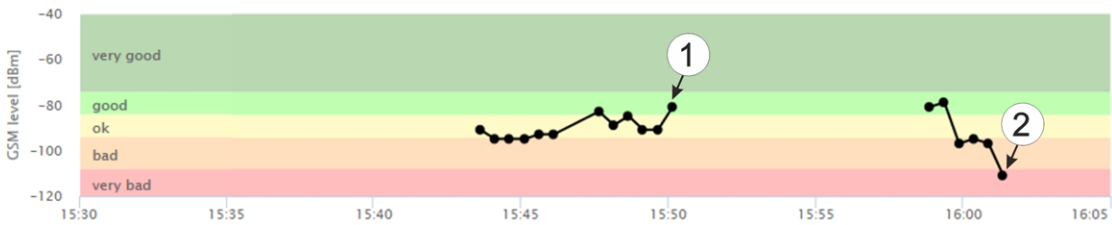
    4. Close the manhole cover.

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



6. Open the site settings (see "Site configuration" on page 50) and click on "Setup data" to display the GSM level determined during setup mode.
7. Evaluate the result of setup mode. If setup mode was completed successfully, the determined values for the GSM level are illustrated by the black dots that are connected by a line. If the measurement values are not in the green (very good or good) or yellow (OK) area, we recommend improving the position of the antenna and activating setup mode again. If a problem is detected, the note "Setup mode failed (enhance antenna position)" is shown above the GSM level display.

   Note: *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 38.*



Display of the GSM level determined during setup mode

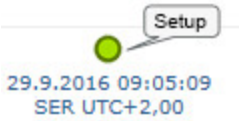
1 Position of antenna is OK	**2** Position of antenna should be improved

8.5 Testing communication with the device

8.5.1 Testing communication between the myDatalogEx and the myDatanet server (mobile connection)

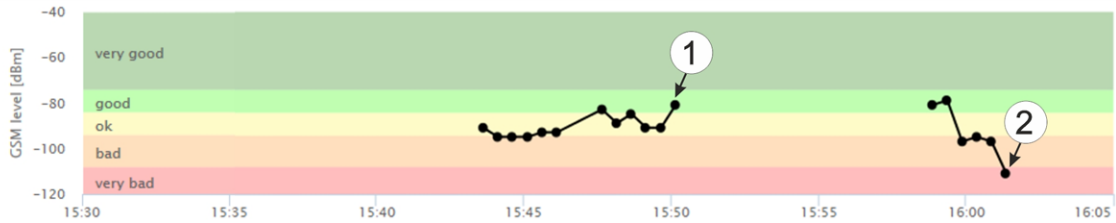
1. Within the selected customer, use the "myDatalogEx" application template to create a new site/application for operation on the myDatanet server (see "Creating the site" on page 57).
2. Configure the created site/application according to your requirements (see "Site configuration" on page 50).
3. Link the myDatalogEx with the created site (see "Creating the site" on page 57).
4. Connect the antenna (see "Connecting the GSM antenna" on page 37).
5. To establish a connection, activate setup mode (see "Setup mode" on page 23) using the reed switch. The myDatalogEx is supplied with the transport mode activated (measurement and transmission "OFF") and should also always be stored in this state (see "Storage of the product" on page 18). Activating setup mode deactivates transport mode and the myDatalogEx starts operation according to the stored configuration settings.

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



7. Either wait until the speech bubble is hidden again (setup mode completed successfully) or until the background colour of the speech bubble changes from white to red (problem detected). In both cases, this can take up to 8min. .
8. Open the site settings (see "Site configuration" on page 50) and click on "Setup data" to display the GSM level determined during setup mode.
9. Evaluate the result of setup mode. If setup mode was completed successfully, the determined values for the GSM level are illustrated by the black dots that are connected by a line. If the measurement values are not in the green (very good or good) or yellow (OK) area, we recommend improving the position of the antenna and activating setup mode again. If a problem is detected, the note "Setup mode failed (enhance antenna position)" is shown above the GSM level display.

   Note: *Information on improving the reception quality is provided in chapter "Optimum antenna positioning for assembly in a shaft" on page 38.*



Display of the GSM level determined during setup mode

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

10. Close the site settings again.

The following steps are only necessary, if you simultaneously want to test the measurement value acquisition and data transmission.

11. Connect the sensor (see "Connecting the sensor" on page 34).
12. Wait until some measurement values have been recorded. The waiting time is dependent on the record interval set.
13. To establish a connection, activate setup mode (see "Setup mode" on page 23) using the reed switch.
14. Click on the "Direct Report" symbol in the measurement instrument list to display the data saved on the myDatanet server.



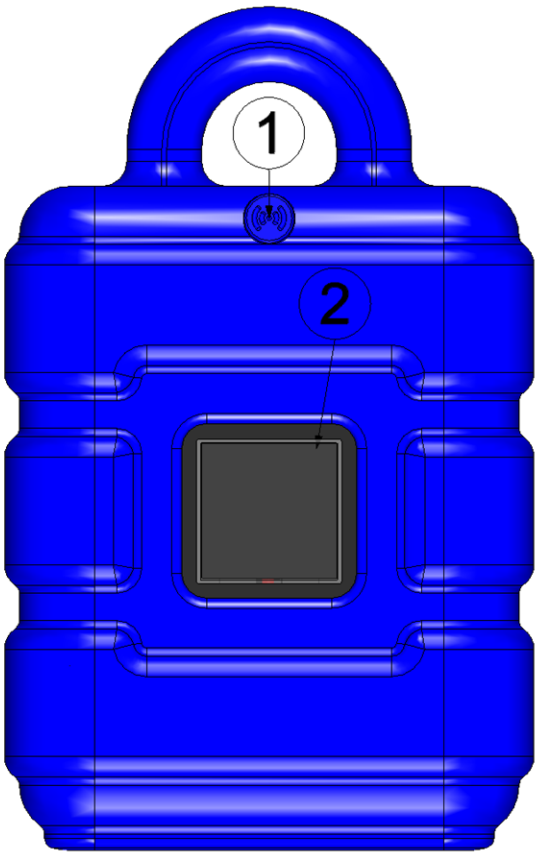
15. Check whether all of the data up to the point of the synchronisation is present and plausible.

Chapter 9 User interfaces

The configuration of the myDatalogEx is carried out via the web interface on the myDatanet server (see "User interface on the myDatanet server" on page 50), which your responsible sales partner will provide to you.

9.1 User interface on the myDatalogEx

9.1.1 Operating elements



Operating elements

1 Reed switch	**2** Display

9.1.1.1 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 or to switch on the display of the myDatalogEx for 20sec. .

Operation by the user	Device response	Operation after releasing the reed switch
Press briefly (approx. one second)	Display is activated for 20sec.	Current operating state is shown on the display (see "Display" on page 48)
Press and hold for three seconds	Setup mode is activated	---

The display of the myDatalogEx is activated as soon as the reed switch is pressed. The time for which the reed switch was pressed is visualised by a circle in which the segments change from white to green. Setup mode is activated once all of the segments have switched from white to green, i.e. the reed switch has been pressed for at least three seconds (see "Setup mode" on page 23).



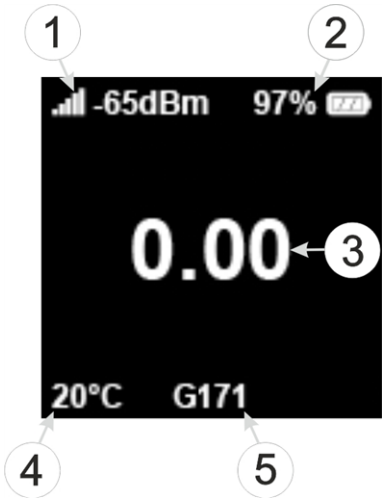
Visualisation of the time for which the reed switch was pressed

9.1.1.2 Display

Important note:

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

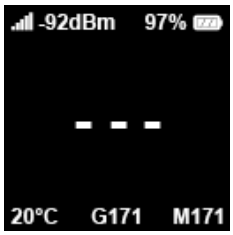
The display of the myDatalogEx is only designed to show the current measurement values. The device cannot be operated via the display. The display is activated by briefly holding the magnet (approx. 1 sec.) to the reed switch (see "Reed switch" on page 47). The display then remains active for 20sec. and shows the current operating state.



Status indication during normal operation

1	GSM level during last connection	**4**	Internal device temperature in °C
2	Current state of charge in % (SOC)	**5**	Remaining days until the batteries for the device need to be replaced
3	Current value (incl. unit)		

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

Display	Explanation
	Transport mode
	Reed switch activated
	Connecting to the myDatanet server
	Data synchronisation with the myDatanet server in progress
	In the event of a connection abort, wait until the next connection is established
	Setup mode, the current GSM level and remaining duration of the GSM level measurement
	Error • E14 ... Charge state of the internal rechargeable buffer battery is too low to establish a 2G/3G connection (automatic recharge can take up to 4 hours)
	The batteries of the myDatalogEx need to be replaced

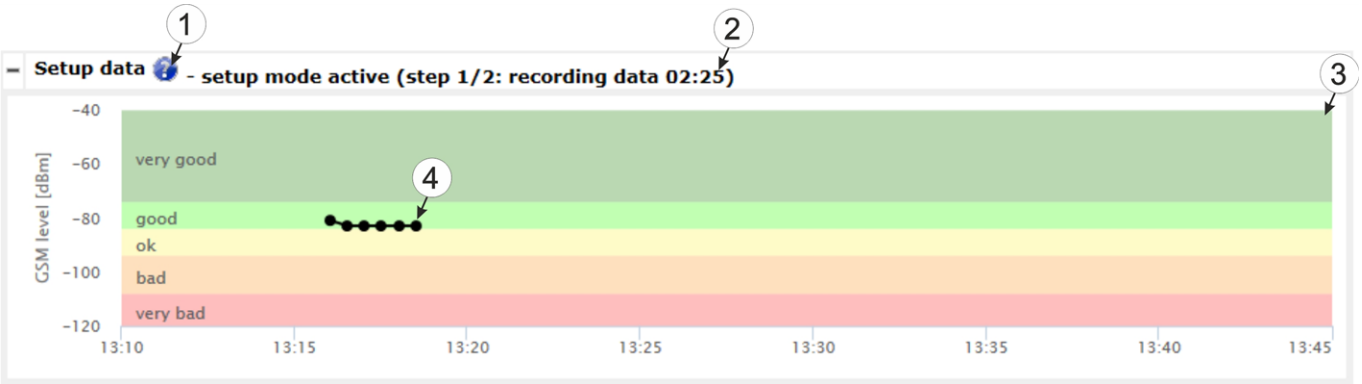
9.2 User interface on the myDatanet server

9.2.1 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).

9.2.1.1 Setup data



"Setup data" configuration section

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

9.2.2 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 site list (see "myDatanet Server Manual " 805002) or by clicking on the device name in the device name list (see "myDatanet Server Manual " 805002).

9.2.2.1 Comments

Comments

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

9.2.2.2 Measurement instrument

Customer	Name of the customer to whom the measurement instrument is assigned	
Tags	List of the tags that are already assigned to the measurement instrument. This assignment can be cancelled by clicking on the cross next to the title of the tag. The input screen for assigning the tags is opened by clicking on the plus symbol. This enables existing tags to be assigned and new tags to be created.	
Serial number	Serial number of the instrument	
Instrument class	The instrument class of the site and instrument must match for an instrument to be able to be connected to a site. Once the instrument has been created via the server interface, the instrument class can only be changed up until the first connection of the instrument to the server. If an instrument class, that does not match the actual class of the instrument, is selected when the instrument is created it is automatically corrected during the first connection.	
Telephone number	Telephone number of the SIM card. The control SMS messages (e.g. wakeup) are sent to this number. Format: +43555837465	
Instrument flags	Additional information regarding the instrument class (for internal use)	
Firmware version	Current software version installed on the measurement controller	
Modem version	Current software version installed on the modem controller	
OS version	OS version of the modem	
Last connection	In each case, the last time stamp of the affected operation	
Last wakeup		
Last disconnection		
Last transmission error		
Last Aloha connection		
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.	
Script sync	Productive	If the application script installed on the device and saved on the server do not match, the application script saved on the server is loaded in to the device.
	Development (sync)	The application script on the device and server are synchronised. The one with the latest time stamp is transferred to the other one.
	Development (no sync)	The application script on the device and server are not synchronised.

Firmware update	Off	Firmware update is deactivated.
	On	As soon as a new version of the selected firmware type is available, this is installed immediately.
	Even if tag is missing	Firmware is also transferred to the device if the device has not transmitted the current firmware version to the server (NOT RECOMMENDED!).
	Allow downgrade	Facilitates the installation of an older firmware version than the one on the device (NOT RECOMMENDED!)
	Once	Performs a single firmware update. If no new firmware is available or the firmware was installed successfully, the firmware update is automatically switched to "OFF".
	Ignore	The firmware update is deactivated and no information is provided about available firmware updates.
Firmware type	Released	Only firmware versions that have successfully undergone internal and field testing are installed (this practically eliminates malfunctions).
	Release candidate	Only firmware versions that have successfully undergone internal testing are installed (malfunctions cannot be excluded).
	Beta release	Even firmware versions that have not successfully undergone all of the internal tests are installed (malfunctions may occur).
Identification	String specifying the hardware platform implemented in the device and the corresponding hardware version (i.e. the rapidM2M module identification).	
Hardware version	Hardware version of the myDatalogEx	

9.2.2.3 GPRS

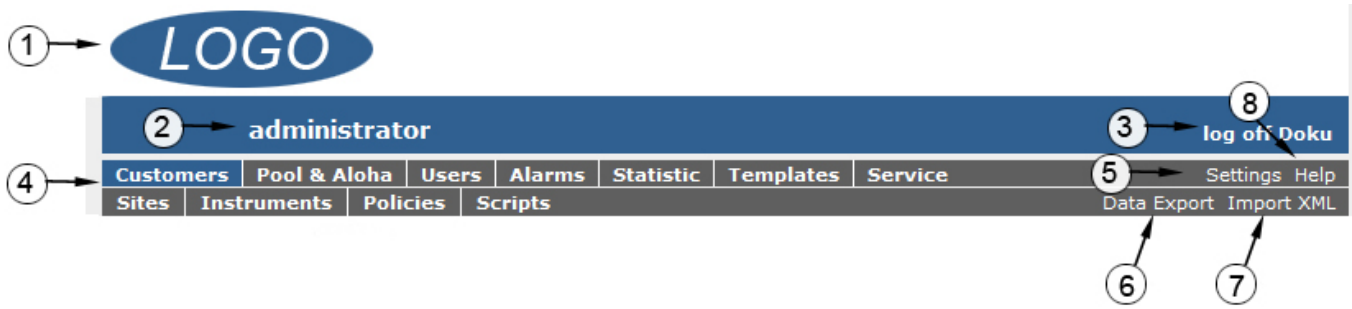
SIM tariff

Selected SIM tariff

Chapter 10 myDatanet server

Note: *All of the screenshots show version 47.1 of the myDatanet server using the standard colour scheme. Newer versions may include minor changes to the appearance of the server.*

10.1 Overview



Overview of the myDatanet server

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

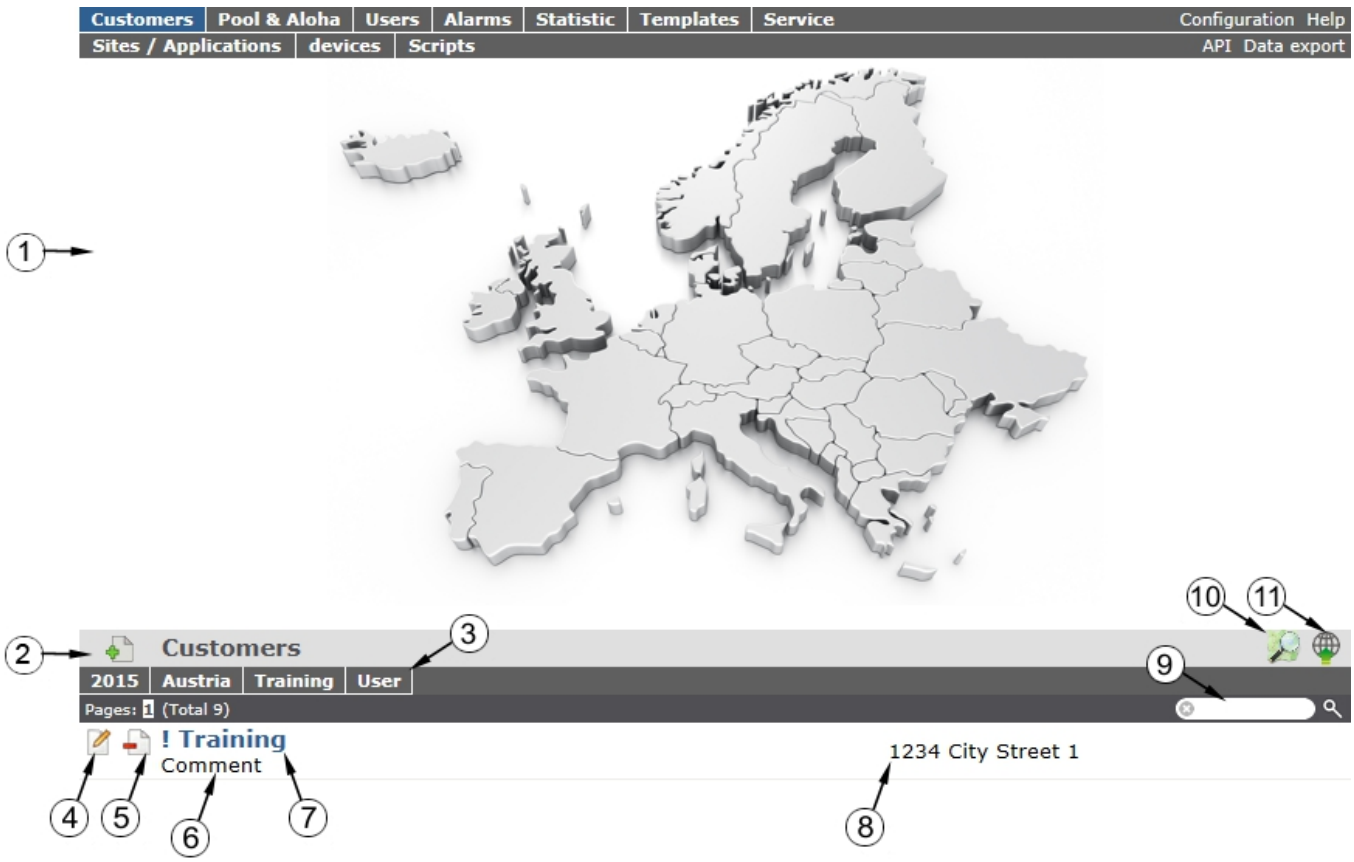
10.1.1 Explanation of the symbols

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

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

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

10.2 "Customer" area

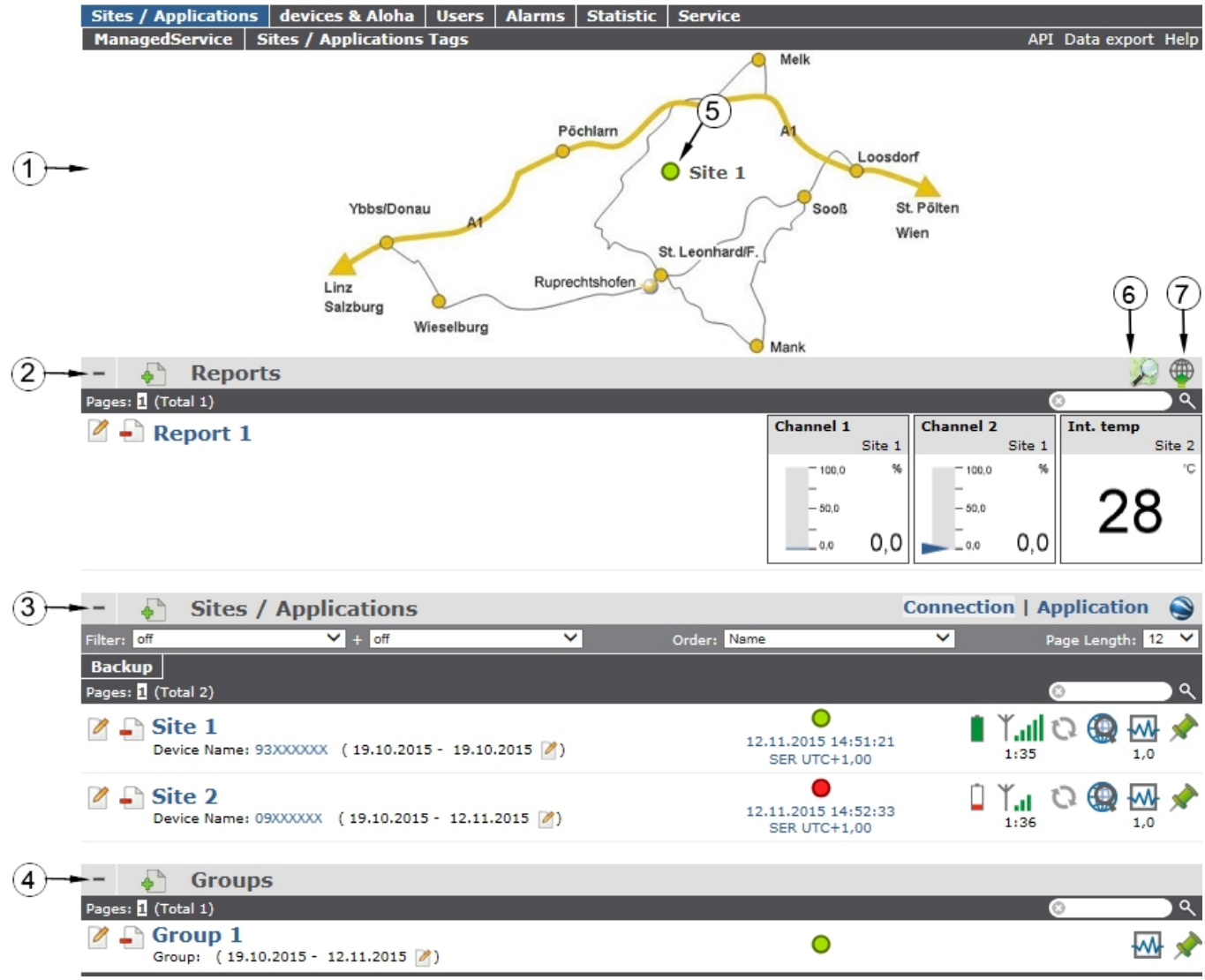


Overview of the "Customer" area

1	Area where an image file can be displayed as a "Map" and/or the OpenStreetMaps map can be displayed The sites can be manually placed on the image file used as a "map". In the OpenStreetMaps map, the sites are only displayed once GPS coordinates have been assigned to the site.
2	Adds a new customer
3	List of tags that are assigned to at least one of the customers displayed in the list of customers. If the list of customers was limited by the search field or selection of a tag, this is taken into consideration when creating the list of tags. A cross is added to the end of the list of tags as soon as the list of customers is limited by the selection of a tag. Clicking on this cross will reset the selection of all tags and the restriction is cancelled. By clicking on one of the tags with the left mouse button only those customers who have been assigned the corresponding tag are displayed in the list of customers and the selected tag is highlighted in colour. By clicking on one of the tags with the right mouse button all of the customers who have been assigned the corresponding tag are hidden, the selected tag is highlighted in colour and the title of the tag is crossed out. Clicking the same mouse button again will remove the restriction.

4	Opens the input screen for configuring the customer
5	Deletes the customer
6	Comment that can be entered in the configuration of the customer
7	If a default report was defined, the default report is accessed by clicking on the name of the customer. Otherwise the "Sites" area at customer level is opened by clicking on the name of the customer (see ""Site" area at customer level" on page 56 or "Reports" on page 57).
8	Customer's address that can be entered via the input screen for configuring the customer
	Search field to filter the customer list
10	Symbol via which a OpenStreetMaps map, on which the sites are displayed, can be loaded. (see "Map view" on page 57)
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.

10.3 "Site" area at customer level



Overview of the "Sites" area at customer level

1	Area where an image file can be displayed as a "Map" and/or the OpenStreetMaps map can be displayed The sites can be manually placed on the image file used as a "map". In the OpenStreetMaps map, the sites are only displayed once GPS coordinates have been assigned to the site.
2	List of reports (see "Reports" on page 57)
3	List of sites/applications
4	List of groups (see "Groups" on page 57)
5	Symbol that represents a site on the "Map"
6	Symbol via which a OpenStreetMaps map, on which the sites are displayed, can be loaded. (see "Map view" on page 57)

7	Symbol via which an image file can be loaded on to the server as a "Map" To remove the "Map" again, open the upload dialogue again and click on "Submit" without selecting an image file beforehand.

10.3.1 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).

10.3.2 Groups

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

10.3.3 Map view

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

10.4 Recommended procedure

10.4.1 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.*

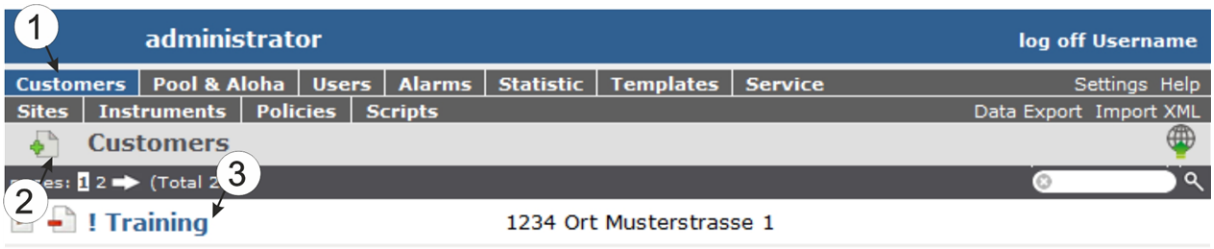
Detailed instructions on creating a new site are provided in myDatanet Server Manual (805002).

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

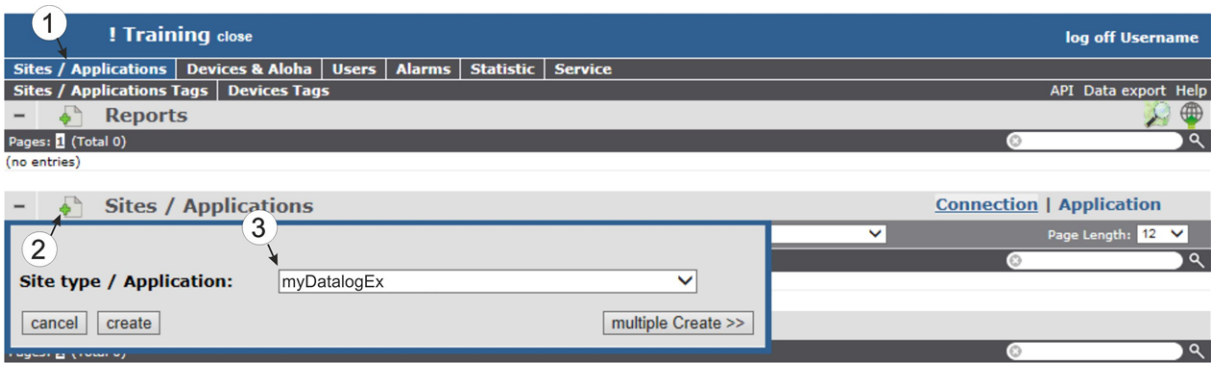
2. Click on the "Customer" menu item of the myDatanet server to call up the list of available customers. Select an existing customer or create a new customer.



Selecting the customer

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

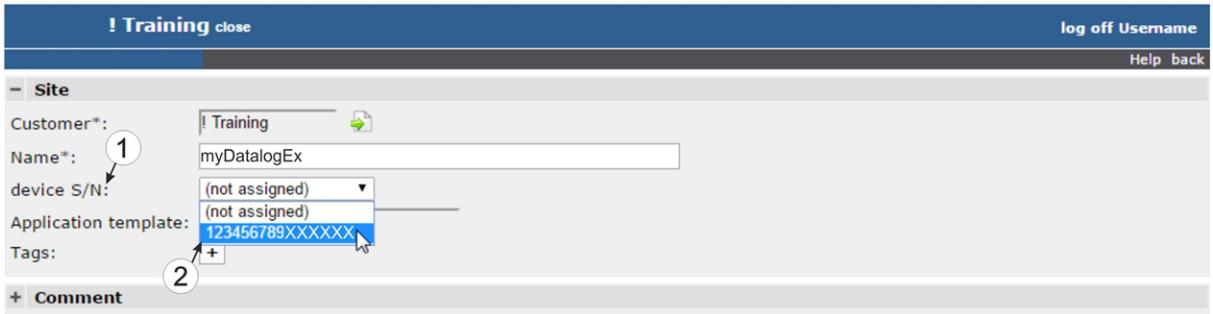
3. Click on the "Sites / Applications" menu item of the myDatanet server to call up the list of available application templates and sites. Use the "myDatalogEx" application template to create a new site/application.



Creating the site

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

4. Link the site/application with the myDatalogEx by selecting the serial number. If the serial number of your device is not included in the list, you must first assign the device to the customer (see "Assigning a device to the customer" on page 59) or the device is already assigned to a different site. More detailed information on this is provided in myDatanet Server Manual (805002).



Linking the device and site

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

10.4.2 Assigning a device to the customer

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

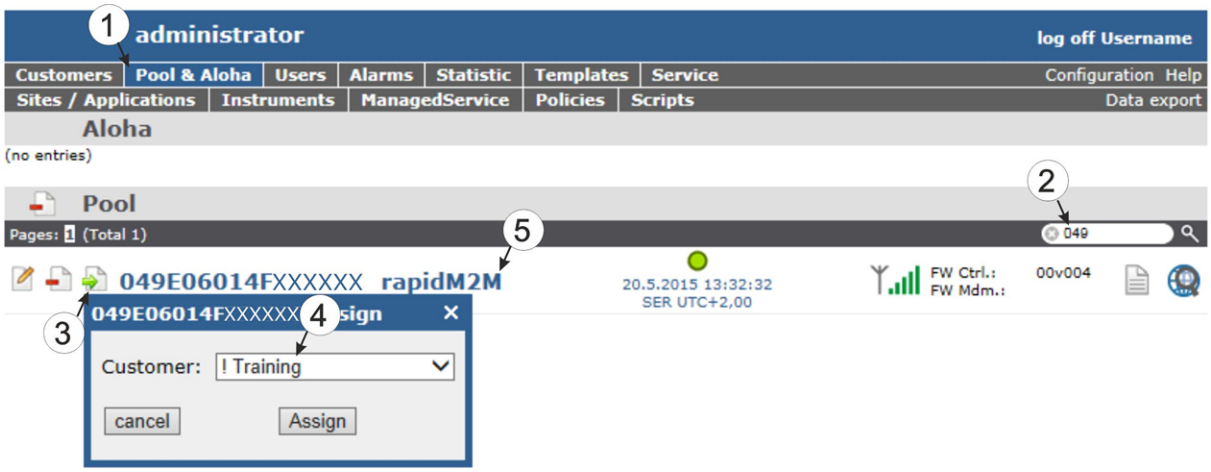
Detailed instructions on shifting the devices are provided in myDatanet Server Manual (805002).

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



Login form of the myDatanet server

2. Click on the "Pool and Aloha" menu item of the myDatanet server to access the list of devices that are not assigned to a customer and enter the serial number of the myDatalogEx in the search field. If your device is not included in the list, you may need to initiate setup mode via the reed switch to trigger a transmission (see "Setup mode" on page 23). The device is not displayed in the list if it is already assigned to a customer. More detailed information on this is provided in myDatanet Server Manual (805002).



Assigning a device to the customer

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

3. Use the filter to find the required device in the list of measurement instruments. Click on the symbol to open the dialogue to select the customer (see "Assigning a device to the customer" on page 59) and assign the instrument to the selected customer.

Chapter 11 API

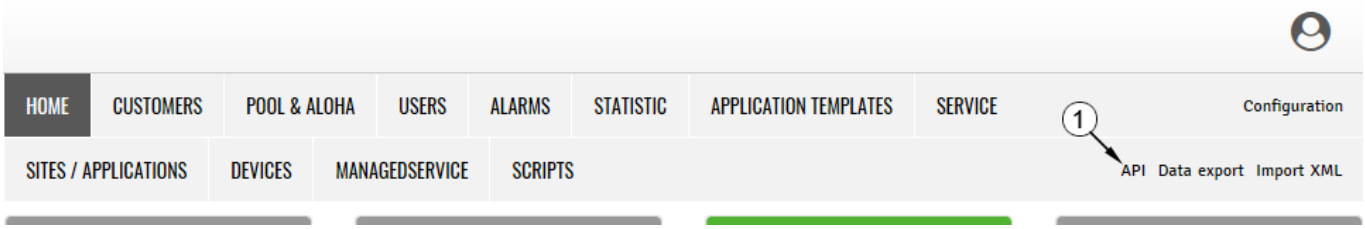
Important note: *The relevant licences are required on the myDatanet server to use the API (Application Programming Interface). For future information contact your responsible sales partner.*

11.1 Frontend 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.

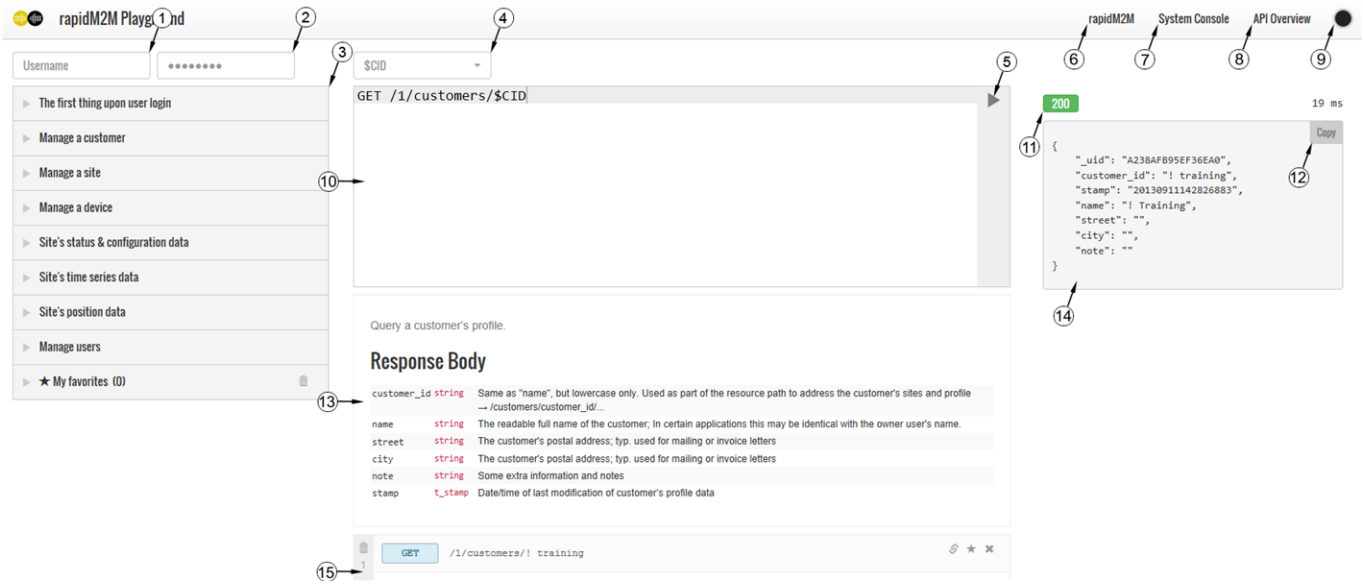
11.2 rapidM2M Playground

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

11.2.1 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 login dialogue of the myDatanet server linked to the rapidM2M Playground
8	Opens the quick guide for the API
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 12 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.

12.1 General maintenance

- Inspect the myDatalogEx regularly for mechanical damage.
- Check all cables for mechanical damage at regular intervals.
- Clean the myDatalogEx with a soft, moist cloth. Use a mild cleaning agent, if necessary.

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

Chapter 13 Removal/disposal

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.

1. Disconnect any charging voltage that has been used.
2. 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 GmbHsupports 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 ERA, 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 contains a lithium button cell that has been soldered on. It must be removed before disposal or the disposal service must be informed that batteries are still located in the device.

Chapter 14 Troubleshooting and repair

14.1 General problems

Problem	Cause/solution
Device does not respond (nothing appears on the display).	• Battery pack is completely discharged
Communication problems	• Evaluate the error code shown on the display (see "Display" on page 48). • Load the device log from the myDatalogEx or the myDatanet server and use DeviceConfig for the report (see "Evaluating the device log" on page 71). • 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 48). • Load the device log from the myDatalogEx or the myDatanet server and use DeviceConfig for the report (see "Evaluating the device log" on page 71). • The capacity of the battery pack is virtually depleted.
Not all or no data is available on the 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 "Creating the site" on page 57).
The data at the universal input is not plausible.	• Check the cable connections (see "Connecting the sensor" on page 34). • Check whether the universal input configuration matches the sensor output signal.
Alarm state of a measurement value was not identified	• Increase the record interval (attention: This will increase the required data volume).
Alarm state was not transferred although the data is present	• Check the alarm settings of the measurement channel • The connection was aborted during the transmission, which is indicated by a time-out entry in the connection list (see "myDatanet Server Manual " 805002). Solution: Activate setup mode or wait for the next cyclical transmission.
Alarm message was not sent although the alarm was signalled	• Check the settings of the alarm schedule (see "myDatanet Server Manual " 805002). • Check the address data of the alarm schedule (see "myDatanet Server Manual " 805002).

14.2 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 81).
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 81).
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 .
1161	LOG REFORMATFILE	##	---	Error in file system has been resolved. This can result in data being lost (data and/or log entries). The parameter contains more information on the problem. Contact the manufacturer if the device log contains this error with the same parameter code several times (see "Contact information" on page 81).
1192	FUTURE TIMESTAMP	##	---	Internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 81).
1200	MODEM ERROR			Modem error (see "Modem error" on page 70)
1202	MODEM CMME ERROR	##	---	The GPRS modem indicates a +CME error. The parameter specifies the type of error.
1203	SELECTED NETWORK	##	---	A new GSM network was selected. This entry is always duplicated in the device log. In the first entry, the parameter specifies the MCC (Mobile Country Code), while in the second entry it specifies the MNC (Mobile Network Code) of the selected GSM network.
1212	ERROR MODEM IRREGULAR OFF	##	---	Indicates a faulty connection. The parameter includes a counter that indicates how many consecutive connections have not worked.
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 81).
1281	ZLIB STREAMPROCESS ERR	##	---	Internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 81).
1282	ZLIB STREAMFINISH ERR	##	---	Internal error Contact the manufacturer if the device log includes this error several times (see "Contact information" on page 81).

Log entry		Parameter		Description
Code	**Plain text**	**Code**	**Plain text**	
1317	BLE CONNECTED	---	---	Bluetooth connection to a PC established
1318	BLE DISCONNECTED	---	---	Bluetooth connection was terminated
1601	SIM_STATE	0	NONE	SIM state was changed to "NONE" (initial state)
		1	PRODUCTION	SIM state was changed to "PRODUCTION" (a new device is in stock).
		2	HOT	SIM state was changed to "HOT" (valid contract)
		3	COLD	SIM state was changed to "COLD" (end of contract or fair use policy violated).
		4	DISCARDED	SIM state was changed to "DISCARDED" (device has been decommissioned)
3000 - 3099	SCRIPT ERROR	##	--	Internal system error Contact the manufacturer if the device log contains this error with the same parameter code several times (see "Contact information" on page 81).

14.2.1 Modem error

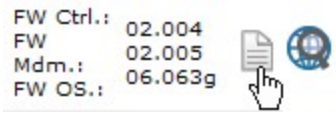
Log entry		Parameter		Description
Code	**Plain text**	**Code**	**Plain text**	
GPRS error				
1200	BEARER GPRS FAILED	-988	---	GPRS setup error • Try to improve the position of the antenna. • Check whether the device is in the coverage area (www.microtronics.com/footprint).
1200	BAND SEL FAILED	-969	---	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

14.3 Evaluating the device log

14.3.1 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.

14.3.2 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 myDatalogEx 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 15 Spare parts and accessories

15.1 Assembly sets

Description	Quantity	Order number
Niro shackle	1	206.325
Anchor clamp 5,5 - 10,5mm	1	301017

15.2 Antennas

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

15.3 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

15.4 Other accessories

Description	Quantity	Order number
MDN Magnet	1	206.803
DeviceConfig	1	300264
BLE Gateway MDN Protection casing	1	300662

Chapter 16 Document history

Rev.	Date	Changes
02	12.02.2020	**First version**
02	12.02.2020	**Chapter "Specifications" on page 9** *Specification of the weight adjusted from 690g to 730g* *Specification of the Ex certification corrected from "II 3G Ex ic IIB T4 Gc" to "II 3G Ex ic IIB T3 Gc"* *The number of measurement cycles that can be stored in the internal flash has been added* **Chapter "Functionality of the internal data memory" on page 22** *The number of measurement cycles that can be stored in the internal flash has been added*

Chapter 17 Glossary

Aloha

Connection mode that is specially designed for commissioning. The device maintains a connection to the server for a configurable amount of time and takes a measurement every 3 seconds. During this process, only the internal measurement values (GSM level, voltages, etc.) and the values from the universal inputs (if available) are generated. The determined measurement values are not saved but are just sent to the server for display purposes.

Footprint

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

NaN value

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

Chapter 18 Contact information

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

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