User manual for the portable ATEX data dogger myDatalog2Ex



Rev. 02 valid from:

- Firmware version: 02v004
- Modem version: 02v000
- Server version: 41.2
- Hardware version: 04v000

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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 2-Kanal-Datenlogger mit Ex-Zulassung zur Erfassung und Übertragung von analogen und digitalen Signalen
Type : Type code: Type:	**myDatalog2Ex**
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 TÜV-A 12ATEX0004X 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 One or more of the associated listed in the Type Examination Certificate TÜV-A 12ATEX0004X standards have been replaced by new editions.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 TÜV-A 12ATEX0004X étaient replacées par des nouvelles éditions. Le producteur déclare pour le produit décrit ci-dessus la conformité aux exigences des nouvelles éditions des normes.

		Europäische Norm	Ausgabedatum
(2014/30/EU)	**EMC Directive**	ÖVE/ÖNORM EN61326-1	2013-08
(2014/35/EU)	**LVD Directive**	ÖVE/ÖNORM EN61010-1	2011-08
(2014/53/EU)	**RED Directive**	ÖVE/ÖNORM EN301489-1 V1.9.2 ÖVE/ÖNORM EN301489-7 V1.3.1 ÖVE/ÖNORM EN301511 V9.0.2	2011-09 2006-02 2003-06
(2014/34/EU)	**ATEX Directive**	ÖVE/ÖNORM EN 60079-0 ÖVE/ÖNORM EN 60079-11	2014-07 2012-07
(2011/65/EU)	**RoHS Directive**	ÖVE/ÖNORM EN 50581	2013-03
	Kennzeichnung/ Markings/ Marquage CE 0123 Ex II 2 G Ex ib IIB T4 Gb		

Ruprechtshofen, den 20.04.2016

Ort und Datum der Ausstellung Place and date of issue Lieu et date d'établissement	Andreas Mitterlehner , Ex-Schutzbeauftragter Unterschrift name and signature of authorised person Nom et signature de la personne autorisée	Hans-Peter Buber, Managing Director Unterschrift name and signature of authorised person Nom et signature de la personne autorisée

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Chapter 3 Ex certification



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Certificate

(1) **EC Type Examination Certificate**

(2) Equipment or protective system intended for use in potentially explosive atmospheres – Directive 94/9/EC

(3) TÜV-A 12ATEX0004X

(4) Equipment: Data - Logger Field Device myDatanet myDatalog2Ex

(5) Applicant: Microtronics Engineering GmbH

(6) Address: 3244 Ruprechthofen; Hauptstrasse 7

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) TÜV AUSTRIA SERVICES GMBH, notified body number 0408 in accordance with article 9 of Directive 94/9/EC of the European Parliament and Council of 23 March 1994, certifies that this equipment or protective system has been found to comply with the design and construction of equipment and protective system intended for use in potentially explosive atmospheres, given in Annex II of the Directive.
The examination and test results are recorded in confidential report 2011-ET/PZW-EX-0-000470

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

EN 60079-0:2009	EN 60079-11:2007	EN 60079-18:2009

(10) If the sign X is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance with the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

(12) The marking of the equipment or protective system shall include the following:

Ex II 2 G Ex ib IIB T4 Gb for equipment and primary cell pack

Ex II 2 G Ex ib mb IIB T4 Gb for battery pack

02.07.2012
Date of issue

Dipl.-Ing. Kurt Mayerhofer
Certification representative

End of validity

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12ATEX0004Xe. Page 1/4

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(13) # SCHEDULE

(14) EC Type Examination Certificate TÜV-A 12ATEX0004X

(15) **Description of Equipment**

The system is based on Microtronics data processing system „myDatanet". The data - logger consists of main unit with data evaluation circuits with GPRS modem and a snap - on, detachable battery pack for power supply. The measured data are transmitted via cable from the sensor unit, stored temporary and sent via GPRS to a internet server database.

Type Variations

Product family	Version	type-code
myDatalog (external sensor)	**2 x analog/digital input and internal power supply**	**myDatalog2Ex OPT1**
		myDatalog2Ex OPT2
		myDatalog2Ex OPT3
	Switchable RS232/485 interface and internal power supply	myDatalog232
	2x2,5V – low voltage input (IN0, IN1 –Pin 3,4) and internal 6,7V power supply (Pin 1)	myDatalogQ

Power supply	Version	type-code
primary cell pack	3.6V, 17Ah	BP417A
	3.6V, 34Ah	BP434A
	3.6V, 51Ah	BP457A
Battery pack (secondary cells)	4.1V, 19.2Ah	AP424DA

Technical Data:

Explosion protection:

equipment group:	II	
equipment category:	2 G	
type(s) of protection:	Ex ib mb	(mb only valid for battery pack)
temperature class:	T 4	
explosion group:	II B	
ambient temperature T_{amb}:	-10°C to +40°C	(tested till: -20°C)
humidity:	15 - 90 %	
ingress protection:	IP 64 (report)	IP 67 (manufacturer)

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Electrical Data

rated voltage U_n	4,1 VDC
rated current I_n	1,16A
rated power P_n	6,97W

Electrical data of intrinsically safe electric circuits

Description:	**Values:**					
Antenna socket Type FME (CON 1)	intrinsically safe Ex ib					
	R_{IN} = 50Ω (antenna - input resistance)					
	P_{MAX} = 2 W (max HF - emitted power)					
Battery-charging plug (only battery types CON 2)						
	(not used in explosion hazardous area)					
Plug connection to battery output (CON 3)	intrinsically safe Ex ib					
Pin 1: energy pack	Uo= 4,1 V (battery pack)			Uo= 6 V (Primary battery)		
Pin 3: +4,1V energy pack	Io= 1,7 A (battery pack)			Io= 1,16 A (Primary battery)		
Pin 4-6: GND energy pack	Po= 6,97 W					
	Lo= 5 µH					
	Co= 1000 µF					
Ext. connection - USB – connection (CON 4)	(not used in explosion hazardous area)					
Evaluation circuit power supply (CON 5)	intrinsically safe Ex ib					
Pin 1: energy pack	Ui = 6 V					
Pin 3: +4,1V energy pack	Ii = 1,7 A					
Pin 4, 5, 6: GND energy pack	Pi = 6,97 W					
	Li = 0 (negligible)					
	Ci = 780 µF (all pins)					
connection - SIM - Card Slot (CON 6)	SIM-card (not to be plugged-in, un-plugged or replaced in explosion hazardous area)					
„Ex ib" connection for external sensors (CON 7) (equipment-socket/sensor cable plug)	**equipment type**					
	Option 1		**Option 2**		**Option 3**	
	Uo= 17,1 V		Uo= 25,6 V		Uo= 25,6 V	
	Io= 0,2 A		Io= 0,1 A		Io= 0,082 A	
	Po= 3,762 W		Po= 0,64 W		Po= 0,532 W	
	Co	**Lo**	**Lo**	**Co**	**Lo**	**Co**
	2,1µF	50µH	1400µH	0,38µF	1400µH	0,39µF
			1000µH	0,41µF	1000µH	0,42µF
			500µH	0,49µF	500µH	0,50µF
			200µH	0,64µF	200µH	0,65µF
			100µH	0,79µF	100µH	0,80µF
			50µH	0,80µF		

Pin 1: power supply
Pin 2: GND
Pin 3: AU IN0 (sensor data)
Pin 4: AU IN1 (sensor data)
Pin 5,6: not contacted

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Chapter 4 Technical data

Voltage supply	BP457A battery : 51Ah AP424DA rechargeable battery : 19,2Ah • U_i: 6V • I_i: 1,7A • P_i: 6,97W • L_i: 0 • C_i: 780µF
Housing	Material: Noryl GTX 973 Weight: 490g (without rechargeable battery or battery pack) Degree of protection: IP67 Dimensions (WHD): 100 x 240 x 100mm (without antenna)
Ex certification	II 2 G Ex ib IIB T4 Gb
Operating temperature	-10...+40°C
Air humidity	15...90% rH non-condensing
Storage temperature	-20...+70°C (without rechargeable battery or battery pack)
Display	LED for indicating the operating state and error codes
Operation	Solenoid switch for initiating ALOHA transmission mode
USB interface	1 x USB slave for establishing a connection to a PC. The DeviceConfig configuration program must be installed on the PC to enable communication with the myDatalog2Ex . Additional information is provided in "Technical details about the USB interface" on page 60.
Antenna connector	FME-M
Universal inputs	2 x analogue or digital Modes: • 0...20mA: Resolution 6,10µA, max. 25mA, load 100Ω • 4...20mA: Resolution 6,10µA, max. 25mA, load 100Ω • Digital: max. 27,5V, configurable switching thresholds, load 1k1 • Day counter[1)]: min. pulse length 20ms , max. 27,5V, configurable switching thresholds, load 1k1 • Interval counter[1)]: min. pulse length 20ms , max. 27,5V, configurable switching thresholds, load 1k1 Additional information is provided in "Technical details about the universal inputs" on page 56.

Sensor supply	1 x 22,5 VDC myDatalog2Ex Opt.2 • U_o: 25,6V • I_o: 100mA • P_o: 0,639W • C_o: 0,38µF • L_o: 1400µH myDatalog2Ex Opt.3 • U_o: 25,6V • I_o: 82mA • P_o: 0,523W • C_o: 0,39µF • L_o: 1400µH Additional information is provided in "Technical details regarding the sensor supply" on page 57.
Data memory	Internal flash memory for up to 194.373 measurement values
Data type	f32 (32 Bit floating point)
Data transmission	By means of GSM/GPRS quad-band modem to the respective myDatanet server
SIM	Integrated SIM chip and SIM slot for external SIM card Additional information is provided in "Technical details about the SIM slot" on page 59.
Monthly data volume	t.b.d at two-minute measurement cycle and 120-minute transmission cycle
Device operating time	BP457A battery : • Approx. t.b.d. years with two-minute measurement cycle and 120-minute transmission cycle • Approx. t.b.d years with five-minute measurement cycle and 120-minute transmission cycle • Approx. t.b.d years with five-minute measurement cycle and 480-minute transmission cycle AP424DA rechargeable battery : • Approx. t.b.d years with two-minute measurement cycle and 120-minute transmission cycle • Approx. t.b.d year with five-minute measurement cycle and 120-minute transmission cycle • Approx. t.b.d years with five-minute measurement cycle and 480-minute transmission cycle

[1)] These modes are only available for universal input 1

Chapter 5 General specifications

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

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

5.1 Translation

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

5.2 Copyright

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

5.3 General descriptive names

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

5.4 Ex protection

The portable instrument myDatalog2Ex designed for use in areas with a zone 1 explosive atmosphere.

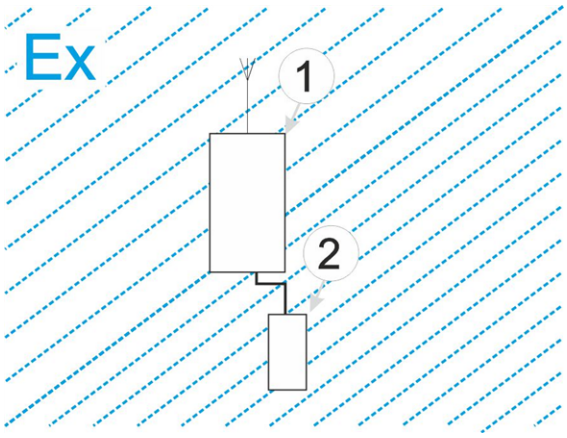
The following conditions must be adhered to:

- Only the manufacturer is permitted to open the housing to carry out maintenance work, which must only be completed outside the Ex area.
- It is permissible to replace the rechargeable battery pack in the Ex area, although it must not be charged there.
- The rechargeable battery pack must only be charged outside the Ex area only using the charging device tested and approved by the manufacturer (see "Charging device" on page 121).
- The power supply in the Ex area must only be provided by the designated, intrinsically safe rechargeable battery or battery packs (see "Rechargeable battery and battery packs" on page 121).
- The USB interface must NOT be used in the Ex area.
- The SIM card must NOT be replaced in the Ex area.
- Only the antenna, tested and approved by the manufacturer, with or without an antenna extension, tested and approved by the manufacturer, may be connected to the antenna connector (see "Antennas" on page 121).
- If the device is operated in the Ex area, no external voltages must be connected to the universal inputs.

II 2 G Ex ib IIB T4 Gb

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

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



1	myDatalog2Ex	2	Sensor approved for the Ex zone

5.5 Safety instructions

For the connection, commissioning and operation of the myDatalog2Ex , the following information and higher legal regulations of the country (e.g. ÖVE), such as valid EX regulations as well as the applicable safety and accident prevention regulations for the respective application case must be observed.

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

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

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

5.5.1 Use of the hazard warnings



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



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



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

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

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

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

5.5.2 General safety instructions



WARNING:
Ensure that the device is fully deactivated and cannot activate automatically when sending/returning it as air freight. Information on this is provided in chapter "Storage of the product" on page 24.If you have any unanswered questions, contact the manufacturer (see "Contact information" on page 127).

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.

5.5.3 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.*

5.5.3.1 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.

5.5.3.2 Safety measures for installing the antenna

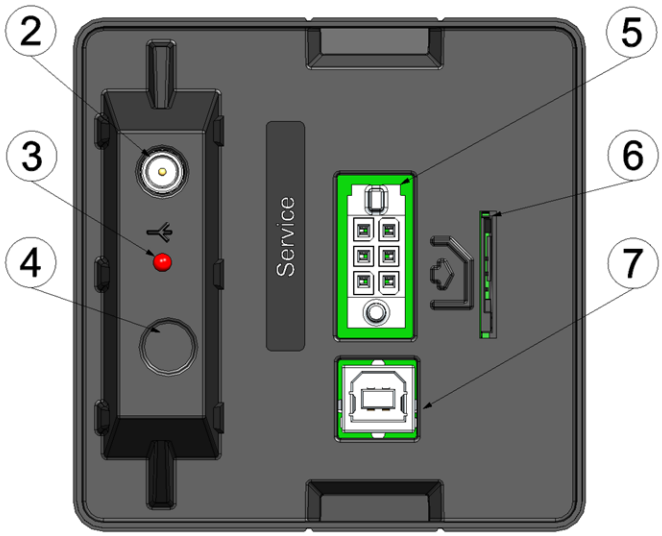
- Only use antennas that are recommended or supplied by the manufacturer.
- The antenna must be installed at a distance of at least 20 cm from individuals.
- The antenna must not protrude beyond the lightning protected area of buildings and must be protected against lightning strikes!

5.6 Overview

Note: *Please note that the warranty is void if the seal with the "Service slot" inscription, that covers the debug interface reserved for the manufacturer, is broken.*



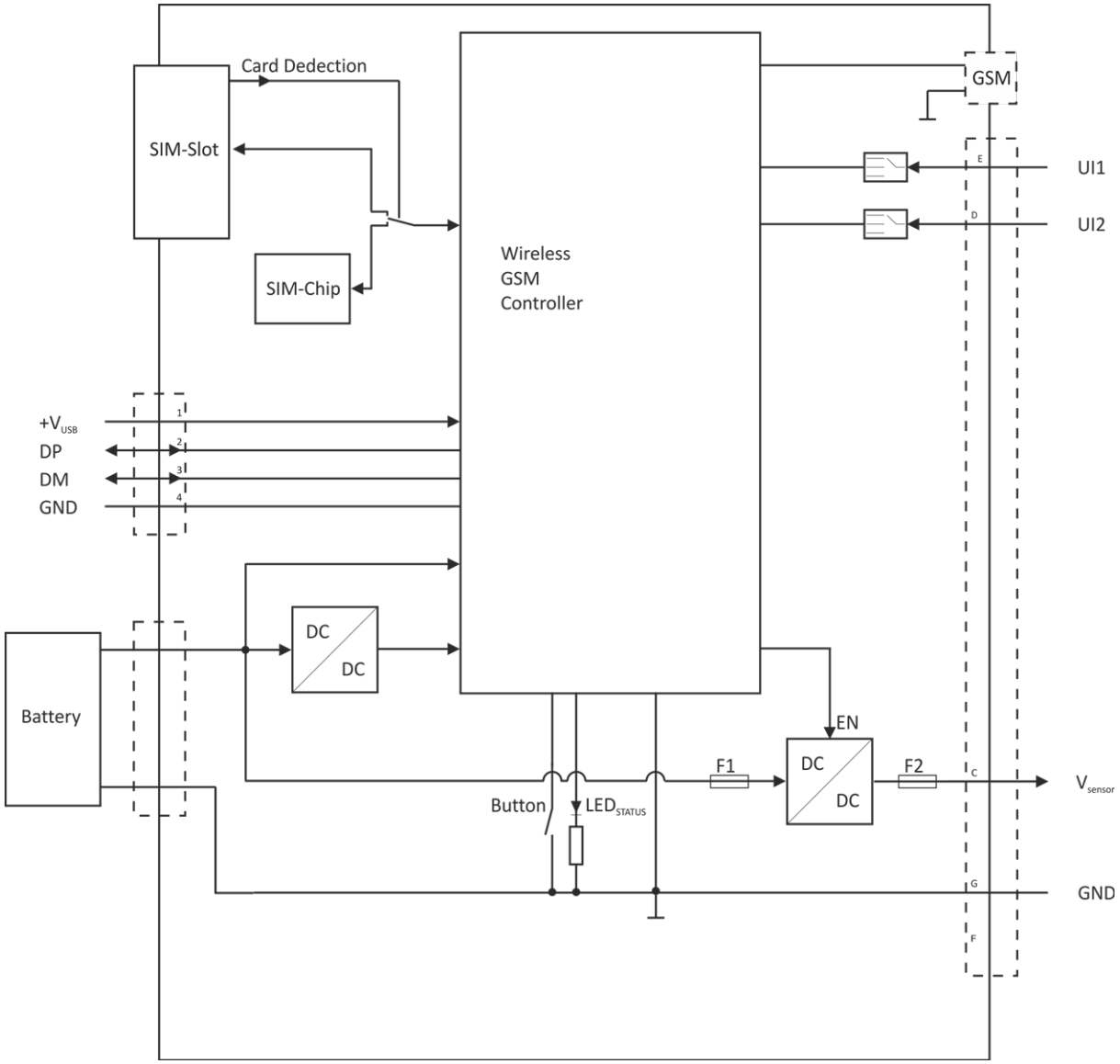
Bottom of the myDatalog2Ex



Top of the myDatalog2Ex
(view without rechargeable battery or battery pack)

1	Sensor connector	5	Supply connector
2	Antenna connection	6	SIM slot
3	Status LED	7	USB interface
4	Solenoid switch		

5.6.1 Block diagram



Block diagram of the myDatalog2Ex

5.7 Intended use

The portable measurement instrument is used to collect analogue and digital 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. The maximum permissible limit values specified in chapter "Technical data" on page 15 must be observed. The manufacturer shall not be liable for any operational cases that deviate from these limit values and have not been approved by the manufacturer in writing.

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

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

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

5.8 General product information

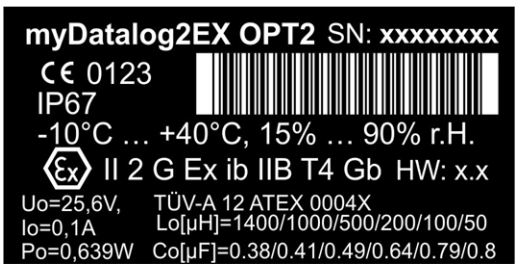
The device is a compact, portable ATEX data logger for recording and transferring analogue and digital signals. There are 2 universal inputs available, which can be operated in various analogue and digital modes. The device operates without mains power and has a 22,5 VDC voltage output to supply the 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 inputs, the internal "Battery", "GSM level" and "Int. temp" measurement values are determined (see "Internal channels" on page 78). All of the generated measurement data is temporarily saved on an internal data memory and is then wirelessly transferred to a central location at a freely selected interval. The device is also configured via this connection. The device is equipped with an integrated SIM chip.

5.9 Device labelling

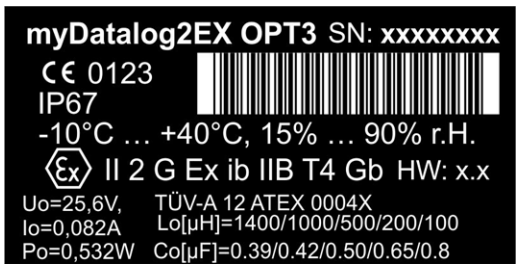
The specifications in this manual only apply to device types myDatalog2Ex Opt2 and myDatalog2Ex Opt2. The type plate is located on the rear side of the device and contains the following specifications:

- Type designation
- Serial number
- CE marking
- Protection class
- Environmental conditions during operation
- Ex protection designation as specified in chapter "Declaration of conformity" on page 9
- Hardware revision

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



Type plate myDatalog2Ex Opt2



Type plate myDatalog2Ex Opt3

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

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

5.10 Installation of spare and wear parts

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

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

5.11 Storage of the product

To store the myDatalog2Ex , activate the transport lock by deactivating the "Measurement" and "Transmission" in the input screen of the myDatanet server to configure the device (see "Device-specific settings" on page 83). Then activate ALOHA transmission mode (see "ALOHA transmission mode" on page 35) via the solenoid contact so that the amended configuration is transferred to the myDatalog2Ex . 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 deactivated - indicated by the status LED going out (see "Status LED" on page 66). Store the myDatalog2Ex in its original packaging. During storage the rechargeable battery or battery pack should not be disconnected from the device and the protective armour should also not be removed.

By activating the transport lock, the myDatalog2Ex is in a very energy-saving mode. However, it may still occur that the rechargeable battery or battery pack is fully discharged if the device is stored for very long periods. Although the configuration and the most recently determined data are definitely maintained. The transport lock is deactivated again by re-initiating ALOHA transmission mode (see

"ALOHA transmission mode" on page 35) and the myDatalog2Ex resumes operation according to the configuration.

5.12 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 (89/655/EEC) about the minimum safety and health requirements for use of work equipment by workers at work, each in their respective version are to be complied with.

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

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

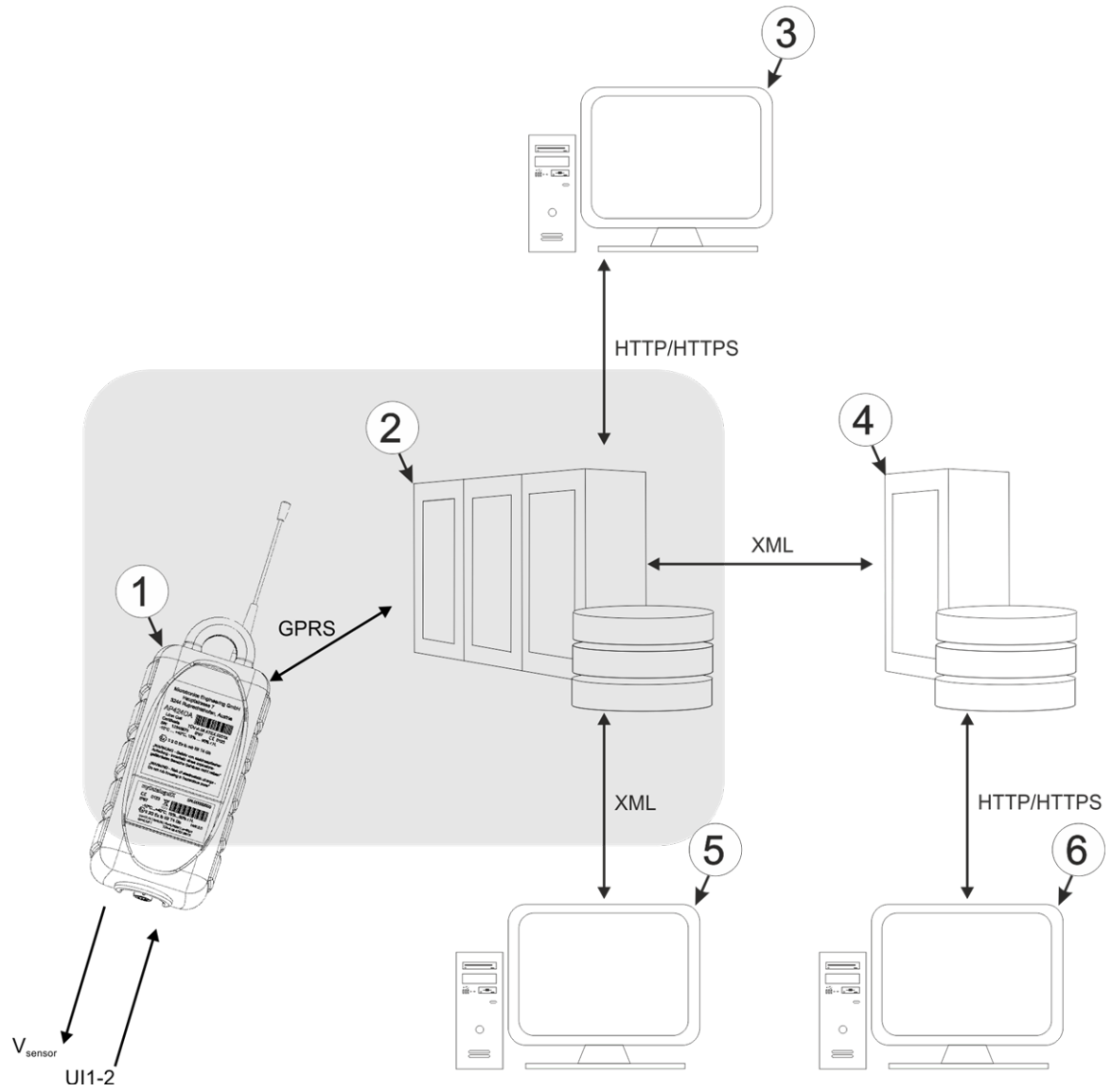
- the safety of the personnel (accident prevention measures)
- the safety of the equipment (protective equipment and maintenance)
- the product disposal (waste disposal law)
- the material disposal (waste disposal law)
- the cleaning (cleaning agents and disposal)
- and the environmental protection amendments.

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

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Chapter 6 Functional principle

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



Functional principle

1	myDatalog2Ex with integrated managed service SIM card (including data transmission)
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 of the myDatanet server (see "API" on page 85).
5	Client, on which a PC program is running, that obtains its data via the API of the myDatanet server (see "API" on page 85)
6	Client that accesses the interface of the customer-specific server via the web browser

Functions and components provided by myDatanet :

- myDatalog2Ex

  The myDatalog2Ex is a portable device for connecting sensors (UI1-2) to the myDatanet server (GPRS).

- 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 85) or web interface of the server.

Functions and components provided by the customer:

- Sensors

  Sensor with interfaces that are compatible with the specifications listed in the chapter "Technical details about the universal inputs" (see "Technical details about the universal inputs" on page 56). If the device is operated in areas with a zone 1 explosive atmosphere, only sensors that are also approved for zone 1 and for which the Ex parameters are compatible with those of the myDatalog2Ex must 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 85) by the customer-specific server.

6.1 Internal processing of the measurement values

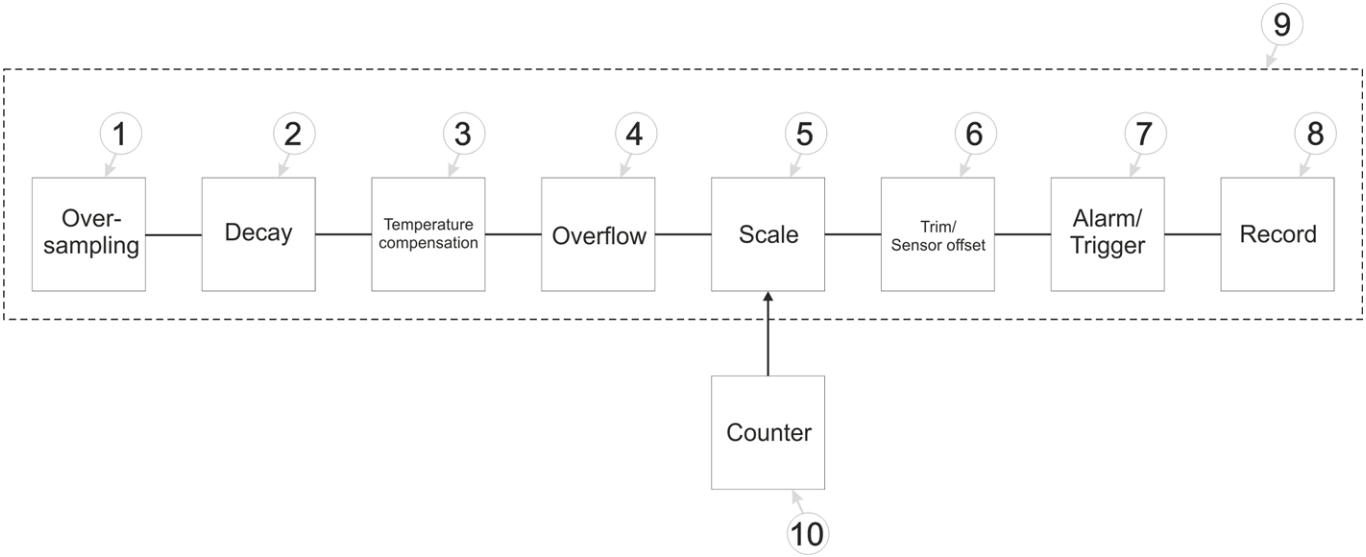


Diagram of the internal processing of the measurement values

1	Increasing the resolution by oversampling[1)]	6	Adds the values entered via the "Trim" and "Sensor offset" configuration parameters to the measurement value (see "Trim/sensor offset module" on page 31).[1)2)]
2	Decay module to summarise several measurement values (see "Decay module" on page 29)[1)]	7	Monitoring of the alarm limits and trigger levels (see "Alarm/trigger module" on page 32)
3	Temperature compensation to adjust any thermal influences (see "Temperature compensation module" on page 30).[1)2)]	8	Recording of the measurement values (see "Record module" on page 33)
4	Monitoring of the measurement range limits (see "Overflow module" on page 30)[1)2)]	9	This module chain is started at the time of every measurement and is completed once.
5	Rescaling from the raw value to the measurement value (see "Scale module" on page 31)	10	Adding up the pulses at universal input 1 (see "Counter module" on page 34). This module is operated permanently if "Cnt.Day" or "Cnt.Intrvl." channel mode is selected.

[1)] These modules are skipped if "Cnt.Day" and "Cnt.Intrvl." channel modes are used

[2)] These modules are only processed in channel modes "0...20mA" and "4...20mA".

6.1.1 Decay module

The decay module is designed to summarise several measurement values. The average value is calculated over a specified time period. The decay module is not available for "Cnt.Day" and "Cnt.Intervl." channel modes.

The following table specifies the relevant parameters for the module:

Configuration section	Mode	Parameter	Explanation
Basic setting	Digital	Filter time	Decay period. The time that is set here must be divided by 300 ms to determine the number of measurements that are being averaged.
	Cnt.Day	---	---
	Cnt.Intervl.		
	0-20 mA	Filter time	Decay period. The time that is set here must be divided by 300 ms to determine the number of measurements that are being averaged.
	4-20 mA		

6.1.2 Temperature compensation module

The exact values of the measuring resistances are determined during the calibration of the universal inputs. As the influence of the temperature on the resistance values is known, this can be used with the measured ambient temperature and the resistance offset determined during the calibration to compensate the influence of the temperature on the measurement value. The temperature compensation module is only available for analogue modes ("0...20mA", "4...20mA").

6.1.3 Overflow module

This module monitors the measurement range limits of the raw value. If a universal input was, for example, switched to "4-20 mA" mode, a raw value of 2 mA will violate the measurement range. The overflow module is only available for the 2 universal inputs in "4-20 mA" and "0-20 mA" channel modes.

The following table specifies the relevant parameters for the module:

Configuration section	Mode	Parameter	Explanation
Measurement channels ->Config.	Digital	---	---
	Cnt.Day		
	Cnt.Intervl.		
	0-20 mA	Overflow	Procedure in the event of measurement range violations
	4-20 mA		

6.1.4 Scale module

This module rescales the raw value (e.g. mA) to the required measurement value (e.g. mm). The number of edges that have been added up from the counter module is used for the "Cnt.Day" and "Cnt.Intervl." channel modes instead of the output value of the overflow module.

For "Cnt.Intervl." channel mode, the raw value is converted into the measurement value by multiplying the number of edges that have been added up by the pulse value determined by the "Impulse" parameter. The meter reading of the counter module is then reset.

For "Cnt.Day" channel mode, the raw value is also converted into the measurement value by multiplying the number of edges by the pulse value determined by the "Impulse" parameter. However, in this mode the meter reading of the counter module is not reset at the time of every measurement but is instead reset at the time specified via the "Day change over" parameter (see "Additional explanation regarding the difference between "Cnt.Day" and "Cnt.Intervl."" on page 72). A more detailed description on generating measurement values at the day changing time are provided in "Day change" on page 34.

The following table specifies the relevant parameters for the module:

Configuration section	Mode	Parameter	Explanation
Measurement channels -› Basis	Digital	Invert	Inverts the input signal
	Cnt.Day	Impulse	Counted measurand of a pulse in the measurement unit
	Cnt.Intervl.		
	4-20mA 0-20mA	0%	Start of the measurement range in the measurement unit
		100%	End of the measurement range in the measurement unit
Measurement channels -›Config.	Digital	High level	0: The levels are set automatically. › omV: Level from which the signal at the universal input is interpreted as "high". "low" is detected at the "high level" - 10%.
	Cnt.Day		
	Cnt.Intervl.		
Basic settings	Cnt.Day	Day change over	Reset time of the day counter

6.1.5 Trim/sensor offset module

The installation height of the sensor can be taken into consideration with the help of this module. It also enables the zero point to be adjusted without having to change the value for the installation height again. The trim/sensor offset module is only available for analogue modes ("0...20mA", "4...20mA"). The "Trim" parameter value and the "Sensor offset" parameter value are added to the output value of the scale module (see "Scale module" on page 31). This means that a negative

prefix must be set for the "Trim" parameter (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70) if the scaled measurement value should be reduced during the zero point adjustment.

The following table specifies the relevant parameters for the module:

Configuration section	Mode	Parameter	Explanation
Measurement channels -> Basis	Digital	---	---
	Cnt.Day		
	Cnt.Intervl.		
	4-20mA 0-20mA	Trim	Provided to adjust the zero point (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70)
		Sensor offset	Specifies the installation height of the sensor (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70)

6.1.6 Alarm/trigger module

This module monitors the alarm limits and trigger levels and creates an entry in the alarm list if necessary. The global triggers are also set. The alarm function of the alarm/trigger module is available for all of the inputs (universal inputs and internal channels), while the trigger function is only available for the universal inputs.

All of the parameters of the "Alarms" and "Trigger" tabs of the "Measurement channels" configuration section (see "Measurement channels" on page 67) and all of the parameters of the "Alarms" tab of the "Internal channels" configuration section (see "Internal channels" on page 78) are relevant to this module. Additionally, the parameters in the following tables are also relevant:

Configuration section	Mode	Parameter	Explanation
Measurement channels -> Trigger	Digital	XM	Initiate transmission
	Cnt.Day		
	Cnt.Intervl.		
	0-20 mA		
	4-20 mA		

Configuration section	Parameter		Explanation
Alarm settings	On alarm On warning On fault alarm On fault warning	A	The alarm is recorded in the alarm list.
		Ü	An immediate transmission is initiated.

6.1.7 Record module

The record module records the measurement values. If necessary, the record interval or transmission cycle is modified depending on the global triggers set by the alarm/trigger module.

The following tables specify the relevant parameters for the module:

Configuration section	Modus/interface	Parameter	Explanation
Measurement channels -› Trigger	Digital Cnt.Day Cnt.Intervl. Freq PWM 4-20mA 0-20mA	QU	The "Transmission cycle quick" should be used.
		QX	The "Record interval on event" should be used.

Configuration section	Parameter		Explanation
Alarm settings	On alarm On warning On fault alarm On fault warning	Q	The "Record interval on event" should be used.
		X	The "Transmission cycle quick" should be used.
Basic setting	Transmission cycle		Time between transmissions
	Transmission cycle quick		Time between the transmissions, if a shortened transmission cycle should be used because of an alarm/warning or a trigger being initiated
	Record interval		Time between measurement data recordings
	Record interval on event		Time between the recordings of the measurement data, if a shortened record interval should be used because of an alarm/warning or a trigger being initiated

6.1.8 Counter module

If channel mode "Cnt.Day" or "Cnt.Intervl." was activated for universal input 1, the counter module is run through every 7,8ms and the level is checked on the universal input. As a 3-stage median filter is used to filter out any signal faults, a minimum pulse length of 20ms is required for the correct detection of the pulses. The counter module adds the number of rising edges and transfers this number to the scale module as soon as the time of a measurement is reached.

The following table specifies the relevant parameters for the module:

Configuration section	Mode	Parameter	Explanation
Measurement channels ->Config.	Cnt.Day	High level	0: The levels are set automatically. › 0mV: Level from which the signal at the universal input is interpreted as "high". "low" is detected at the "high level" - 10%.
	Cnt.Intervl.		

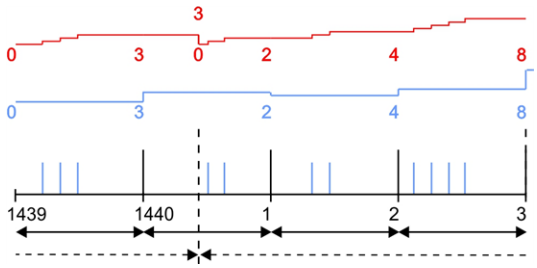
6.2 Day change

If universal input 1 is operated in Cnt.Day mode, all of the pulses up to the day changing time are added up. The current meter reading is recorded at the time of every measurement, which provides a rising gradient in the measurement value graphics on the myDatanet server. As it cannot be guaranteed that a measurement value is generated at the exact time of the day change, the following procedure is used to ensure that the highest value of the day is visible in the measurement value graphic:

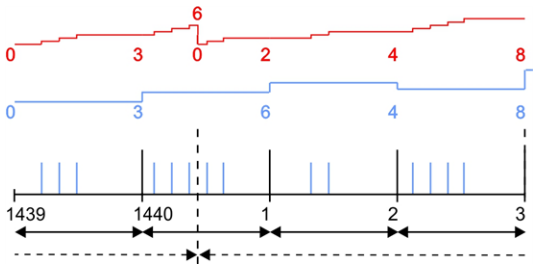
At the time of the day change, the current meter reading (highest value of the day) is copied to a temporary memory and then reset so that the counter module (see "Counter module" on page 34) can already add up the pulses for the day that is now starting. At the time of the first measurement after the day change, a check is completed to determine whether the highest value of the day (= meter reading in the temporary memory) has already been recorded, which means that no further pulses were detected between the last measurement value that was recorded and the day change. If this is the case, the current meter reading from the counter module is recorded at the time of the first measurement after the day change. Otherwise, the highest value of the day is recorded from the temporary memory at the time of the first measurement after the day change. The meter reading from the counter module is then recorded again at the time of the second measurement after the day change.

Note: *Additional explanation on the day change*

Basic setting	◄- - - - - -►	*Day change over*		*Meter reading of the counter module*	*red line*
	◄——►	*Measurement cycle*	*1min.*	*Measurement value*	*blue line*



The highest value of the day was already achieved at the time of the last measurement before the day change (no new pulses between the time of the last measurement and day change)



The highest value of the day is recorded at the time of the first measurement after the day change (new pulses between the time of the last measurement and day change)

6.3 ALOHA transmission mode

ALOHA transmission mode is a special connection mode whereby the myDatalog2Ex establishes a connection to the myDatanet server for a period of time configured via the "Basic settings" configuration section (see "Aloha/wakeup duration" in chapter "Basic setting" on page 80).

> ***Note:*** *ALOHA transmission mode cannot be activated if the myDatalog2Ex is connected to the USB interface of a PC.*

InitiatingALOHAtransmission mode:

- Directly on the device using the solenoid switch (see "Solenoid switch" on page 65). The GSM network is re-selected during this process. This means that a list of all of the GSM networks in the receiving range of the device is created from which the first GSM network is then selected that is not on the "Ban list" (see "Ban list" on page 37) and that is part of one of the service providers supported by the integrated SIM chip or the external SIM card (see www.microtronics.at/footprint).

A speech bubble in the measurement instrument list (see "myDatanet Server Manual " 805002) with the title "Aloha" indicates that a device is in ALOHA transmission mode.



Clicking on the speech bubble with the "Aloha" title opens the ALOHA data window (see "myDatanet Server Manual " 805002). It contains the internal "Battery" and "GSM level" measurement values, as well as the measurement values of the 2 universal inputs. The

measurement values for the last thirty minutes are always shown in the ALOHA data window, which means that data from a previous ALOHA transmission may be included. The ALOHA data is generated every three seconds independently of the normal measurement value and is thus not saved with the standard measurement data.

Measurement values are still generated as normal during ALOHA transmission mode. The measurement data records are saved in the standard measurement data and transferred the next time a connection to the myDatanet server is established.

6.4 Automatic selection of the GSM network

The GSM network to which the device should register must be selected, as the myDatalog2Ex is equipped with a SIM chip that provides a mobile connection via a variety of international service providers (see www.microtronics.at/footprint). This is completed automatically by the device. During this process it is taken into consideration if a connection to a certain GSM network is possible although the use of this GSM network repeatedly causes transmission errors. Such a GSM network is added to a ban list and is ignored during the next login attempt.

The following conditions ensure that the myDatalog2Ex logs itself into a GSM network:

- Initiation of ALOHA transmission mode (see "ALOHA transmission mode" on page 35)
- More than three consecutive connections could not be established.

1. The myDatalog2Ex checks whether any errors occurred during the last login attempt.

   No errors:

   The myDatalog2Ex logs into the same GSM network that was also used during the last attempt.

   Error:

   Continue with step 2

   > ***Note:*** *A transmission error is not the same as an error that occurs when logging into the GSM network. It is possible for the login to the GSM network to work correctly but that a transmission error still occurs.*

The following steps are only completed if an error was detected during step 1:

2. The device searches for GSM networks within its receiving range and creates a list of available GSM networks.
3. A search of the list of available GSM networks is completed and the strongest GSM network is selected that is not on the "ban list" and is assigned to one of the service providers supported by the integrated SIM chip (see www.microtronics.at/footprint).

   > ***Note:*** *An explanation detailing the conditions when a GSM network is added to the "ban list" is provided in "Ban list" on page 37.*

6.4.1 Ban list

The ban list provides space for 5 entries and is not saved in a volatile memory. This means that it is also still available following a PowerOn.

If there is a "BEARER GPRS FAILED" error (see "Modem error" on page 116), then an internal counter is increased by 2 . If a transmission was completed without errors, i.e. all of the data was transferred, this internal counter is reduced by 1 . The current GSM network is added to the ban list if the internal counter reaches the value 6 . The ban list is deleted if no GSM network can be selected from the list of available GSM networks in the receiving range taking the ban list into consideration. Another search for GSM networks in the receiving range is completed once the ban list is deleted and the network selection is completed with the ban list that is now empty (see step 3 in chapter"Automatic selection of the GSM network" on page 36).

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Chapter 7 Storage, delivery and transport

7.1 Inspection of incoming deliveries

Check the shipment immediately upon receipt to ensure it is complete and intact. Immediately report any discovered transport damages to the delivering carrier. Also notify Microtronics Engineering GmbHin writing about this without delay. Report any incompleteness of the delivery to the responsible representative or directly to the company headquarters of the manufacturer within two weeks (see "Contact information" on page 127).

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

7.2 Scope of supply

> ***Note:*** *The rechargeable battery or battery pack required for operation is not part of the standard scope of supply and must be ordered separately (see "Rechargeable battery and battery packs" on page 121).*

The standard scope of supply of the myDatalog2Ex Opt.2 (305001) includes:

- myDatalog2Ex Opt.2
- Antenna 900 FME -F (206.801)
- Extension cable for antenna FME-F/FME-M 5m (206.805)
- USB cable USB-A/USB-B 1,5m (206.601)
- MDN Magnet (206.803)
- MDN Protection casing (206.320)
- myDatanet service kit (206.324)
- Quick Guide (300272)

The standard scope of supply of the myDatalog2Ex Opt.3 (305002) includes:

- myDatalog2Ex Opt.3
- Antenna 900 FME -F (206.801)
- Extension cable for antenna FME-F/FME-M 5m (206.805)
- USB cable USB-A/USB-B 1,5m (206.601)
- MDN Magnet (206.803)
- MDN Protection casing (206.320)
- myDatanet service kit (206.324)
- Quick Guide (300272)

Additional equipment such as assembly sets, antennas, rechargeable battery or battery pack, charger, etc., depending on the order. Please check these against the delivery slip.

7.3 Storage

The following storage conditions must be observed:

myDatalog2Ex	Storage temperature	-20...+70°C
	Humidity	15...90% rH non-condensing
BP457A battery	Operating temperature	-10...+40°C
	Storage temperature	0...+30°C
AP424DA rechargeable battery	Operating temperature	-10...+40°C
	Charging temperature	0 ...+40°C
	Storage temperature	0...+30°C
	Humidity	15...90%rH

Note: The table above contains only the storage conditions for the two energy sources used most frequently for the myDatalog2Ex . Please consult the appropriate factsheet for information about the storage conditions of other rechargeable battery or battery packs.

Important note: The storage conditions listed in the table only apply when the myDatalog2Ex is disconnected from the rechargeable battery or battery pack. If the device has not been disconnected from the rechargeable battery or battery pack, the same conditions apply for storage as for operation.

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

7.4 Transport

Protect the myDatalog2Ex against heavy shocks, bumps, impacts or vibrations. The original packaging must always be used for transport.

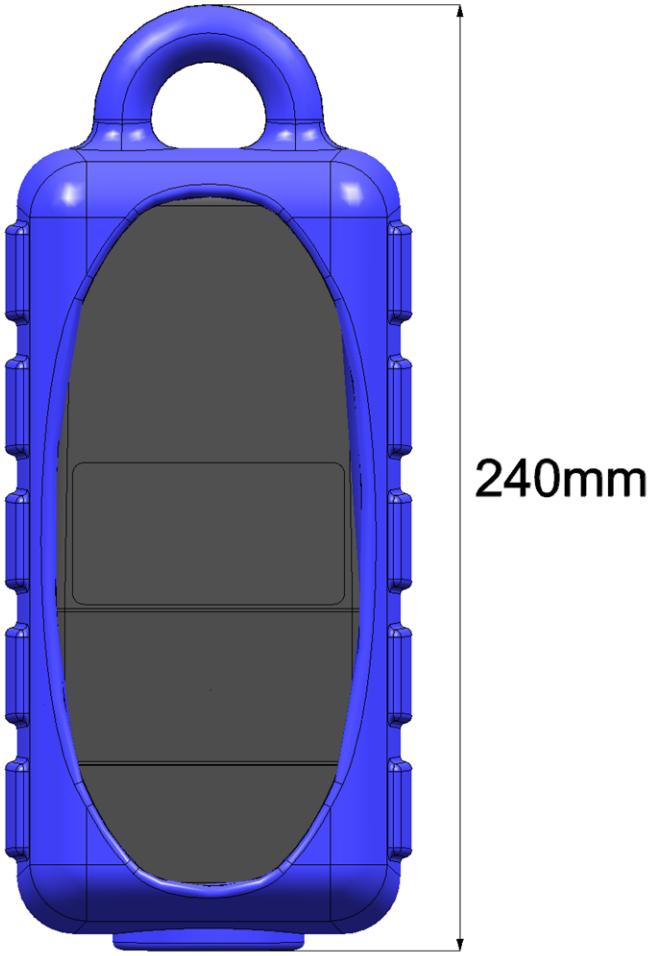
7.5 Return

Every return must be accompanied by a fully field-out return form. This return form is available in the service area of the myDatanet-Server. An RMA number is mandatory for any returns and can be obtained from the Support & Service Centre (see "Contact information" on page 127). The return shipment of the myDatalog2Ex must occur in the original packaging and with freight and insurance paid to Microtronics Engineering GmbH (see "Contact information" on page 127). Insufficiently cleared return shipments will otherwise not be accepted!

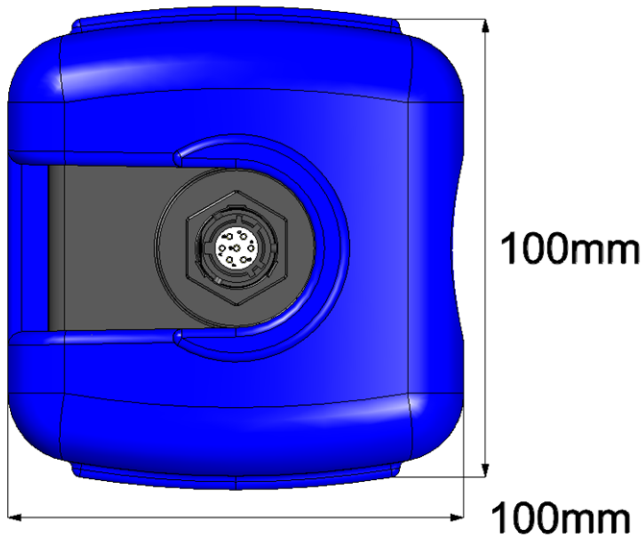
Chapter 8 Installation

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

8.1 Dimensions



Dimensions: Height
(View with accu or battery pack and protective armour)



Dimensions: Width and depth
(View with accu or battery pack and protective armour)

8.2 Installing the myDatalog2Ex

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!*
- *The myDatalog2Ex 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.*

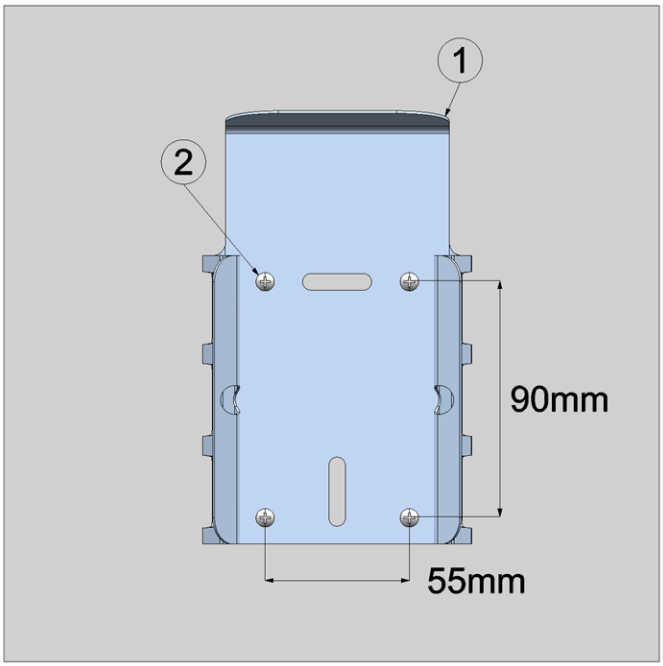
The installation site must be selected according to specific criteria. The following conditions must be avoided in any case:

- Direct sunlight
- Objects that radiate intense heat (maximum ambient temperature: -10...+40°C)
- Objects with a strong electromagnetic field (frequency converter or similar)
- Corrosive chemicals or gases
- Mechanical impacts
- Direct installation on paths or roads
- Vibrations
- Radioactive emissions

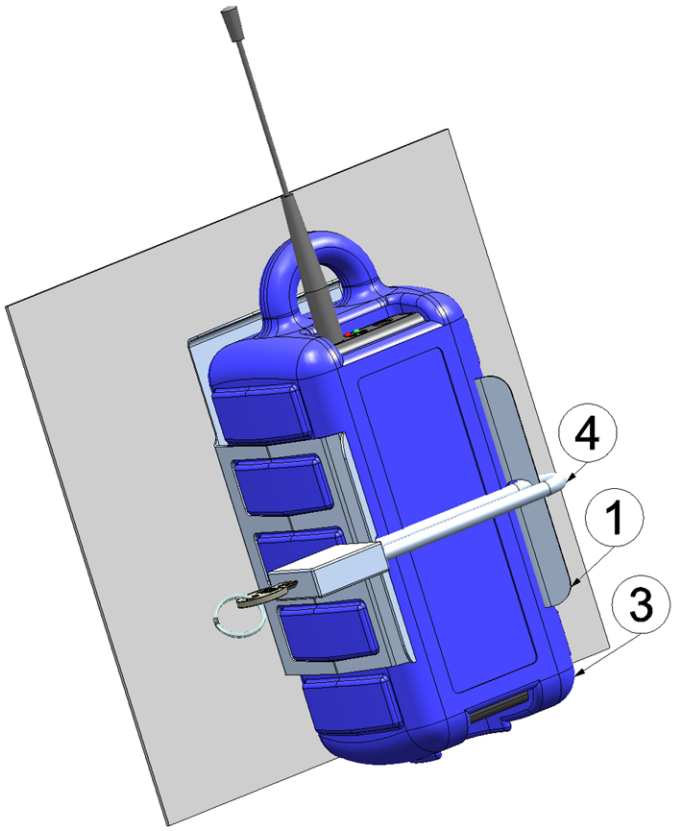
Note: *Leave sufficient space at the upper end to mount the antenna. The space required depends on the antenna used. Approx. 15 cm of space must be left beneath the device. Further information regarding the installation dimensions can be found in the relevant sub-chapter.*

8.2.1 Wall mounting

The optional "MDN wall mounting (206.321)" equipment is required for wall mounting. The myDatalog2Ex can also be secured against theft using the optional "MDN Anti-theft device " (206.322) equipment.



Wall mounting - step 1



Wall mounting - step 2

1	Retaining bracket (included in the scope of delivery of 206.321)	3	myDatalog2Ex
2	Raised head tapping screw 4x40 (included in the scope of delivery of 206.321)	4	MDN Anti-theft device (206.322)

1. Drilling the holes for the assembly:

   If you want to use the tapping screws (2) included in the equipment set to secure the retaining bracket (1) to the wall, drill four 6-mm holes in the wall using the drill template as a guide in accordance with the dimensions in the Figure "Wall mounting - step 1" on page 43.

   If you want to use your own fastening screws you can use the drill template provided in the equipment set to determine the position of the holes. The diameters are then determined by the screws that are being used and any wall plugs that may be required.

2. Securing the retaining bracket to the wall:

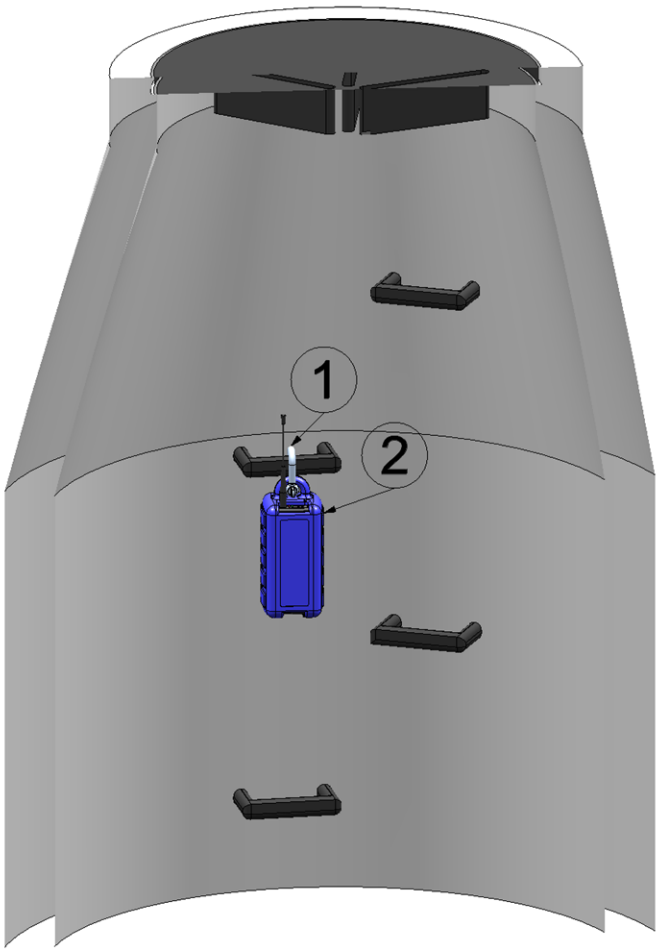
   If you want to use the tapping screws (2) included in the equipment set, first of all insert the supplied wall plugs into each of the four drill holes before screwing the retaining bracket (1) to the wall (see "Wall mounting - step 1" on page 43).

   If you are using your own screws, you must also insert the wall plugs into the holes before screwing the retaining bracket (1) to the wall (see "Wall mounting - step 1" on page 43).

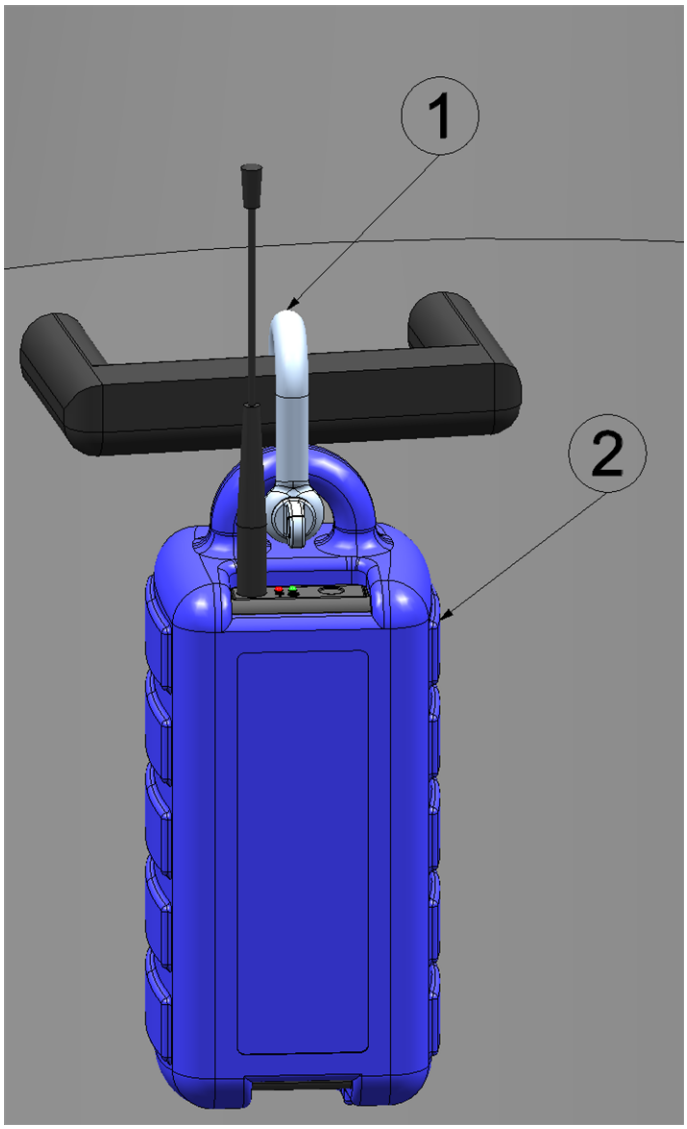
3. Carefully bend the brackets on the retaining bracket (1) apart and insert the myDatalog2Ex in accordance with the Figure "Wall mounting - step 2" on page 43. The rear of the myDatalog2Ex (the side with the cut-out in the protective armour) must be facing the wall.

8.2.2 Suspended installation

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



Suspended installation



Detailed view of a suspended installation

1 Niro shackle (206.325)	**2** myDatalog2Ex

1. Use the Niro shackle (206.325), to attach the myDatalog2Ex to a rung of the channel ladder or a similar fastening point in accordance with the figure "Detailed view of a suspended installation " on page 45.

8.3 Electrical installation

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

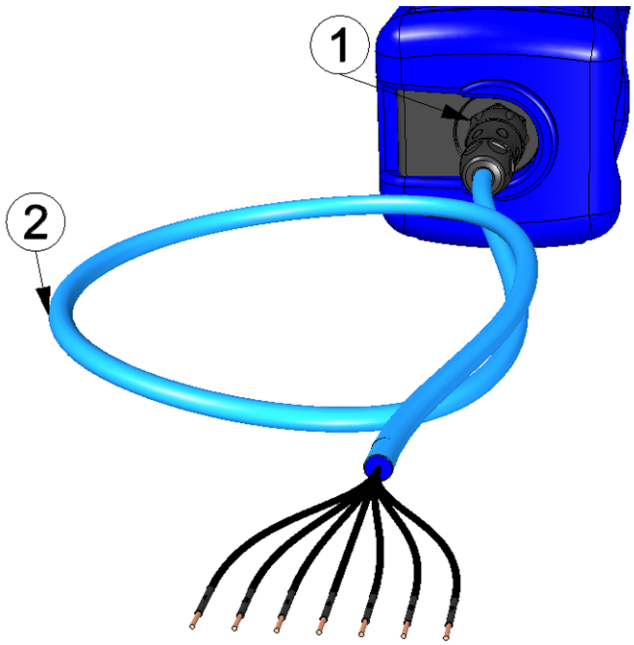
8.3.1 Connecting the sensors

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.*



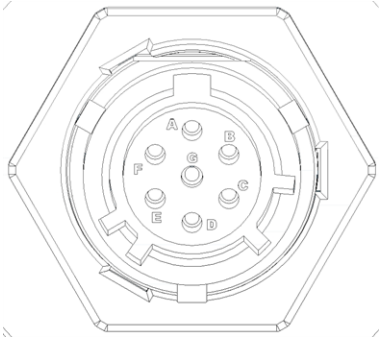
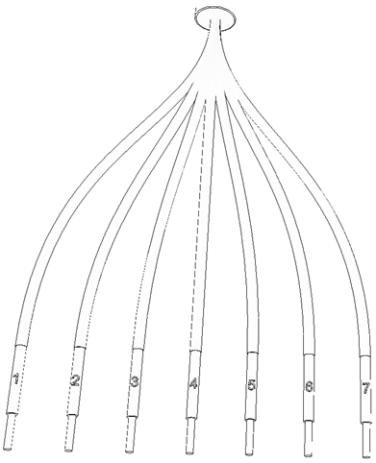
Connecting the sensors



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 22,5 VDC sensor supply
	D	2	Universal input 2
	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) for this purpose. You can use the Splitter cable for myDatalog Mobile (206.679) if you want to use both universal inputs and your sensors are located at different positions. Please note that this Splitter cable for myDatalog Mobile (206.679) only splits the sensor connector in to two identical 7-pin MIL connector, which means that you will need the Connection cable 7-pins for sensors 2,8m (206.602) or Cable connector 7-pins for myDatalogMobile (206.654) to connect the sensors (see "Use of the Splitter cable for myDatalog Mobile (206.679)" on page 52). Further accessories are detailed in the chapter "Spare parts and accessories" on page 121.

   Important note: *If you operate the myDatalog2Ex 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 53).*

2. Connect the antenna (see "Connecting the GSM antenna" on page 53).
3. Initiate ALOHA transmission mode (see "ALOHA transmission mode" on page 35). The status LED should then start to flicker (see "Status LED" on page 66), indicating that a connection is being established.

   Note: *If the myDatalog2Ex is still in transport mode, the transport lock is deactivated by the initiation of ALOHA transmission mode and the device starts to operate in accordance with the configuration.*

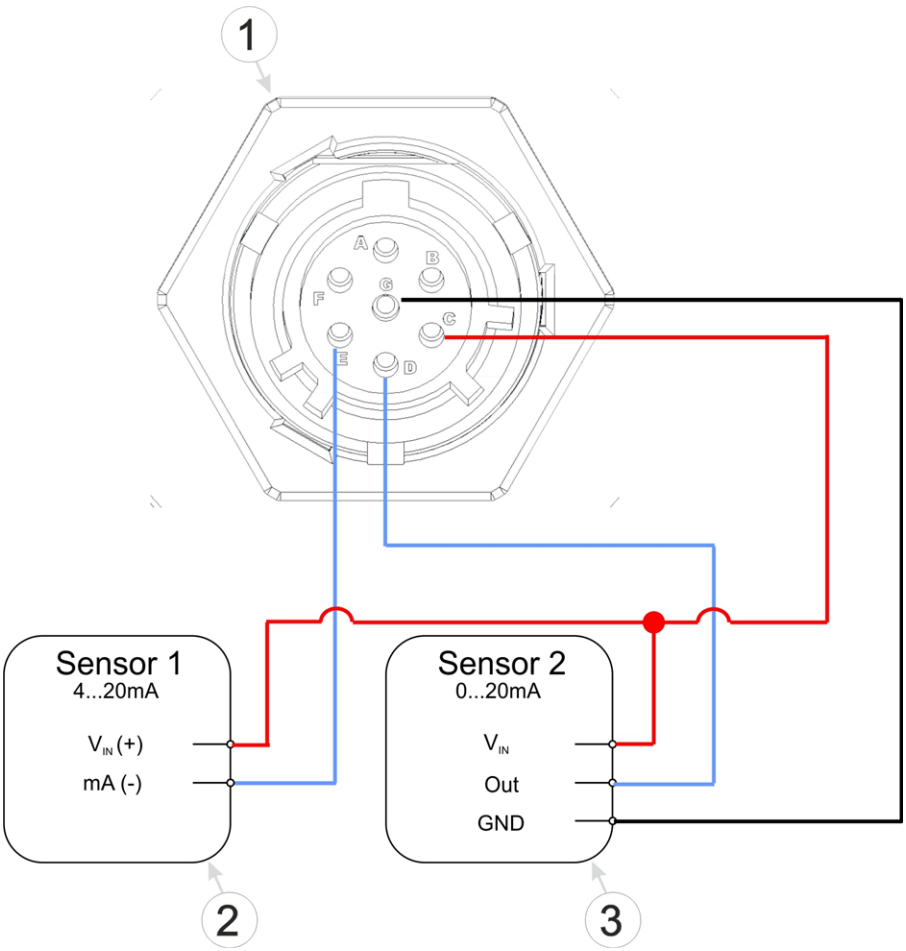
The following step is not mandatory.

4. Check whether the connection to the myDatanet has worked correctly (see "Testing communication with the device" on page 62).

8.3.1.1 Connection examples

8.3.1.1.1 Connection examples that are permitted for areas with a zone 1 explosive atmosphere

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

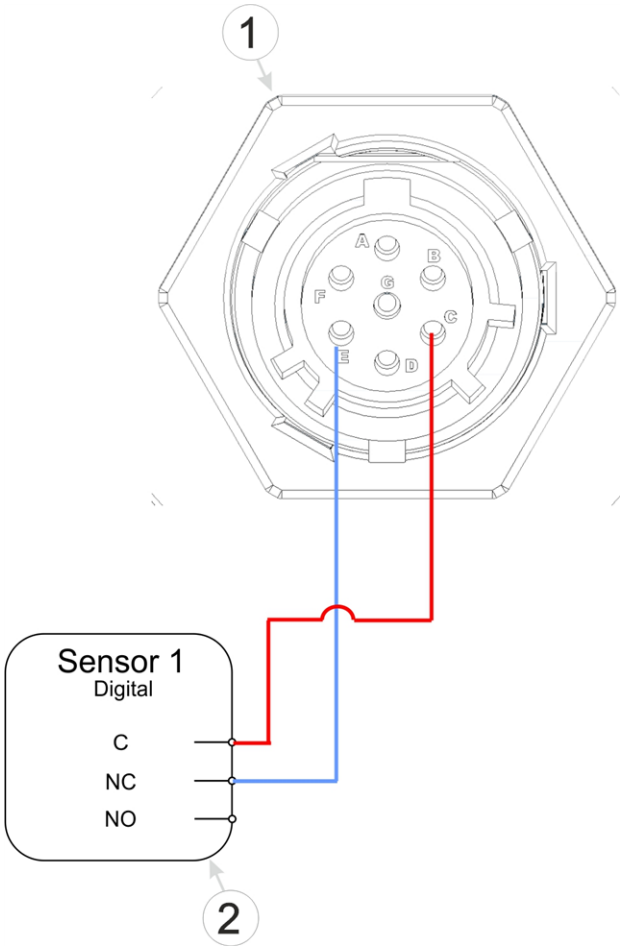


Connection examples: Analogue modes

1	myDatalog2Ex	3	3-wire mA sensor
2	2-wire mA sensor		

8.3.1.1.2 Connection examples that are CONDITIONALLY permitted for areas with a zone 1 explosive atmosphere

Important note: *These connection examples are only permitted if the sensors are "simple electrical equipment" and the ATEX requirements (e.g. distances between the signal lines) are observed and maintained.*

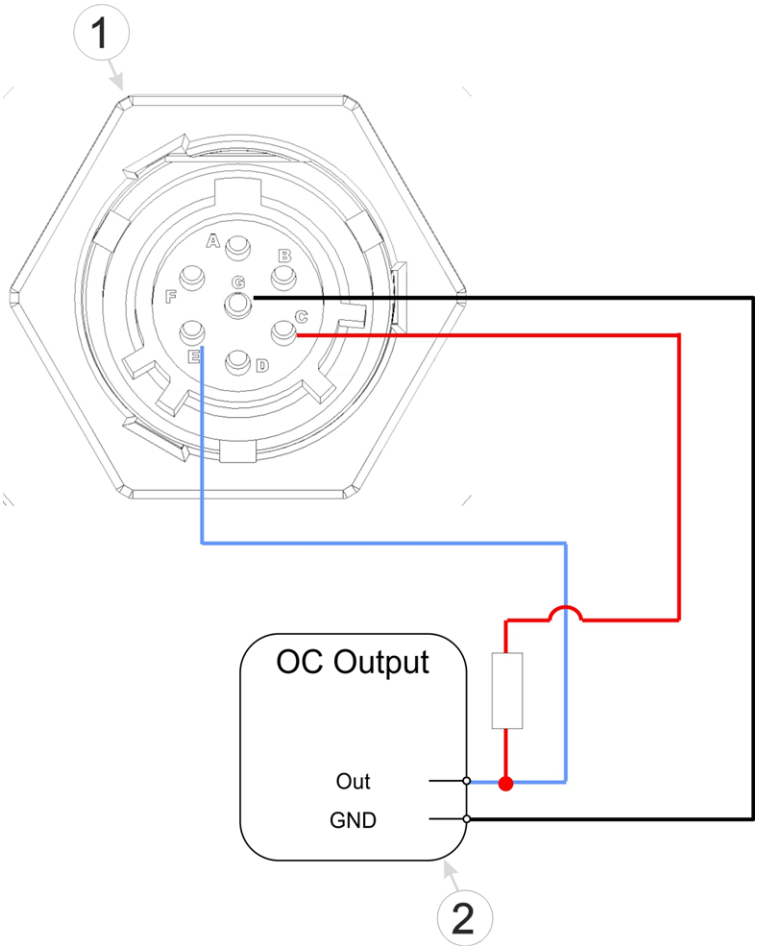


Connection examples: Digital modes

1 myDatalog2Ex	**2** Isolated relay contact

Note: *If universal input 1 has to be operated in "Cnt.Day" or "Cnt.Intervl." channel mode, it must be ensured that the sensor supply is permanently switched on. This can be achieved by setting the warmup time in the "Basic settings" configuration section (see "Basic setting" on page 80) to a higher value than the record interval. However, this greatly increases the energy requirements and thus significantly shortens the operating time of the device.*

8.3.1.1.3 Connection examples that are NOT permitted for areas with a zone 1 explosive atmosphere

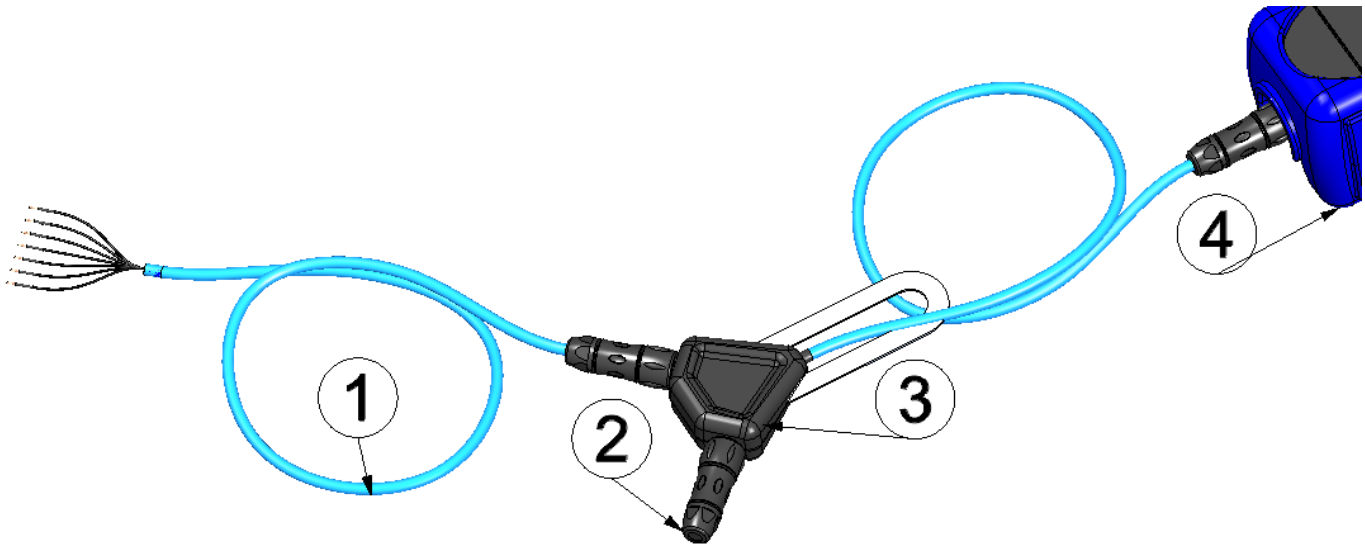


Connection examples: Digital modes

1 myDatalog2Ex	2 Sensor with open collector output

Note: *If universal input 1 has to be operated in "Cnt.Day" or "Cnt.Intervl." channel mode, it must be ensured that the sensor supply is permanently switched on. This can be achieved by setting the warmup time in the "Basic settings" configuration section (see "Basic setting" on page 80) to a higher value than the record interval. However, this greatly increases the energy requirements and thus significantly shortens the operating time of the device.*

8.3.1.2 Use of the Splitter cable for myDatalog Mobile (206.679)

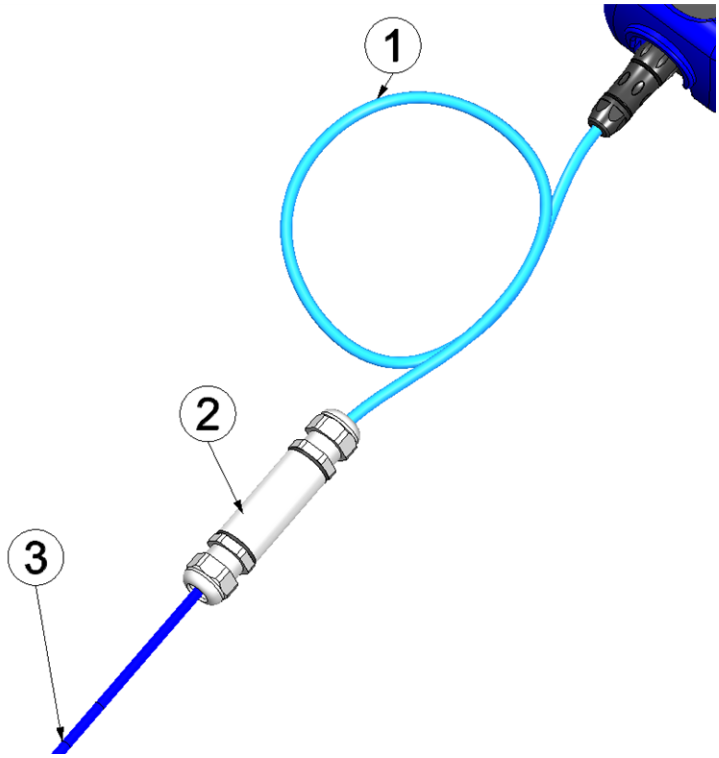


Connecting the sensors when using the Splitter cable for myDatalog Mobile (206.679)

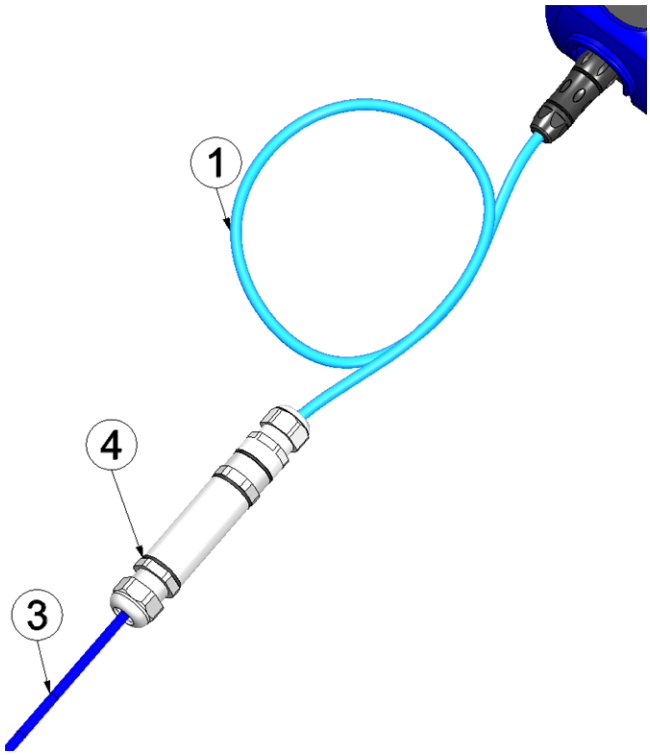
1	Connection cable 7-pins for sensors 2,8m (206.602)	3	Splitter cable for myDatalog Mobile (206.679)
2	Cable connector 7-pins for myDatalogMobile (206.654)	4	myDatalog2Ex

The Splitter cable for myDatalog Mobile (206.679) only splits the sensor connector in to two identical 7-pin MIL connectors, which means that the pin assignment of the two connectors corresponds to that of the sensor connector of the myDatalog2Ex (see "Connecting the sensors" on page 46).

8.3.1.3 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	Pressure compensation tube (300131)
2	Clamping tube(300256)	3	Connection cable of the sensor

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

8.3.2 Connecting the GSM antenna

> ***Important note:*** *To ensure the correct functionality, only use antennas that are supplied by the manufacturer. Using antennas and antenna extensions that are not listed in chapter "Antennas" on page 121 will invalidate the Ex approval.*

The standard antenna is directly attached to the antenna connector (see "Overview" on page 21) of the myDatalog2Ex .

If the distance between the antenna position and the myDatalog2Ex is too great, you can use a 5 m Extension cable for antenna FME-F/FME-M 5m (206.805).

1. If you need an antenna extension, connect it to the antenna first.
2. Connect the antenna extension or antenna directly to the antenna connector of the myDatalog2Ex (see "Overview" on page 21).

   Important note: *Do not apply too much force when tightening the antenna. Tighten the antenna or antenna extension with your hand. Do not use a tool except for the plastic open-ended spanner that is included in the myDatanet service kit (206.324) that will break if the applied force is too strong. During this process, you should only touch the antenna in the area marked on the graphic, as the top part of antennas delivered up until 09/2013 can detach.*



Tightening the antenna

The following step is not mandatory.

3. Check whether the connection to the myDatanet has functioned correctly (see "Testing communication with the device" on page 62).

8.3.2.1 Optimum antenna positioning for assembly in a shaft

8.3.2.1.1 Typical influences on the signal quality

Signal losses compared to the reference measurement

Steel cover	up to -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*

8.3.2.1.2 Possibilities for improving the signal quality

- Drill a duct for the antenna into the concrete ring on the shaft to bypass the steel cover
- Insert the antenna extension in an existing ventilation or supply pipe
- Use special types of antennas (Please note that the use of antennas not approved by the manufacturer with devices that are Ex approved will render this approval invalid)

8.3.2.1.3 Procedure for determining the optimum position of the antenna

1. Install the myDatalog2Ex as described in chapter "Installing the myDatalog2Ex " on page 42. During this process, also observe the notes regarding the influences on the signal quality (see "Typical influences on the signal quality" on page 55).

   Note: *Have a Extension cable for antenna FME-F/FME-M 5m (206.805) at your disposal just in case.*

2. Initiate ALOHA transmission mode (see "ALOHA transmission mode" on page 35).

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



4. Check the internal "GSM level" measurement value in the incoming data in the ALOHA data window of the myDatanet server, which can be accessed by clicking on the speech bubble with the "Aloha" inscription (see "myDatanet Server Manual " 805002). Change the position of the antenna to obtain the best possible signal quality.

   Note: *A security stock of 15dBm is highly recommended.*

   Note: *Additional explanation about evaluating the "GSM level":*

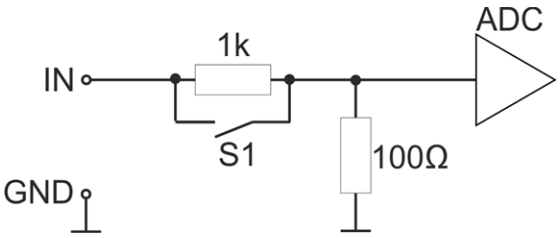
"GSM level"	
›-64dBm	
-64 to -73dBm	
-74 to -83dBm	
-84 to -93dBm	
-94 to -107dBm	
‹= -108dBm	

8.3.3 Technical details about the universal inputs

Note: *The universal inputs are not galvanically isolated.*

Important note: *If the myDatalog2Ex is operated in areas with a zone 1 explosive atmosphere, it is not permitted to connect external voltages to the universal inputs. This means that an analogue sensor must be supplied by the 22,5 VDC voltage output of the device. In digital modes (digital, day counter, pulse counter), the sensor must only establish a connection between the 22,5 VDC voltage output of the device and the universal input.*

The myDatalog2Ex is equipped with a 12 bit ADC. The resolution is increased by oversampling.



Schematic diagram of an universal input

If the universal input is operated in one of the analogue modes ("0-20 mA" or "4-20 mA"), switch S1 is closed and the 1k resistance is thus bypassed.

Switch S1 is open when the digital modes ("Digital", "Cnt.Day" or "Cnt.Intervl.") are used.

8.3.3.1 0/4...20mA mode

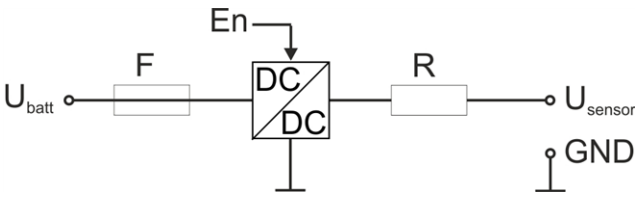
Resolution	6,10µA
I_{max}	25mA
Load	100Ω

8.3.3.2 Digital modes (digital, day counter, pulse counter)

When using digital modes, the switching thresholds can be configured via the "High level" parameter. The parameter is located in the "Config" tab of the "Measurement channels" configuration section (see "Measurement channels" on page 67).

General	U_{max}	27,5V
	Low	Configurable
	High	Configurable
	Load	1k1
Day and pulse counter	Minimum pulse length	20ms

8.3.4 Technical details regarding the sensor supply



Schematic diagram of the sensor supply

U_{batt}	AP424DA rechargeable battery	3,65V
	BP457A battery	3,6V
F	Electronic fuse	
R	Opt. 2	270Ω
	Opt. 3	330Ω
U_{Sensor}	22,5 VDC	

Ex parameter

	myDatalog2Ex Opt.2		myDatalog2Ex Opt.3	
U_0	25,6V		25,6V	
I_0	100mA		82mA	
P_0	0,639W		0,523W	
	L_0 [µH]	C_0 [µF]	L_0[µH]	C_0 [µF]
	1400	0,38	1400	0,39
	1000	0,41	1000	0,42
	500	0,49	500	0,50
	200	0,64	200	0,65
	100	0,79	100	0,80
	50	0,8		

The sensor supply is activated by setting the warmup time in the "Basic settings" configuration section (see "Basic setting" on page 80). 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. The sensor supply remains permanently active if a higher value is selected for the warmup time than the record interval.

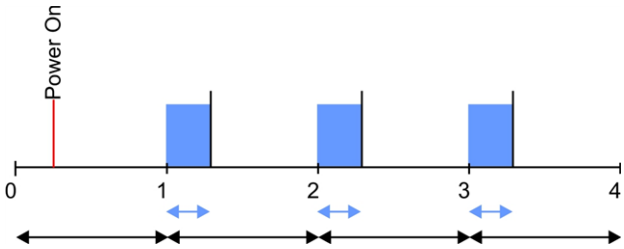
> ***Note:*** *If the sensor supply is permanently active, the energy requirements are greatly increased and the operating time of the device is significantly shortened.*

> ***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):

Basic setting		*Record interval*	*1min.*
		Warmup time	*20 seconds*
Output on the device		*Sensor supply*	

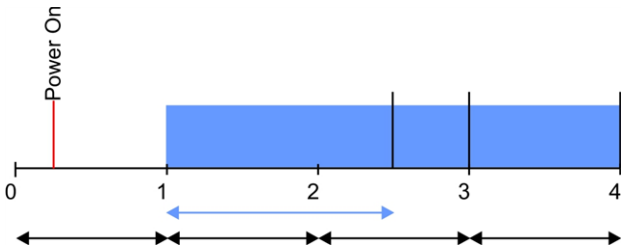


Explanation: *The sensor supply is activated once the record interval has elapsed. The actual measurement and recording is only completed once the warmup time has elapsed, i.e. in the current example 20 seconds after the record interval has elapsed.*

Note:

Example to explain the relationship between the warmup time and the record interval (warmup time > record interval):

Basic setting		*Record interval*	*1min.*
		Warmup time	*90 seconds*
Output on the device		*Sensor supply*	



Explanation: *The sensor supply is activated when the time for the first recording following the PowerOn is reached. As the warmup time is longer than the record interval, a measurement and recording cannot be completed at this time. In the current example, a measurement and recording can only be completed after the second point in time for the recording. As the sensor supply in this example is permanently active for the recording following the first point in time, the measurement and recording are always completed at the exact recording time from the third point in time.*

8.3.5 Technical details about the SIM slot

The SIM slot, for example, enables a managed service SIM card with a different country list profile to the internally installed SIM chip to be inserted. The internal SIM chip is deactivated and the external SIM card is used when an external SIM card is inserted. Note that the transport lock must be activated to deactivate the transmission (see "Storage of the product" on page 24). The

transmission is not disabled by removing the external SIM card, as the device switches back to the internal SIM chip in this case.

8.3.6 Technical details about the USB interface

The connection to a PC is established via the USB slave interface. It is only designated for the communication with the DeviceConfig configuration program. A detailed description of the DeviceConfig configuration program is provided in the manual for the DeviceConfig ("myDatanetDeviceConfig Manual " 805004). The DeviceConfig configuration program can be downloaded free of charge from the following website:

www.microtronics.at/deviceconfig

> ***Important note:*** *Remove the antenna before connecting the device with the USB interface of a PC. Otherwise, this can cause a potential displacement between the ground of the antenna and PC, which could damage the USB interface of the device.*

Chapter 9 Initial Start-Up

9.1 User information

Before you connect the myDatalog2Ex 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 myDatalog2Ex .

Please contact our technical department if anything is unclear or if you encounter difficulties with regard to installation, connection or configuration (see "Contact information" on page 127).

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

9.2 General principles

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

Utilise the manual to familiarise yourself with the operation of the myDatalog2Ex and the input screens of the myDatanet-Server before you begin with the configuration.

9.3 Placing the system into operation

> ***Note:*** *It is recommended that the myDatalog2Ex 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 configuration (see "Site configuration" on page 67). 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 myDatalog2Ex prior to its actual first use. This reduces the amount of time required for on-site installation to a minimum.*

1. The myDatalog2Ex is supplied with the transport lock activated (measurement and transmission "OFF") and should also always be stored in this state (see "Storage of the product" on page 24). The transport lock is deactivated by initiating the ALOHA transmission mode (see "ALOHA transmission mode" on page 35), whereby the first connection to the myDatanet server is established.

2. The myDatalog2Ex is already ready for operation if you have completed all of the steps in chapter "Connecting the sensors" on page 46.
3. Create a site for the operation on the myDatanet server (see "myDatanet Server Manual " 805002).
4. Configure the created site according to your requirements (see "Site configuration" on page 67).
5. Link the myDatalog2Ex with the created site (see "Site" on page 67).
6. Activate the ALOHA transmission mode (see "ALOHA transmission mode" on page 35) so that the site configuration is transferred to the myDatalog2Ex .

9.4 Testing communication with the device

1. Create a site for the operation on the myDatanet server (see "myDatanet Server Manual " 805002).
2. Configure the created site according to your requirements (see "Site configuration" on page 67).
3. Link the myDatalog2Ex with the created site (see "Site" on page 67).
4. Connect the antenna (see "Connecting the GSM antenna" on page 53).
5. Initiate the ALOHA transmission mode (see "ALOHA transmission mode" on page 35) so that the configuration of the site is transferred to the myDatalog2Ex .
6. Wait until it is indicated in the list of measurement instruments that the device is in ALOHA transmission mode. This is indicated by a speech bubble with the "Aloha" inscription.



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

7. Stop the ALOHA transmission mode by clicking the cross in the speech bubble with the "Aloha" inscription or wait for the duration of the ALOHA transmission mode. This period can be set in the basic settings (see "Basic setting" on page 80) of the site configuration. The default setting is 10 minutes.
8. Then connect the sensors (see "Connecting the sensors" on page 46) and restart the ALOHA transmission mode.

9. Check the incoming data in the ALOHA data window of the myDatanet server, which can be accessed by clicking on the speech bubble with the "Aloha" inscription (see "myDatanet Server Manual " 805002). Particular attention must be paid to the internal"GSM level" and "Battery" measurement values.

Note: *Additional explanation about evaluating the "GSM level":*

"GSM level"	
›-64dBm	
-64 to -73dBm	
-74 to -83dBm	
-84 to -93dBm	
-94 to -107dBm	
‹= -108dBm	

Note: *Additional explanation about evaluating the "Battery":*

"Battery"	
› 3,82V	
3,82V...3,73V	
3,72V...3,66V	
3,65V...3,62V	
3,61V...3,21V	
‹= 3,2V or invalid value	

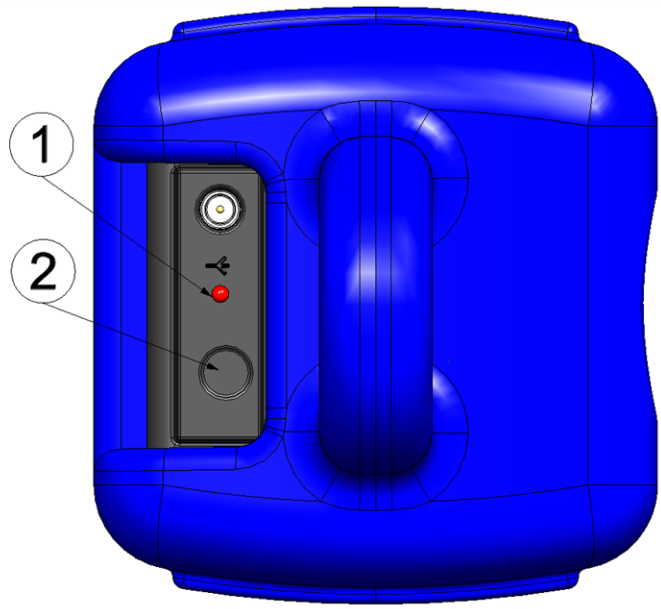
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Chapter 10 User interfaces

The configuration of the myDatalog2Ex is carried out via the web interface on the myDatanet server (see "User interface on the myDatanet-Server" on page 67), which your responsible sales partner will provide to you.

10.1 User interface on the myDatalog2Ex

10.1.1 Operating elements



Operating elements

1 Status LED	2 Solenoid switch

10.1.1.1 Solenoid switch

The MDN Magnet (206.803) included in the scope of delivery is required for operating the solenoid switch. The solenoid switch can be used to initiate the ALOHA transmission mode or to instruct the myDatalog2Ex to immediately transmit the error/status code.

Operation by the user	Device response	Operation after releasing the solenoid switch
Press briefly (approx. one second)	Status LED illuminates	Error/status code is displayed (see "Status LED" on page 66)
Press and hold for five seconds	Status LED flashes three times and then remains on	ALOHA transmission mode

10.1.1.2 Status LED

The status LED is used both to display the error/status codes and to indicate the current operating state. If the ALOHA transmission mode was activated or the rechargeable battery or battery pack was connected (PowerOn), the myDatalog2Ex switches to advanced signalling mode and indicates the current operating state for 10 minutes via the status LED. During these 10 minutes, the error/status codes are issued every 3 seconds as long as no active GPRS connection is established. The current operating state is not indicated during standard signalling mode and the error/status codes are only issued every thirty seconds.

Error/status codes

Flashing code	Description	Solution/cause
0x	Transport lock (transmission OFF, measurement OFF)	If the ALOHA transmission mode is initiated by means of the solenoid switch, the myDatalog2Ex resumes operation in accordance with the configuration (transmission ON, measurement ON).
1x	Last connection OK	
2x	Last transmission faulty	Try again later
4x	Standby (GPRS ON, measurement OFF)	see "transport lock"
6x	Offline (GPRS OFF, measurement ON)	see "transport lock"
7x	Netlock/no matching provider	• Improve position of the antenna • Check whether the device is located in the coverage area of one of the service providers supported by the integrated SIM chip (www.microtronics.at/footprint) • Lift the netlock (see "myDatanetDeviceConfig Manual " 805004)
8x	No GSM network	• Try again later • Improve position of the antenna
10x	No GPRS connection	Improve position of the antenna
11x	No myDatanet server accessible	• Check whether port 51241 is enabled on the myDatanet server • Try again later
12x	Faulty SIM chip/SIM card	Contact support

Operating states

Status LED	Description
Flickering	Establishing connection
Lights up	GPRS connection established or button/solenoid switch actuated
Off	Normal measuring operation according to configuration until the next transmission

10.2 User interface on the myDatanet-Server

10.2.1 Site configuration

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

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

10.2.1.1 Site

Customer
Specifies to which customer the site is assigned.

 **icon**
Assign site to another customer

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

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

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

Tags
Liste der Tags, die der Messstelle bereits zugewiesen sind. This assignment can be cancelled by clicking on the cross next to the title of the tag. The input screen for assigning tags can be opened by clicking on the plus symbol.

10.2.1.2 Comments

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

10.2.1.3 Measurement channels

10.2.1.3.1 Basis

Title 1-2
Freely selectable channel title for the universal inputs

Mode

Basic settings for the measurement channel

Universal inputs (digital modes)	*Off*	*---*	*Measurement channel deactivated*
	Digital	*Invert*	*Inverts the input signal*
	Cnt.Day[1)]	*Impulse*	*Counted measurand of a pulse in the measurement unit*
		Max	*Defines the upper scale end of the pointer instruments*
		Unit	*String that is used as a measurement unit by all of the server display elements [0-16 8 characters]*
		Decimal places	*Number of decimal places that are used by all of the server display elements*
	Cnt.Intervl.[1)]	*Pulse*	*Counted measurand of a pulse in the measurement unit*
		Max	*Defines the upper scale end of the pointer instruments*
		Unit	*String that is used as a measurement unit by all of the server display elements [0-16 8 characters]*
		Decimal places	*Number of decimal places that are used by all of the server display elements*

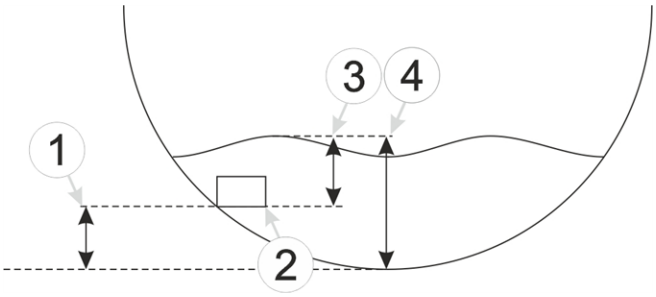
[1)] *These modes are only available for universal input 1*

Universal inputs (analogue modes)	*0-20 mA*	*0%*	*Start of the measurement range in the measurement unit*
		100%	*End of the measurement range in the measurement unit*
		Trim	*Provided to adjust the zero point (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70)*
		Sensor offset	*Specifies the installation height of the sensor (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70)*
		Unit	*String that is used as a measurement unit by all of the server display elements [0-16 8 characters]*
		Decimal places	*Number of decimal places that are used by all of the server display elements*
	4-20 mA	*0%*	*Start of the measurement range in the measurement unit*
		100%	*End of the measurement range in the measurement unit*
		Trim	*Provided to adjust the zero point (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70)(see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70)*
		Sensor offset	*Specifies the installation height of the sensor (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70)(see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70)*
		Unit	*String that is used as a measurement unit by all of the server display elements [0-16 8 characters]*
		Decimal places	*Number of decimal places that are used by all of the server display elements*

Note:

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

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



Installation situation of the pressure sensor

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

Required configuration

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

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

10.2.1.3.2 Config

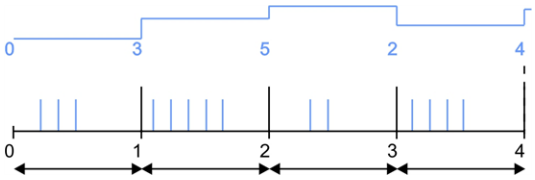
Universal inputs (digital modes)	Off	---	---	
	Digital	High level	Configuration of the "low" and "high" level	
			0	The levels are set automatically. Warmup time not equal to 0: • "high": ›8,25V • "low": ‹7,42V Warmup time equal to 0: • "high": ›2,21V • "low": ‹1,91V
			› 0mV	Level from which the signal at the universal input is interpreted as "high". "low" is detected at the "high level" -10%.
	Cnt.Day[1)]	High level	Configuration of the "low" and "high" level	
			0	The levels are set automatically. (see "Digital" mode)
			› 0mV	Level from which the signal at the universal input is interpreted as "high". "low" is detected at the "high level" -10%.
	Cnt.Intervl.[1)]	High level	Configuration of the "low" and "high" level	
			0	The levels are set automatically. (see "Digital" mode)
			› 0mV	Level from which the signal at the universal input is interpreted as "high". "low" is detected at the "high level" -10%.

[1)] These modes are only available for universal input 1.

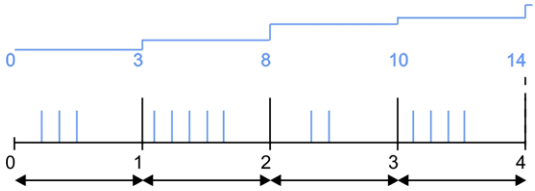
Note:

Additional explanation regarding the difference between "Cnt.Day" and "Cnt.Intervl."

Basic setting	⟷	*Record interval*	*1min.*	*Measurement value*	*blue line*



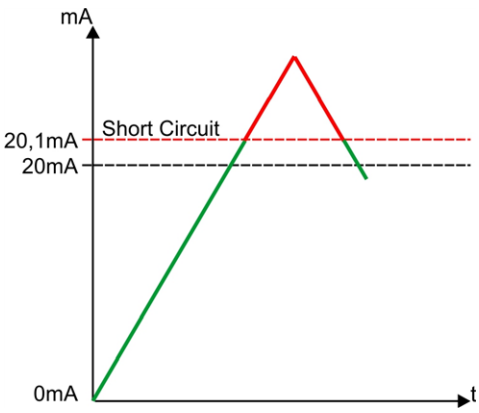
"Cnt.Intervl." mode: The pulses are added up and reset after each recording.



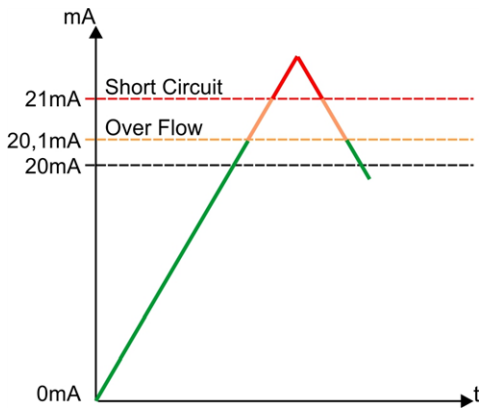
"Cnt.Day" mode: All of the pulses up to the day changing time are added up.

Universal inputs (0-20mA mode)	0-20 mA	Overflow	Procedure in the event of measurement range violations	
			Ignore	The measurement value is calculated beyond the range limits.
			Silent cutoff	The measurement value is truncated at the range limits.
			Out of range	• If the measurement value is above 20.1 mA, the error value "SC" (short circuit) is issued.
			NAMUR borders	• The error value "OF" (overflow) is issued, if the measurement value is above 20.1mA. • If the measurement value is above 21mA, the error value "SC" (short circuit) is issued.

Note: *Additional explanation regarding the "Out of range" and "Namur borders" modes.*



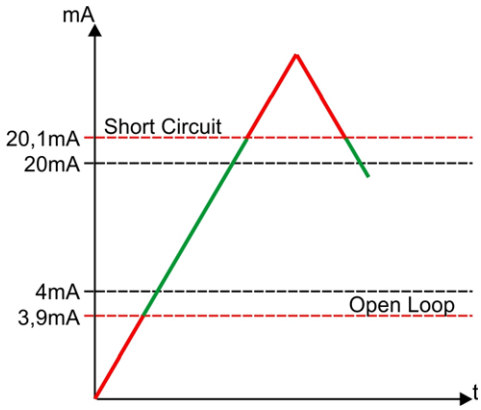
"Out of range" mode



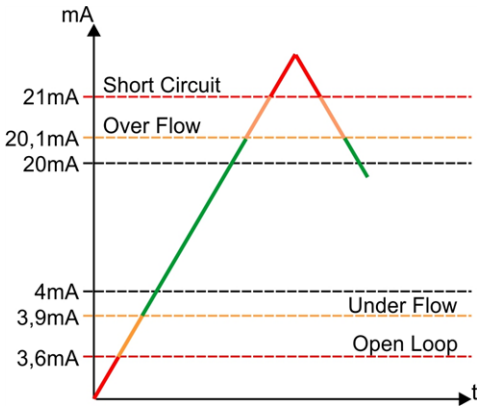
"Namur borders" mode

Universal inputs (4-20mA mode)	4-20 mA	Overflow	Procedure in the event of measurement range violations	
			Ignore	The measurement value is calculated beyond the range limits.
			Silent cutoff	The measurement value is truncated at the range limits.
			Out of range	• The error value "OL" (open loop) is issued, if the measurement value is below 3.9mA. • If the measurement value is above 20.1 mA, the error value "SC" (short circuit) is issued.
			NAMUR borders	• The error value "OL" (open loop) is issued, if the measurement value is below 3.6mA. • The error value "UF" (underflow) is issued, if the measurement value is below 3.9mA. • The error value "OF" (overflow) is issued, if the measurement value is above 20.1mA. • If the measurement value is above 21mA, the error value "SC" (short circuit) is issued.

Note: *Additional explanation regarding the "Out of range" and "Namur borders" modes.*



"Out of range" mode



"Namur borders" mode

10.2.1.3.3 Alarms

"Digital" mode	WA	A "high" at the universal input triggers a "warning".	
	AL	A "high" at the universal input triggers an "alarm".	
	SW	A "high" at the universal input triggers a "fault warning".	
	SA	A "high" at the universal input triggers a "fault alarm".	
All other modes	Warning	Value low	A warning is triggered, if the measurement value drops to or below this value.
		Value high	A warning is triggered, if the measurement value meets or exceeds this value.
	Alarm	Value low	An alarm is triggered, if the measurement value drops to or below this value.
		Value high	An alarm is triggered, if the measurement value meets or exceeds this value.
	Hyst %	Hysteresis for the all-clear in the event of an alarm/warning (e.g. Hyst=5%, alarm or warning at 100 -› all-clear at 95) or reset the trigger (e.g. Hyst=5%, level = greater or equal, trigger at 100 -› reset at 95)	

10.2.1.3.4 Trigger

QU	The "Record interval on event" should be used.	
XM	Initiate transmission	
QX	The "Transmission cycle quick" should be used.	
Level	Levels for initiating the trigger. The hysteresis from the "Alarm" tab is used to determine the level to reset the trigger.	
	Greater or equal	The measurement value must be greater or equal to the level to initiate the trigger.
	Less or equal	The measurement value must be less or equal to the level to initiate the trigger.

10.2.1.4 Calculated channels

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

10.2.1.4.1 Basis

Title 1-5

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

Mode

Possible calculation modes for the calculated channels

Off	*---*	*Calculated channel deactivated*
Table	*Unit*	*String that is used as a measurement unit by all of the server display elements [0-16 characters]*
	Decimal places	*Number of decimal places that are used by all of the server display elements*
Digital	*Invert*	*Inverts the input signal*
+, -, x, /	*Unit*	*String that is used as a measurement unit by all of the server display elements [0-16 characters]*
	Decimal places	*Number of decimal places that are used by all of the server display elements*
Delta	*Determines the difference between two measurement values and divides the result by the time difference between the time stamps of the measurement values. The time unit (value/sec., value/min., ...) for the result can be selected via the "Time basis" parameter located in the "Calculation" tab. It is thus possible to convert the counter reading (m^3) of the source in to a flow rate (m^3/min.). (see "Additional explanation: Delta mode" on page 77)*	
	Unit	*String that is used as a measurement unit by all of the server display elements [0-16 characters]*
	Decimal places	*Number of decimal places that are used by all of the server display elements*
clone	*Creates a clone of a measurement channel. This ensures it is possible to rename channels, to select different ends of the scale for the pointer instruments, to determine a new string as a measurement unit and to adjust the number of decimal places. The measurement values (numerical value without unit) correspond exactly to those of the source.*	
	Unit	*String that is used as a measurement unit by all of the server display elements [0-16 characters]*
	Decimal places	*Number of decimal places that are used by all of the server display elements*



Shift element down



Shift element up

10.2.1.4.2 Calculation

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

Note:

Additional explanation: Delta mode

Assumption: *The source channel contains the counter reading of an infinite counter in m³. The calculated channel 1 should contain the flow rate in m³/s and calculated channel 2 should contain the flow rate in l/h.*

Required configuration

Parameter	*Value channel 1*	*Value channel 2*
Basis -› mode	*Delta*	*Delta*
Basis -› unit	*m³/s*	*l/h*
Calculation -› time basis	*Seconds*	*Hours*
Calculation -› offset	*0*	*0*
Calculation -› factor	*1*	*1000*

Source		*Calculated channel 1*	*Calculated channel 2*
Date/time	*Infinite counter [m³]*	*Flow rate [m³/s]*	*Flow rate [l/h]*
26.03.2013 12:50	*900*	*0 1)*	*0 1)*
26.03.2013 12:51	*960*	*1*	*3,600,000*
26.03.2013 12:52	*990*	*0.5*	*1,800,000*
26.03.2013 12:53	*1005*	*0.25*	*900,000*
26.03.2013 12:54	*1065*	*1*	*3,600,000*

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

Explanation: *No values can be determined for the measurement at 12:50 for the calculated channels as there is no previous value and the difference between the counter readings cannot be determined. For the measurement at 12:51, the difference to the counter reading is 60m³ and the time difference is 60sec.*

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

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

Channel 1 = ((60m³ / 60sec.) * 1 * 1) + 0 = 1m³/s

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

Channel 2 = ((60m³ / 60sec.) * 3600 * 1000) + 0 = 3,600,000l/h

10.2.1.4.3 Alarms

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

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

10.2.1.5 Internal channels

10.2.1.5.1 Basis

Battery title	Freely selectable channel title for the internal battery or rechargeable battery voltage	
	Unit	String that is used as a measurement unit by all of the server display elements [0-16 characters]
GSM level title	Freely selectable channel title for the GSM level	
	Unit	String that is used as a measurement unit by all of the server display elements [0-16 characters]
Int. temperature title	Freely selectable channel title for the internal device temperature	
	Unit	Selection of the temperature unit used by all of the server display elements

10.2.1.5.2 Alarms

Note: *The alarm limits for the internal channels are monitored by the myDatanet server and not the myDatalog2Ex . This means that an alarm can only be detected when the measurement data is transferred to the myDatalog2Ex server.*

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

10.2.1.6 Alarm settings

Acknowledgement	Standard	The global server setting is used to determine whether alarms must be acknowledged automatically or manually.(see "myDatanet Server Manual " 805002)
	Automatic	Alarms are acknowledged automatically as soon as all of the messages have been sent. If SMS that have a tariff with a delivery confirmation function have also been sent, acknowledgement is provided after delivery confirmation.
	Manual	Alarms must be acknowledged by the user.
Offline alarm	Alarm in case the device does not respond for longer than the set number of transmission cycles. An additional tolerance of 10 min. is granted per transmission cycle to take any retries when establishing a connection into consideration.	
Transfer volume	Standard	The setting for the transfer volume alarm is taken from the global server settings.(see "myDatanet Server Manual " 805002)
	Off	The transfer volume alarm is deactivated.
	Individual	The level at which the transfer volume alarm should be triggered can be entered in the adjacent field in KB.
On alarm	A	The alarm is recorded in the alarm list.
	Ü	An immediate transmission is initiated.
	Q	The "Record interval on event" should be used.
	X	The "Transmission cycle quick" should be used.
On warning	A	The alarm is recorded in the alarm list.
	Ü	An immediate transmission is initiated.
	Q	The "Record interval on event" should be used.
	X	The "Transmission cycle quick" should be used.
On fault alarm	A	The alarm is recorded in the alarm list.
	Ü	An immediate transmission is initiated.
	Q	The "Record interval on event" should be used.
	X	The "Transmission cycle quick" should be used.
On fault warning	A	The alarm is recorded in the alarm list.
	Ü	An immediate transmission is initiated.
	Q	The "Record interval on event" should be used.
	X	The "Transmission cycle quick" should be used.

10.2.1.7 Basic setting

Aloha duration	Duration of the Aloha connection	
Transmission cycle	Time between transmissions	
Transmission cycle quick	Time between the transmissions, if a shortened transmission cycle should be used because of an alarm/warning or a trigger being initiated	
Record interval	Time between measurement data recordings	
Record interval on event	Time between the recordings of the measurement data, if a shortened record interval should be used because of an alarm/warning or a trigger being initiated	
Warmup time	specifies the time for which the sensor supply is switched on before the measurement (see "Technical details regarding the sensor supply" on page 57)	
Filter time	Decay period. The time that is set here must be divided by 300 ms to determine the number of measurements that are being averaged. ***Note:*** *The filter time has an essential impact on the measurement duration and thus the energy consumption.*	
Time zone	Regional settings (not relevant for raw measurement data as this is stored in UTC)	
Daylight saving time	Configuration for automatic time adjustment	
	Standard	The configuration for the time adjustment is adopted by the global server setting (see "myDatanet Server Manual " 805002).
	Off	Automatic time adjustment deactivated
	USA	Predefined setting for the American area
	EU	Predefined setting for the American area
Day change over	Reset time of the day counter	
Position cycle	Position update interval (00:00 positioning is completed with every connection)	
Default report	Selection of the report that is loaded by clicking on the device link in the maps	
	Off	The default graphic is loaded.
	"Name of a report"	The selected report is loaded.

Report template	Selection of whether the default graphic or a report template to display the data is used when clicking on the symbol to display the measurement data located in the site/application list. Only the report templates in which the site/application type of the first wild card is compatible with the site/application that is currently being edited are displayed in the dropdown list.	
	(not assigned)	The default graphic is used to display the measurement data.
	"Name of a report template"	Name of the report template used to display the measurement data

10.2.1.8 FTP export settings

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

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

10.2.2 Device configuration

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

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

10.2.2.1 Comments

Comments

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

10.2.2.2 Measurement instrument

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

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

10.2.2.3 Device-specific settings

Measurement
Activates/deactivates the measurement

Transmission
Activates/deactivates the transmission

10.2.2.4 GPRS

SIM tariff
Selected SIM tariff

6872
6872
6872

Chapter 11 API

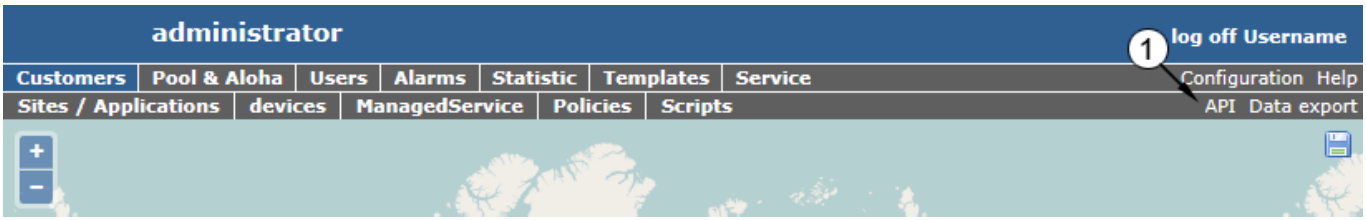
Important note: The relevant licences are required on the myDatanet server to use the API. For future information contact your responsible sales partner.

11.1 General

The API is provided to export data from the myDatanet server and import data in to the myDatanet server. However, for "myDatalog2Ex " type devices this is limited to the measurement data.

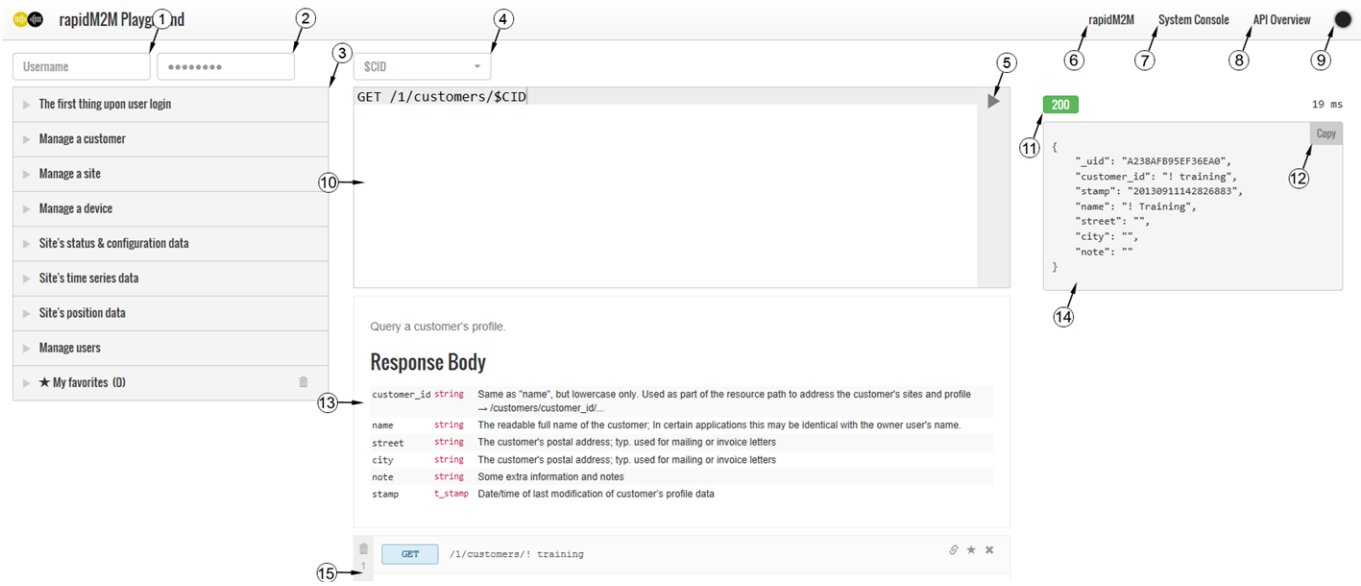
11.2 rapidM2M Playground

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



1	opens the rapidM2M Playground

11.2.1 Übersicht



rapidM2M Playground

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

Chapter 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.

Important note: Non-observance of the measures described in the following chapters will automatically invalidate the warranty.

- *"Replacing the rechargeable battery cover" on page 93*
- *"Maintenance of the rechargeable battery seal" on page 94*
- *"Maintenance of the antenna socket (not necessary from hardware version 4.0 onwards)" on page 95*
- *"Maintenance of the antenna connector (only for antennas supplied before 09/2013)" on page 96*

12.1 General maintenance

- Inspect the myDatalog2Ex regularly for mechanical damage.
- Check all cables for mechanical damage at regular intervals.
- Clean the myDatalog2Ex 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.

12.2 Accu or battery pack

While battery packs are intended for single use and must be disposed of accordingly after depletion, accu packs can be recharged and used again and again. However, the service time of accu packs is not indefinite. In addition to regular servicing and maintenance, its service life is also dependent on the frequency of use and the operating and storage conditions.

12.3 Replacing the rechargeable battery or battery pack

Important note: A dry location must be used to replace the rechargeable battery or battery pack. If this is not possible, protect the opened device against penetrating moisture using suitable means.

1. Ensure that all of the relevant data was transferred to the myDatanet server. If necessary, initiate the ALOHA transmission mode using the solenoid contact (see "ALOHA transmission mode" on page 35) and then check again that all of the relevant data has been transferred.
2. Now remove the cables and antenna.

3. Press the upper end of the device out of the protective armour (see "Removing the protective armour - step 1" on page 88) and then remove it fully from the protective armour (see "Removing the protective armour - step 2" on page 88)



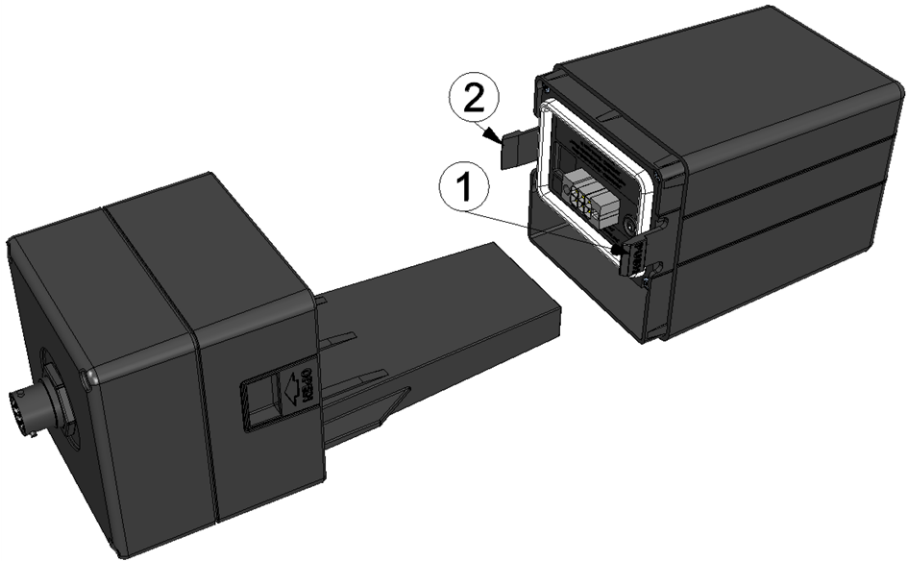
Removing the protective armour - step 1



Removing the protective armour - step 2

4. Briefly (approx. 1 sec.) activate the solenoid switch (see "Operating elements" on page 65) to prepare the myDatalog2Ex for the removal of the rechargeable battery pack. This ensures that the most recently generated data is also saved permanently. If the device is not notified that the rechargeable battery pack is being removed by briefly pressing the solenoid switch, the measurement data from the last half an hour can be lost.
5. Push and hold both of the release buttons (see "Removing the rechargeable battery or battery pack" on page 88) while pulling the rechargeable battery or battery pack out of the myDatalog2Ex .

> ***Note:*** *If using a battery pack, ensure that it is disposed of in line with environmental requirements. Used battery packs can be returned to the manufacturer or handed in at suitable collection points.*



Removing the rechargeable battery or battery pack

1 Left release button	**2** Right release button

The following step is only necessary if a rechargeable battery pack is being used.

6. Charge the rechargeable battery pack. A description is provided in the chapter "Charging the accu pack" on page 90.
7. Due to the low energy consumption, one rechargeable battery charge will provide several months of operating time. During this time, the myDatalog2Ex is located in an environment that strongly corrodes the seal between the device and rechargeable battery or battery pack. The rechargeable battery cover must therefore be replaced every time the rechargeable battery or battery pack is disconnected from the device. Instructions are provided in the chapter "Replacing the rechargeable battery cover" on page 93.

   Important note: *When using rechargeable battery packs with an EX certificate that is indicated by the marking on the type plate, the rechargeable battery cover must only be replaced by individuals who are certified and specially trained by the manufacturer.*

8. Most damage to the myDatalog2Ex can be attributed to damaged or contaminated seals. The rechargeable battery cover must therefore be replaced every time the rechargeable battery or battery pack is disconnected from the device. The contact surface on the device must be cleaned thoroughly and the seal of the new rechargeable battery cover must be lubricated thoroughly. A detailed description is provided in the chapter "Maintenance of the rechargeable battery seal" on page 94.

   Important note: *Ensure that the seal and contact surface of the device are clean and intact before assembling the rechargeable battery or battery pack and the myDatalog2Ex . Remove any impurities and/or dirt. The manufacturer shall not be liable for any damage to the device caused by leaky or faulty seals.*

9. Now reconnect the rechargeable battery or battery pack and the myDatalog2Ex . Check that both of the "Push" buttons are engaged correctly.

   Important note: *The manufacturer is not liable for any damage that is caused by the rechargeable battery or battery pack and the myDatalog2Ex not being assembled correctly ("Push" buttons not engaged correctly).*



The following step is not mandatory.

10. Check whether the connection to the myDatanet functions correctly (see "Testing communication with the device" on page 62).

11. Clean the protective armour before assembly. It is also recommended to lightly spray the corners and surfaces in accordance with Figure "Oiling the protective armour" on page 90 using the paraffin oil spray included in the myDatanet service kit (206.324). This facilitates assembly and the subsequent removal of the protective armour during the next service.

    - The protective armour must only be cleaned with mild cleaning agents.
    - The protective armour must not be rubbed with cloths in the Ex zone.

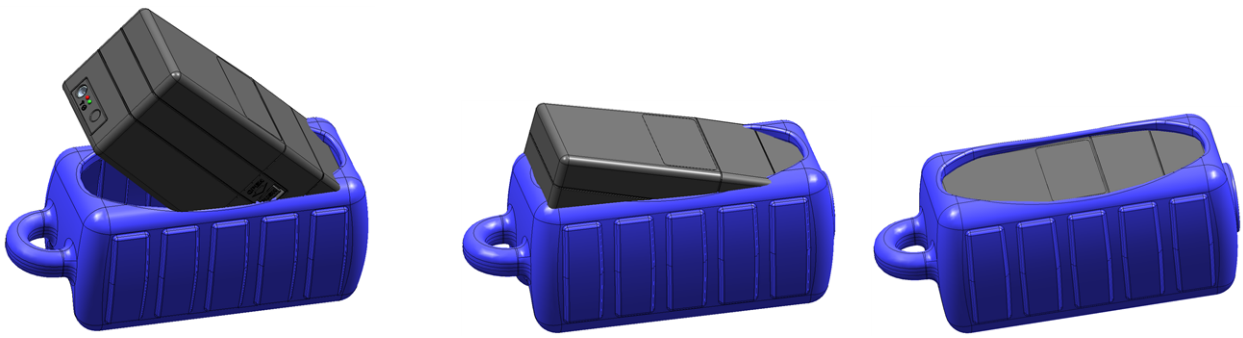


Oiling the protective armour

12. Install the protective armour according to steps 1 to 3 in Figure "Installing the protective armour" on page 90. Ensure that you insert the device in to the protective armour in such a way that the type plate can be read following installation. Otherwise, the solenoid switch, status LED and antenna connector cannot be accessed via the cut-out in the upper section of the protective armour (see "Operating elements" on page 65).

    Important note: *Do not use any sharp objects for the assembly.*

Installing the protective armour



Step 1 Step 2 Step 3

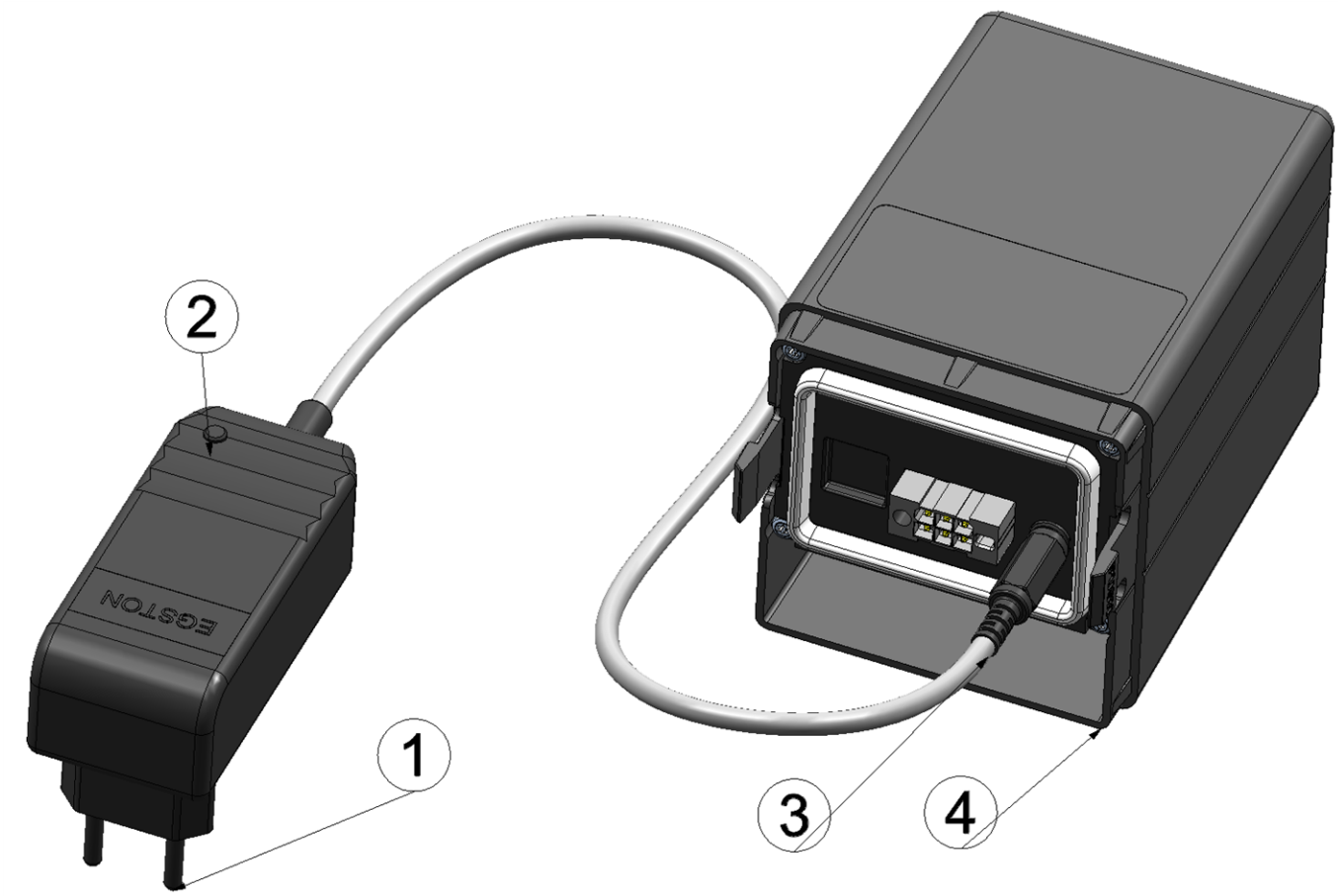
12.3.1 Charging the accu pack

The accu packs are delivered in a charged state.

Instructions on replacing the accu pack are provided in "Replacing the rechargeable battery or battery pack" on page 87.

Important note:

- *It is permissible to replace the rechargeable battery pack in the Ex area, although it must not be charged there.*
- *When recharging the rechargeable battery pack it must be located outside the Ex area in a dry environment.*
- *Only the Charger AC15 (206.701) must be used to charge lithium-ion accu packs. The charger specifications must be observed. The use of atypical chargers can destroy the accu pack (e.g. causing the cells to leak or an explosion, etc).*



Charger and accu pack

1	Charger AC15 (206.701)	3	Charging plug
2	Status LED of the Charger AC15 Flashing orange: Impulse charge (accu pack fully discharged) Orange: Accu pack is being charged Green: Charging completed Red: Accu pack damaged	4	Accu pack, e.g. AP424DA rechargeable battery (206.705)

The charging process starts as soon as the accu pack is connected to the charger. The accu pack is fully discharged if the status LED on the charger flashes orange. The charging process will take considerably longer in this case. A normal charging process is started, if the status LED is orange. The charging process is complete when the status LED turns green. Normally, the charging process does not take longer than 10 hours.

If the status LED turns red, the accu pack is faulty. Possible reasons for this include a broken cable, short circuit or defective cells. In this case, the used accu pack must be replaced with a new one.

Note: A new accu pack will only achieve full capacity after three complete charging and discharge cycles. Accu packs are wear parts that lose capacity over time. The capacity is also reduced at high or low ambient temperatures and under intensive use.

Important note: The use of spare and wear parts (e.g. accu or battery packs, etc.) that are not approved by the manufacturer will render the warranty invalid.

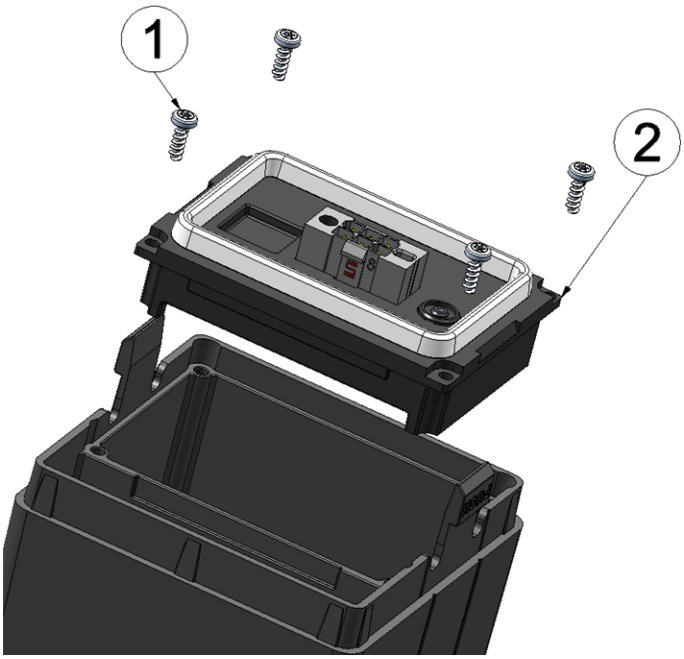
Note: Ensure that accu and battery packs are disposed of in line with environmental requirements. Used accu or battery packs can be returned to the manufacturer or handed in at suitable collection points.

12.3.2 Replacing the rechargeable battery cover

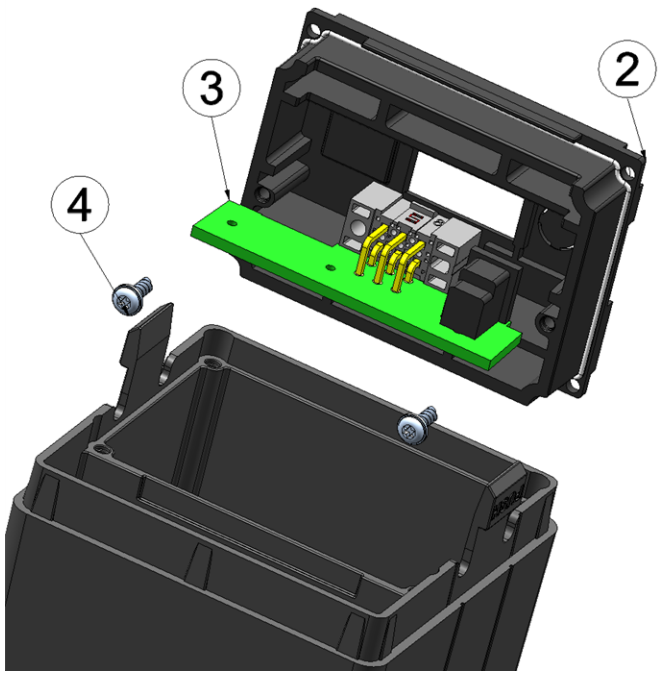
The optional "myDatanet service kit (206.324)" accessory is required for replacing the rechargeable battery cover.

Important note:

- *When using rechargeable battery packs with an Ex certificate, that is indicated by the marking on the type plate, the rechargeable battery cover must only be replaced by individuals who are certified and specially trained by the manufacturer.*
- *The rechargeable battery cover must not be replaced in the Ex area.*
- *The rechargeable battery cover must be replaced every time the rechargeable battery or battery pack is disconnected from the device.*
- *The manufacturer must be contacted if there is any indication of moisture within the sealing area (see "Contact information" on page 127).*
- *The maximum permissible torque for all of the screws is 0.45 Nm and must not be exceeded under any circumstances.*



Replacing the rechargeable battery cover - step 1



Replacing the rechargeable battery cover - step 2

1	Screw	3	Rechargeable battery electronics
2	Rechargeable battery cover	4	Screw including shoulder washer

1. Unscrew all four of the screws (1) that secure the rechargeable battery cover (see "Replacing the rechargeable battery cover - step 1" on page 93). A suitable Torx wrench (Tx10) is included in the myDatanet service kit (206.324).

2. Carefully lift the rechargeable battery cover.

   Important note: Be particularly careful to ensure that the wires that are underneath and connect the rechargeable battery electronics to the rechargeable battery cells are not damaged.

3. Loosen both of the screws (4), that secure the rechargeable battery electronics, and carefully remove the rechargeable battery electronics from the rechargeable battery cover (see "Replacing the rechargeable battery cover - step 2" on page 93).

4. Then push the rechargeable battery electronics into the new rechargeable battery cover and secure the rechargeable battery electronics with the screws provided (4).

   Important note: Ensure that you do not mix up the screws (4) for securing the rechargeable battery electronics with the screws (1) for securing the rechargeable battery cover.

5. Place the rechargeable battery cover back on the rechargeable battery pack and secure it with all four of the screws (1). Tighten all four of the screws crosswise so that the rechargeable battery cover is affixed uniformly (ensure the maximum permissible torque of 0.45 Nm is maintained).

12.3.3 Maintenance of the rechargeable battery seal

The optional "myDatanet service kit (206.324)" accessory is required for maintaining the rechargeable battery seal.

Important note:

- *The rechargeable battery cover must be replaced every time the rechargeable battery or battery pack is disconnected from the device (see "Replacing the rechargeable battery cover" on page 93).*
- *Ensure that any impurities are eliminated.*
- *The impermeability of the device is not guaranteed if the contact surface on the device is not cleaned thoroughly.*
- *The seal must be protected before EACH assembly with a bead of grease from the syringe included in the myDatanet service kit (206.324).*

1. After removing the rechargeable battery or battery pack, clean the contact surface on the myDatalog2Ex with a standard cleaning cloth and cotton buds.



Cleaning the myDatalog2Ex - step 1



Cleaning the myDatalog2Ex - step 2

2. Replace the rechargeable battery cover (see "Replacing the rechargeable battery cover" on page 93).
3. To ensure impermeability, it is particularly important to apply a bead of grease on the seal (approx. 0.5 ml) using the syringe included in the myDatanet service kit (206.324).

   Important note: *The seal must be greased before EVERY assembly of the rechargeable battery or battery pack.*



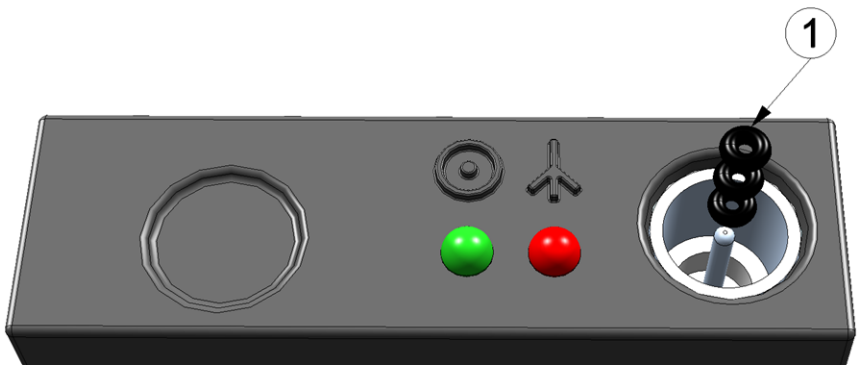
Applying the bead of grease

12.4 Maintenance of the antenna socket (not necessary from hardware version 4.0 onwards)

The optional "myDatanet service kit (206.324)" equipment is required for maintaining the antenna socket.

Important note:

- *The three small O-rings must be installed on the contact pin of the antenna socket to improve the seal.*
- *The O-rings must be checked after the antenna has been removed (e.g. when replacing the rechargeable battery) and must be replaced with new ones from the myDatanet service kit (206.324) in the event of brittleness or damage.*



Installation of the three small O-rings

1	0.75x1.2 mm O-ring (included in the scope of delivery of the 206.324)	

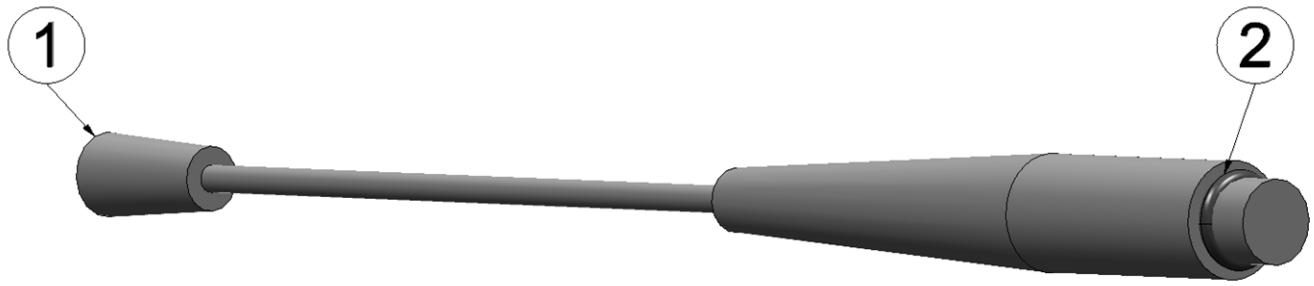
1. Place the three small O-rings on the contact pin of the antenna socket. The O-rings are placed in the end position during initial installation of the antenna.

12.5 Maintenance of the antenna connector (only for antennas supplied before 09/2013)

The optional "myDatanet service kit (206.324)" equipment is required for maintaining the antenna connector.

Important note:

- *The O-ring must generally be used for all radio receiver antenna connectors to improve the seal and must be replaced as necessary.*
- *The O-ring must be checked after the antenna has been removed (e.g. when replacing the rechargeable battery) and must be replaced with a new one from the myDatanet service kit (206.324) in the event of brittleness or damage.*



Antenna including attached O-ring

1 Antenna 900 FME -F (206.801)	**2** 6.1x1.6 mm O-ring (included in the scope of delivery of the 206.324)

1. Attach the O-ring on the antenna connector according to the Figure "Antenna including attached O-ring" on page 96.
2. The O-ring must be pressed firmly on to the antenna socket following installation of the antenna. Check the number of O-rings on the contact pin of the antenna socket.

   Important note: Do not apply too much force when tightening the antenna. Tighten the antenna or antenna extension by hand. Do not use a tool except for the plastic open-ended spanner that is included in the myDatanet service kit (206.324) that will break if the applied force is too strong.

12.6 Calibration and zero point adjustment

Important note: To avoid damage to the device, only qualified personnel should undertake the maintenance work described in this chapter of the operating instructions.

Note: *Additional explanation regarding the difference between the calibration and zero point adjustment*

Action	*Amount of time*	*Required tools*	*Accuracy*
Calibration *(see "Calibration" on page 97)*	⧖⧖⧖⧖	🔧🔧🔧🔧	★★★★
Zero point adjustment *(see "Zero point adjustment" on page 102)*	⧖		★

12.6.1 Calibration

12.6.1.1 Calibration guidelines

Important note:

- *The calibration must only be completed by trained personnel.*
- *The ESD safety guidelines must be observed during the calibration.*
- *The calibration must not be completed in the Ex area.*

12.6.1.2 Equipment required for the calibration

The following basic equipment is required:

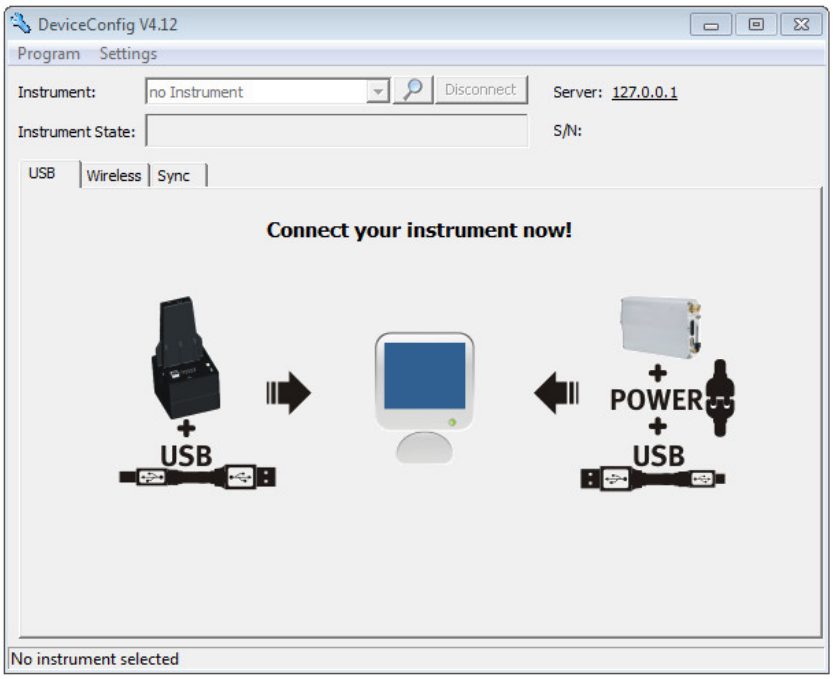
- A constant current source with an accuracy of more than 15 bit
- A computer for the configuration program DeviceConfig

12.6.1.3 Calibration process

Important note: *As the ambient temperature is taken into consideration when determining the exact values of the measuring resistances of the universal inputs, the myDatalog2Ex should be acclimatised during the calibration, i.e. it should already have been in the calibration environment for at least two hours.*

Note: *All of the screenshots show version 4.6 of the DeviceConfig configuration program. The newer versions may include minor changes to the appearance of the program.*

1. Start the DeviceConfig configuration program. It is available for download in the service area of your myDatanet server (see "myDatanet Server Manual " 805002). Installation instructions are included in the user manual for the DeviceConfig ("myDatanetDeviceConfig Manual " 805004).



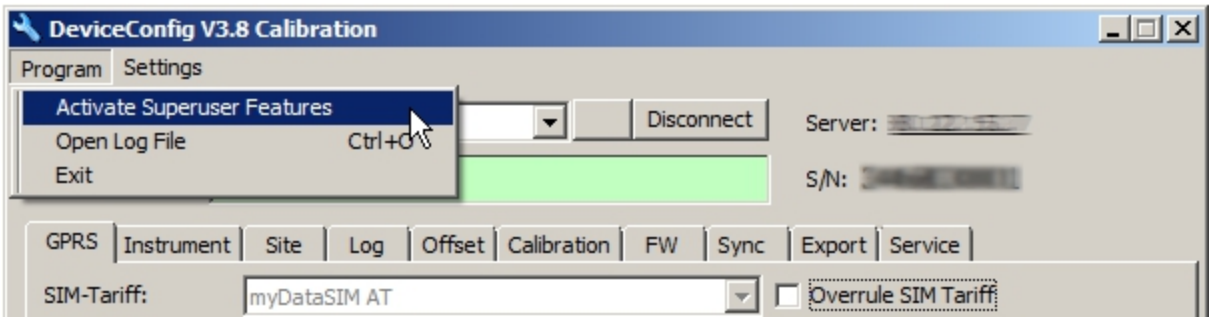
DeviceConfig

2. Remove the protective armour and disconnect the device from the rechargeable battery pack (see "Replacing the rechargeable battery or battery pack" on page 87) to expose the USB interface (see "Overview" on page 21).

3. Connect the myDatalog2Ex to the PC using the cable USB cable USB-A/USB-B 1,5m (206.601) supplied. The driver will need to be installed, if the device is being connected to the PC for the first time. From Windows Vista onwards, this will complete automatically. Instructions on installing the driver on older versions of Windows are included in the user manual for the DeviceConfig ("myDatanetDeviceConfig Manual " 805004).

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

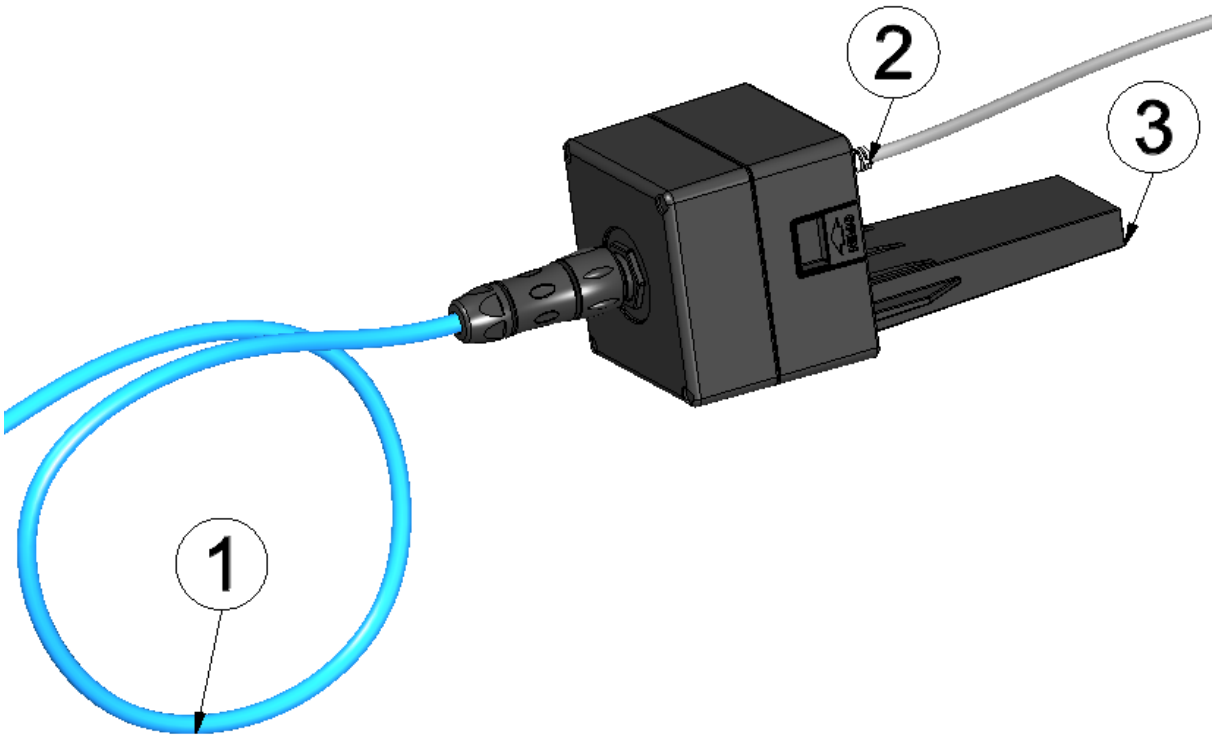
   Note: *Additional tabs will be displayed within the configuration program depending on the level of the password.*



Screenshot following input of the password including additional tabs

5. Select the "Calibration" tab (see "Screenshot following input of the password including additional tabs" on page 98) and wait for the warmup time to elapse.

6. Connect the myDatalog2Ex to your constant current source. You can use the Connection cable 7-pins for sensors 2,8m (206.602) or Cable connector 7-pins for myDatalogMobile (206.654) available as accessories for this purpose. The pin assignment of the sensor connector or the Connection cable 7-pins for sensors 2,8m (206.602) is detailed in chapter "Connecting the sensors" on page 46.

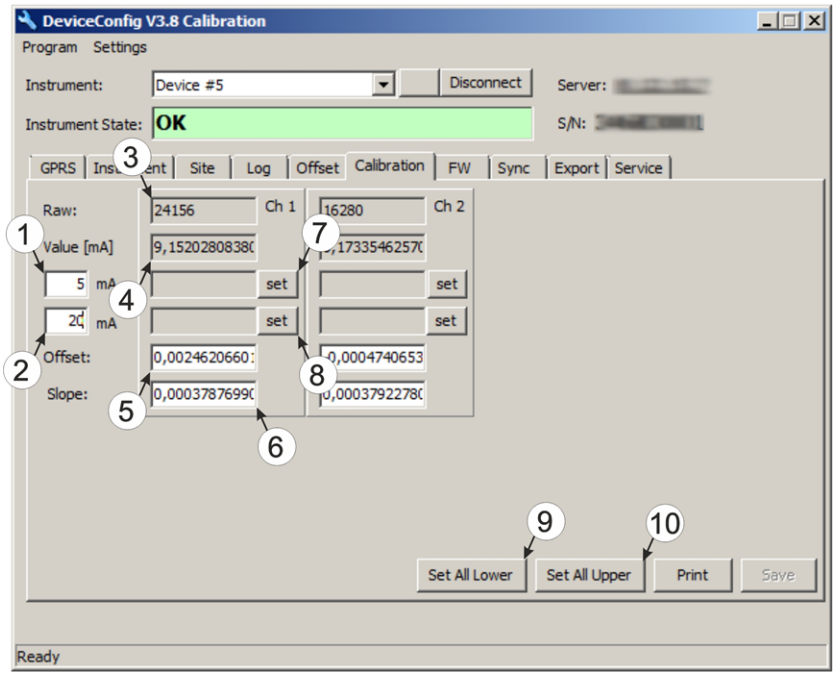


myDatalog2Ex with connected USB and sensor cable

1	Connection cable 7-pins for sensors 2,8m (206.602) connection to a constant current source	3	myDatalog2Ex
2	USB cable USB-A/USB-B 1,5m (206.601) connection cable to the PC		

7. Set your current source to the value that you want to use for the lower reference point and wait 3-5 seconds until the value displayed by the DeviceConfig has stabilised. Ensure that the required value is entered for the lower reference point before you press the button to adopt the lower reference point for the relevant universal input. You can also use the "Set all lower" button to set the lower reference points for both of the universal inputs at the same time. However, each of the universal inputs requires its own current source for this purpose. The current sources must all be set to the same value during this process.

   Note: *The values for both of the reference points can be selected freely. However, it is recommended to use a value in the range of 5 mA for the lower reference point and a value in the range of 20 mA for the upper reference point.*



"Calibration" tab

1	Lower reference point (target value in mA)	6	Calculated slope
2	Upper reference point (target value in mA)	7	Button for adopting the lower reference point for universal input 1
3	Raw value	8	Button for adopting the upper reference point for universal input 1
4	Rescaled raw value in mA (calculated with the currently valid values for the offset and slope)	9	Button for adopting the lower reference point for both universal inputs
5	Calculated offset	10	Button for adopting the upper reference point for both universal inputs

8. Set your current source to the value that you want to use for the upper reference point and wait 3-5 seconds until the value displayed by the DeviceConfig has stabilised. Ensure that the required value is entered for the upper reference point before you press the button to adopt the upper reference point for the relevant universal input (see ""Calibration" tab " on page 100). You can also use the "Set all upper" button to set the upper reference points for both of the universal inputs at the same time. However, each of the universal inputs requires its own current source for this purpose. The current sources must all be set to the same value during this process.
9. Press the "Save" button to transfer the calculated offset and slope values to the myDatalog2Ex (see ""Calibration" tab " on page 100).
10. The "Print" button is used to generate the calibration protocol that must always be created to ensure traceability. After pressing the "Print" button, a dialogue window will appear in which additional information can be added. The report is printed once this window is closed by selecting "OK". The standard printer is always used for this process without any further queries. A PDF writer can also be used.

12.7 Zero point adjustment

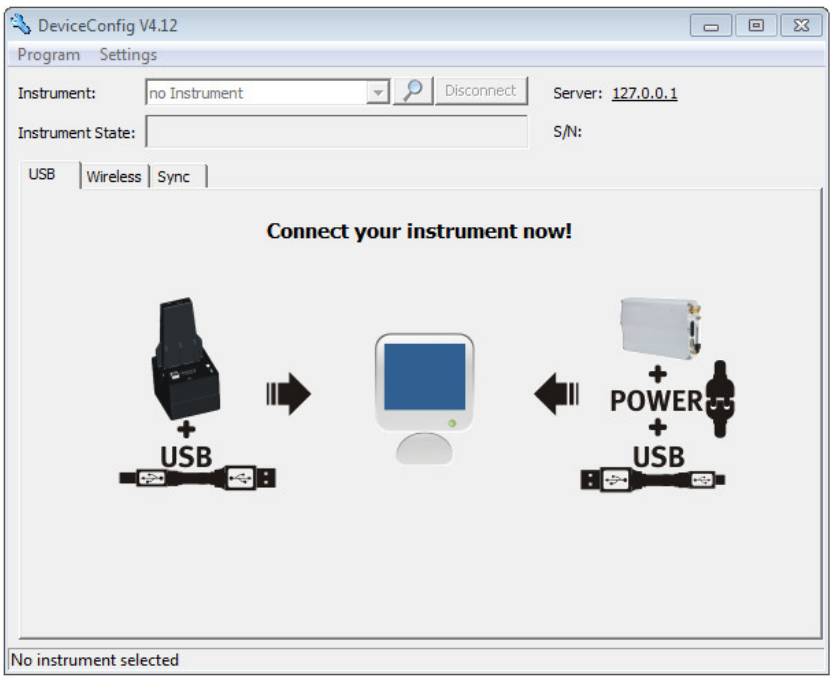
12.7.1 Zero point adjustment via the USB interface (not permissible in the Ex area)

> ***Important note:*** *The use of the USB interface of the myDatalog2Ex is NOT permitted in the Ex area (see "Ex protection" on page 18). When using the USB interface, the myDatalog2Ex and the connected sensor must not be located in the Ex area. This means that the following procedure to adjust the zero point is not permitted in the Ex area. In this case, use the adjustment procedure with the help of the ALOHA data (see "Zero point adjustment using the ALOHA data" on page 105).*

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

> ***Note:*** *All of the screenshots show version 3.8 of the DeviceConfig configuration program. The newer versions may include minor changes to the appearance of the program.*

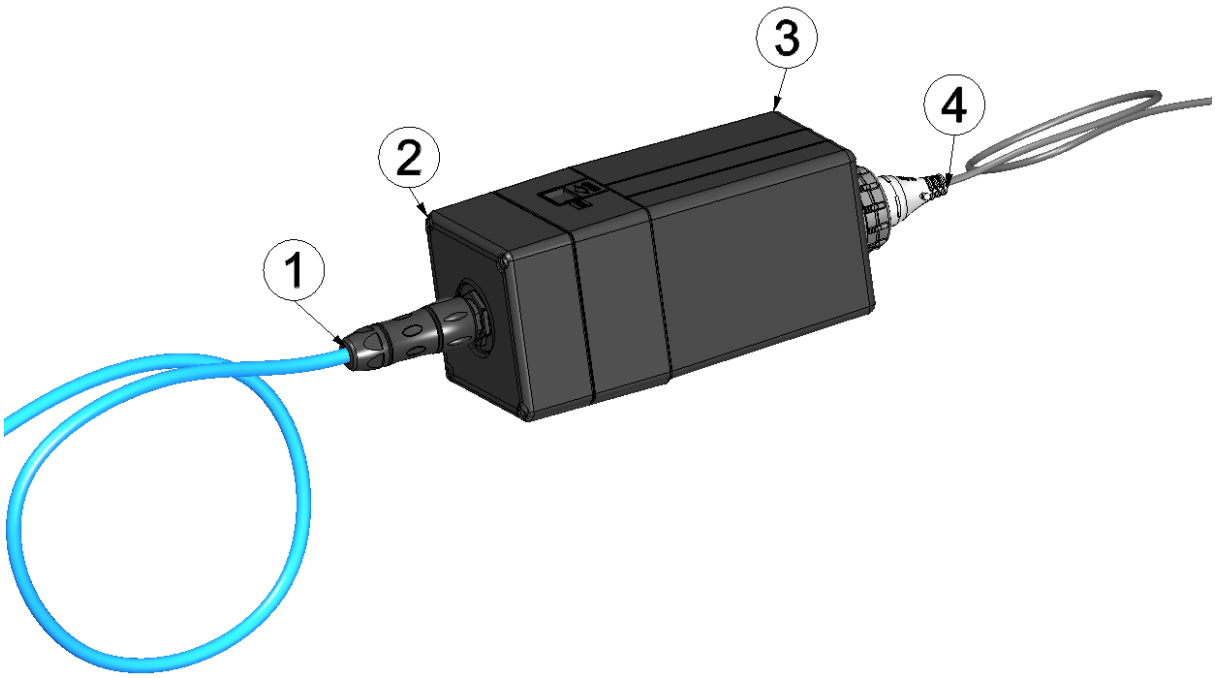
1. Start the DeviceConfig configuration program. It is available for download in the service area of your myDatanet server (see "myDatanet Server Manual " 805002). Installation instructions are included in the user manual for the DeviceConfig ("myDatanetDeviceConfig Manual " 805004).



DeviceConfig

2. Remove the sensor cable and the protective armour. Then disconnect the device from the rechargeable battery pack (see "Replacing the rechargeable battery or battery pack" on page 87) to expose the USB interface (see "Overview" on page 21).

3. Connect the myDatalog2Ex to the PC using the Commissioning battery pack for myDatalog/sens Mobile (305005) available as an accessory and the USB cable included in this set. The Commissioning battery pack for myDatalog/sens Mobile protects the myDatalog2Ex from dust and moisture if a USB connection is required during outdoor application. The driver will need to be installed, if the device is being connected to the PC for the first time. From Windows Vista onwards, this will complete automatically. Instructions on installing the driver on older versions of Windows are included in the user manual for the DeviceConfig ("myDatanetDeviceConfig Manual " 805004). Now reconnect the sensor cable with the myDatalog2Ex .



myDatalog2Ex with connected USB and sensor cable

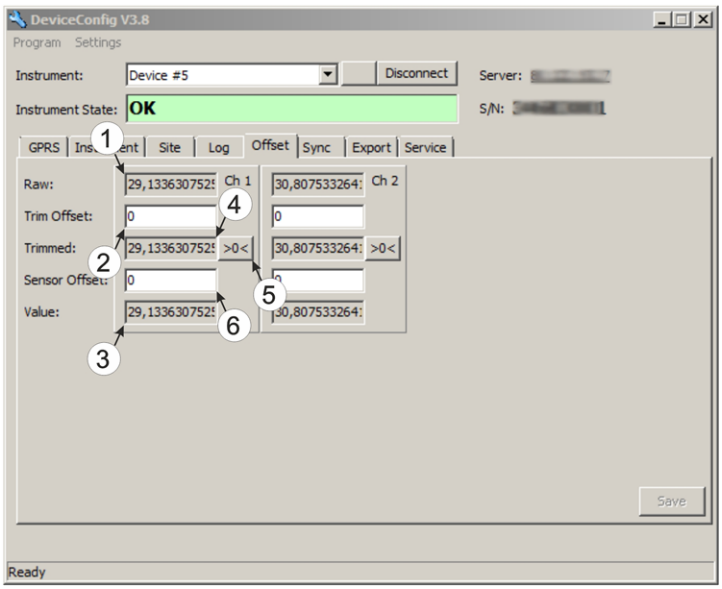
1	Connection cable 7-pins for sensors 2,8m (206.602) connection to a constant current source	3	Commissioning battery pack for myDatalog/sens Mobile (305005)
2		4	USB cable to establish a connection with the PC (included in the scope of supply of the 305005)

4. Select the "Offset" tab (see ""Offset" tab" on page 104) and wait for the warmup time to elapse.

5. Enter the values that you have determined for the zero point adjustment ("Trim offset") and the installation height of the sensor ("Sensor offset") and click on the "Save" button. You can also use the "›o‹" button to use the current value of the "Raw" field as the "Trim offset". An example for determining the "Trim offset" and the "Sensor offset" is provided in "Additional explanation on the zero point adjustment and installation height of the sensor" in chapter "Measurement channels" on page 67.

   Note:

   "Value" = "Raw" + "Trim offset" + "Sensor offset"



"Offset" tab

1	Raw: Measurement value of the universal input in the measurement unit without trim offset and sensor offset, i.e. the value corresponds to the output value of the scale module (see "Internal processing of the measurement values" on page 29)
2	Trim offset: Provided to adjust the zero point (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70). Corresponds to the "Trim" parameter of the "Basic" tab in the "Measurement channels" configuration section (see "Measurement channels" on page 67)
3	Value: Measurement value of the universal input in the measurement unit including trim offset and sensor offset, i.e. the value corresponds to the output value of the trim/sensor offset module (see "Internal processing of the measurement values" on page 29)
4	Trimmed: Measurement value of the universal input in the measurement unit including trim offset
5	"›o‹" button for the automatic zero point adjustment. This means that the "Raw" field is used as the "Trim offset", whereby the prefix is changed. When pressing the button, the "Trim offset" and the "Sensor offset" are transferred to the device and saved.
6	Sensor offset: Specifies the installation height of the sensor (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70). Corresponds to the "Sensor offset" parameter of the "Basic" tab in the "Measurement channels" configuration section (see "Measurement channels" on page 67)

12.7.2 Zero point adjustment using the ALOHA data

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

> ***Important note:*** *As the ALOHA data is only generated every 3 seconds (see "ALOHA transmission mode" on page 35), this procedure is only suitable if the fill level is as constant as possible during the zero point adjustment.*

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

> ***Note:*** *During the zero point adjustment, it is recommended to increase the duration of the ALOHA connection via the "Aloha duration" parameter that is located in the "Basic settings" configuration section (see "Basic setting" on page 80).*

1. First of all, enter the installation height of the sensor for the required universal input via the "Sensor offset" parameter of the "Measurement channels" configuration section (see "Measurement channels" on page 67). The parameter is located in the "Basic" tab of the configuration section.
2. Check that the "Trim" parameter, that specifies the offset for the zero point, is set to 0 for the required universal input. This parameter is also located in the "Basic" tab of the "Measurement channels" configuration section.
3. Activate the ALOHA transmission mode (see "ALOHA transmission mode" on page 35) so that the site configuration is transferred to the myDatalog2Ex .
4. Wait until it is indicated in the list of measurement instruments that the device is in ALOHA transmission mode. This is indicated by a speech bubble with the "Aloha" inscription.



5. Compare the measured fill level with the incoming data in the ALOHA data window of the myDatanet server, which can be accessed by clicking on the speech bubble with the "Aloha" inscription (see "myDatanet Server Manual " 805002). The difference between the measured fill level and the displayed fill level must now be entered as the "Trim" parameter. It should be noted that the difference must be entered with a negative prefix if the displayed fill level is higher than the measured fill level (see "Additional explanation on the zero point adjustment and installation height of the sensor" on page 70).

   Note:

   Measurement value = scaled measurement value + "Trimming" + "Sensor offset"

6. After saving the entry for the "Trim" parameter, check whether the measured fill level matches the incoming ALOHA data. Initiate ALOHA transmission mode again if it has been completed in the meantime.

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Chapter 13 Removal/disposal

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

Accu and/or battery packs must not remain connected to the myDatalog2Ex after discharging. Ensure that accu and battery packs are disposed of in line with environmental requirements.

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Chapter 14 Troubleshooting and repair

14.1 General problems

Problem	Cause/solution
Device does not respond (status LED always off)	• A rechargeable battery or battery pack that is not approved for use in the Ex area is being used. Solution: Only use rechargeable battery and battery packs listed in chapter "Rechargeable battery and battery packs" on page 121. • Fully discharged rechargeable battery and battery packs
Communication problems	• Evaluate the status LED blink code (see "Status LED" on page 66). • Load the device log from the myDatalog2Ex or the myDatanet server and use DeviceConfig for the evaluation (see "Evaluating the device log" on page 119). • The rechargeable battery or battery pack capacity is virtually depleted.
ALOHA transmission mode cannot be activated	• The myDatalog2Ex is connected to the USB interface of a PC. • Evaluate the blink code of the status LED (see "Status LED" on page 66). • Load the device log from the myDatalog2Ex or the myDatanet server and use DeviceConfig for the report (see "Evaluating the device log" on page 119). • The rechargeable battery or battery pack capacity is virtually depleted.
Not all or no data is available on the server	• The connection was interrupted during transmission, which is indicated by a time-out entry in the connection list (see "myDatanet Server Manual " 805002). Solution: Initiate a ALOHA transmission or wait for the next cyclical transfer. • The assignment of the device and site is not correct (see "Site" on page 67).
The data at the universal input is not plausible.	• Check the cable connections (see "Connecting the sensors" on page 46). • Check whether the universal input configuration matches the sensor output signal (see "Measurement channels" on page 67).
Alarm state of a measurement value was not detected	Increase the record interval (attention: This will increase the required data volume).
Alarm state was not transferred although the data is present	• Check the alarm settings of the measurement channel. • The connection was interrupted during transmission, which is indicated by a time-out entry in the connection list (see "myDatanet Server Manual " 805002). Solution: Initiate a ALOHA transmission or wait for the next cyclical transfer.

Problem	Cause/solution
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	
1011	BSL RESET	---	---	Rest of the device so that the boot loader can activate the new main controller software
1020	ERROR SOD	##	---	Internal system error There may be a hardware problem if this error is contained in the device log several times with the same parameter code. Contact the manufacturer in this case (see "Contact information" on page 127).
1030	LOG ENTRY DELETED	##	---	Log entries have been deleted (e.g. by changing the system time). The parameter specifies the number of deleted entries.
1040	RECORD DELETED	##	---	Entries from the data area have been deleted (e.g. by changing the system time). The parameter specifies the number of deleted entries.
1145	ALARM ENTRY DELETED	##	---	Entries from the alarm list have been deleted (e.g. by changing the system time). The parameter specifies the number of deleted entries.

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1160	FILE INTEGRITY	0	DATA_FILE	While searching for the required data record in the data memory area, it was determined that the data is not sorted in ascending order.
		1	DATA_FILE_2	Reserved for extensions
		2	LOG_FILE	While searching for the required data record in the log memory, it was determined that the data is not sorted in ascending order.
		10	DATA_FILE	When transferring the data to the server, it was determined that the data in the data memory area is not sorted in ascending order.
		11	DATA_FILE_2	Reserved for extensions
		12	LOG_FILE	When transferring the data to the server, it was determined that the data in the log memory is not sorted in ascending order.
1170	EXT FLASH DEF	##	---	Internal system error There may be a hardware problem if this error is contained in the device log several times with the same parameter code. Contact the manufacturer in this case (see "Contact information" on page 127).
1190	DP INVALID	##	---	
1200	MODEM ERROR	##		Modem error (see "Modem error" on page 116)
1212	ERROR MODEM IRREGULAR OFF	0	---	The modem is switched off unexpectedly while it is in the "Disconnect" status.
		1	---	The modem is switched off unexpectedly while it is in the "Connected" status.
		2	---	The modem is switched off unexpectedly while it is in the "Wait for disconnect" status.
1222	MODEM RESET	---	---	The modem has been reset
1224	MODEM SIM RESET	---	---	PowerOFF/PowerON cycle completed for the modem

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1250	MODEM TO ON	1	---	Timeout when trying to initialise the GPRS modem
		2	---	Timeout during the second attempt to initialise the GPRS modem
1251	MODEM TO INIT	---	---	Timeout when changing the GPRS modem from the "Not initialised" to the "Not connected" status
1252	MODEM TO CON	---	---	Timeout when changing the GPRS modem from the "Not connected" to the "Connected" status
1253	MODEM TO DISC	---	---	Timeout in the "Connected" GPRS modem status
1254	MODEM TO OFF	---	---	Timeout while waiting for the GPRS modem to switch off
1260	MODEM FW ERROR	##		Modem error during firmware download (see "Modem error" on page 116)
1261	MODEM FW TO	---	---	Timeout during firmware download
1271	MODEM RST OK	---	---	Modem reset was completed successfully.
1272	MODEM RST NOT OK	---	---	Modem reset was not completed successfully. PowerOFF/PowerON modem cycle required.
1280	MODEM UNKNOWN TASK STATE	---	---	Internal system error There may be a hardware problem if this error is contained in the device log. Contact the manufacturer in this case (see "Contact information" on page 127).
1290	COM UNKNOWN TASK STATE	---	---	Internal system error There may be a hardware problem if this error is contained in the device log. Contact the manufacturer in this case (see "Contact information" on page 127).
1400	MEASURE UNKNOWN MODE	---	---	
1401	MEASURE UNKNOWN STATE	---	---	
1402	MEASURE TO	---	---	Timeout when generating the measurement value

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1600 (1/2)	STATE (1/2)	1	OK	Last connection OK
		2	TRANSMISSION ERROR	Last transmission faulty Try again later
		3	MEASUREMENT ERROR	Last measurement faulty • Check the configuration. • Check the connection between the device and sensor.
		4	HOLD	Standby (GPRS ON, measurement OFF) If ALOHA transmission mode is initiated on the device, the myDatalog2Ex switches back into "RUN" mode (GPRS ON, measurement ON).
		5	TRANSPORT	Transport lock (GPRS OFF, measurement OFF) see "Standby"
		6	OFFLINE	Offline (GPRS OFF, measurement ON) see "Standby"

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1600 (2/2)	STATE (2/2)	7	NO NET (NET LOCK)	Netlock/no matching provider • Try to improve the position of the antenna. • Check whether the device is in the coverage area (www.microtronics.at/footprint). • Lift the netlock (see "myDatanetDeviceConfig Manual " 805004)
		8	NO NET	No GSM network • Improve position of the antenna • Try again later
		10	GPRS ERROR	No GPRS connection Try to improve the position of the antenna.
		11	IP ERROR	No myDatanet server available • Check whether port 51241 is enabled on the myDatanet server. • Try again later
		12	SIM CARD ERROR	Faulty SIM chip/SIM card Contact support.

14.2.1 Modem error

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
GPRS error (1/2)				
1200	BEARER LINE BUSY	-993	---	Line busy Try again later
	BEARER NO ANSWER	-992	---	No answer • Try again later • Check whether the device is in the coverage area (www.microtronics.at/footprint).
	BEARER NO CARRIER	-991	---	No carrier • Try again later • Check whether the device is in the coverage area (www.microtronics.at/footprint).
	BEARER GPRS FAILED	-988	---	GPRS setup failure • Try to improve the position of the antenna • Check whether the device is in the coverage area (www.microtronics.at/footprint).
	BEARER PPP LCP FAILED	-987	---	Error when negotiating the LCP Internal error
	BEARER PPP AUTH FAILED	-986	---	Error occurred during PPP authentication Internal error
	BEARER PPP IPCP FAILED	-985	---	Error when negotiating the IPCP Internal error
	BEARER PPP LINK FAILED	-984	---	PPP receiver does not react to echo request Internal error
	BEARER PPP TERM REQ	-983	---	PPP session terminated by the receiver. Internal error

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
GPRS error (2/2)				
	BEARER CALL REFUSED	-982	---	Incoming call refused Try again later
	BEARER UNKNOWN	-981	---	Try again later
Error when establishing the GPRS connection				
1200	BEARER BAD HDL	-980	---	Invalid handling Internal error
	BEARER BAD STATE	-979	---	The carrier was not stopped. Internal error
	BEARER DEV	-978	---	Error occurred during link layer initialisation Internal error
	BEARER GPRS START UNKNOWN	-977	---	Internal error
Error when disconnecting the GPRS connection				
1200	BEARER GPRS STOP BAD HDL	-976	---	Invalid handling Internal error
	BEARER GPRS STOP UNKNOWN	-975	---	Internal error
1200	NETLOCK FAILURE	-970	---	Error when selecting the network • Check whether the device is in the coverage area (www.microtronics.at/footprint). • Check the settings for the netlock or remove the netlock

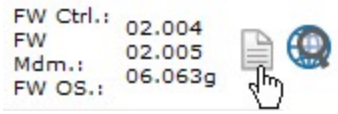
Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1200	BAND SEL FAILED	-969	---	A network could not be found on the GSM900/1800 or on the GSM85071900 band. • Try to improve the position of the antenna. • Check whether the device is in the coverage area (www.microtronics.at/footprint).
TCP channel error (1/2)				
1200	CHANNEL ABORTED	-965	---	An attempt is being made to write to/read a TCP client that is no longer available. Try again later
	CHANNEL CSTATE	-964	---	The channel is not in the "WIP_CSTATE_ READY" state. Try again later
	CHANNEL NOT SUPPORTED	-963	---	The option is not supported by the channel. Try again later
	CHANNEL OUT OF RANGE	-962	---	The optional value is outside the permissible range. Try again later
	CHANNEL MEMORY	-961	---	Internal error
	CHANNEL INTERNAL	-960	---	Internal error
	CHANNEL INVALID	-959	---	Invalid option or parameter Internal error
	TCP DNS FAILURE	-958	---	The name could not be resolved in an IP address. Internal error
	CHANNEL RESOURCES	-957	---	There are no further TCP buffers available. Try again later
	CHANNEL PORT IN USE	-956	---	TCP server port is already being used. Try again later

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
TCP channel error (2/2)				
1200	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
	CHANNEL UNKNOWN	-950	---	Internal error

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 myDatalog2Ex via the USB 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
MDN wall mounting	1	206.321
Niro shackle	1	206.325

15.2 Antennas

Note: *The use of antennas not listed in this section shall invalidate the Ex approval.*

Description	Quantity	Order number
Antenna 900 FME -F	1	206.801
Extension cable for antenna FME-F/FME-M 5m	1	206.805

15.3 Rechargeable battery and battery packs

Description	Quantity	Order number
Battery packs		
BP457A battery (Li-SOCl2; 51Ah ; -10...+40°C operating temperature)	1	206.703
Rechargeable battery packs		
AP424DA rechargeable battery (Li-Ion; 19,2Ah ; -10...+40°C operating, 0 ...+40°C charging temperature)	1	206.705

15.4 Charging device

Description	Quantity	Order number
Charger AC15	1	206.701
Snap-on primary plug EU for chargers/power supplies	1	300027
Snap-on primary plug UK for chargers/power suppliest	1	300028
Snap-on primary plug US for chargers/power supplies	1	300029
Snap-on primary plug AUS for chargers/power supplies	1	300030

15.5 Cable

Description	Quantity	Order number
USB cable USB-A/USB-B 1,5m	1	206.601
Connection cable 7-pins for sensors 2,8m	1	206.602
Cable connector 7-pins for myDatalogMobile	1	206.654
Splitter cable for myDatalog Mobile	1	206.679
Pressure compensation tube	1	300131
Clamping tube	1	300256

15.6 Other accessories

Description	Quantity	Order number
MDN Protection casing	1	206.320
Commissioning battery pack for myDatalog/sens Mobile [1)]	1	305005
MDN Magnet	1	206.803
myDatanet service kit	1	206.324
MDN Anti-theft device	1	206.322

[1)]The Commissioning battery pack for myDatalog/sens Mobile does not contain any rechargeable battery cells and is only designed as a protective cover with a USB port that is attached instead of a rechargeable battery or battery pack.

Chapter 16 Document history

Rev.	Date	Changes
01	21.08.2013	First version
02	18.05.2016	Hardware version 4.0 *The device is now equipped with an integrated SIM chip. The SIM slot is still present.* *Only the red LED with the same status indication as before is present.* Chapter "Declaration of conformity" on page 9 *Declaration of Conformity updated* Chapter "Technical data" on page 15 *Ex parameters of the power supply added* Chapter "Ex certification" on page 11 *Page 3 of the certificate added* Chapter "Ex protection" on page 18 *Conditions that have to be adhered to updated* Chapter "General safety instructions" on page 19 *Chapter added* Chapter "Block diagram" on page 22 *Chapter added* Chapter "ALOHA transmission mode" on page 35 *Information added indicating that ALOHA transmission mode cannot be activated when there is an existing USB connection* Chapter "Wall mounting" on page 43 *Information about the optional theft protection added* Chapter "Technical details about the SIM slot" on page 59 *Chapter added* Chapter "Technical details about the USB interface" on page 60 *Chapter added* Chapter "Calculated channels" on page 74 *Explanation of the "Delta" and "Cloning" calculation modes added* Chapter "Basic setting" on page 80 *Explanation of the "Report template" parameter added* Chapter "Measurement instrument" on page 82 *Explanation of the "Ignore" firmware update mode added* *Explanation added indicating that the instrument class can no longer be changed once the instrument is connected to the server* Chapter "API" on page 85 *Chapter added*

Rev.	Date	Changes
02	18.05.2016	Chapter "Maintenance" on page 87 *Reference to chapeters important to preserve warranty added.* Chapter "Replacing the rechargeable battery cover" on page 93 *Further information on replacing the rechargeable battery cover added* *Maximum permissible torque for all of the screws changed from 0.4 Nm to 0.45 Nm* Chapter "Replacing the rechargeable battery cover" on page 93 *Further information on replacing the rechargeable battery cover added* Chapter "Maintenance of the rechargeable battery seal" on page 94 *Further information on replacing the rechargeable battery cover added* Chapter "Troubleshooting and repair" on page 109 *Solutions for the problem, that ALOHA transmission mode cannot be initiated, 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.at/footprint).

NaN value

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

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Chapter 18 Contact information

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