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User manual for the portable ATEX data dogger myDatalogPCM Ex



Rev. 01 valid from:

- Firmware version: 01v008
- Modem version: 02v000
- Server version: 39.8
- Hardware version: 03v001

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Kapitel 2 Declaration of conformity

EG-Konformitätserklärung

Declaration of EC-Conformity / Certificat de conformité CEE

Produktbezeichnung: Product: Désignation du produit:	Portable Datenlogger mit Ex-Zulassung
Type: Type code:	**myDatalogPCM Ex**

Microtronics at

Hersteller: Manufacturer : Fabricant:	**Microtronics Engineering GmbH** Elektronik Entwicklung&Produktion Hauptstrasse 7 AT-3244 Ruprechtshofen

Das bezeichnete Produkt stimmt mit der folgenden Europäischen Richtlinie überein: We herewith confirm that the above mentioned product meets the requirements of the following standard: Le produit désigné ci-dessus est conforme à la ligne directrice européenne suivante:		**Die Übereinstimmung des bezeichneten Produktes mit den Vorschriften der Richtlinie wird nachgewiesen durch die vollständige Einhaltung folgender Normen:** The correspondance of the above mentioned product with these requirements is proved by the fact that these products meet with the following single standards: La conformité du produit désigné aux prescriptions de la ligne directrice est certifiée par la observation totale des normes suivantes:	
		Europäische Norm	**Ausgabedatum**
(2004/108/EG)	**EMC Directive**	ÖVE/ÖNORM EN61326-1	2013-08-01
(2006/95/EG)	**LVD Directive**	ÖVE/ÖNORM EN61010-1	2011-08-01
(1999/5/EG)	**RTTE Directive**	ETSI EN301489-1 V1.9.2 ETSI EN301489-7 V1.3.1 ETSI EN301511 V9.0.2	2011-09 2005-11 2003-03
(94/9/EG)	**ATEX Directive**	ÖVE/ÖNORM EN60079-0 ÖVE/ÖNORM EN60079-11 ÖVE/ÖNORM EN60079-18	2013-05-01 2012-07-01 2010-09-01
	Kennzeichnung/ Markings/ Marquage CE 0123 Ex II 2G Ex ib IIB T4 Gb		

Ruprechtshofen, den 04.09.2013

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

Andreas Mitterlehner, ATEX Beauftragter
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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Kapitel 3 Ex certification



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(1) 3. Ergänzung zu EG-Baumusterprüfbescheinigung

gemäß Richtlinie 94/9/EG Anhang III Ziffer 6

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

(3) TÜV-A 08ATEX0001X

(4) Gerät: Datenlogger Feldgerät MyDatanet; myDatalogPCM Ex

(5) Hersteller: Microtronics Engineering GmbH

(6) Anschrift: 3244 Ruprechthofen; Hauptstrasse 7

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser 3. Ergänzung zu der Baumusterprüfbescheinigung festgelegt.

Folgende Änderungen und Ergänzungen wurden durchgeführt:

- Normen (EN 60079-0:2009; EN 60079-11:2012 und EN 60079-18:2009) Generationswechsel.
- Neuer Produkttyp **myDatalogPCM Ex** mit zusätzlichen Ausgangsparameteroptionen wurde hinzugefügt.

(8) Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht Nr. TÜV-A 2013-ET/PZW-EX-0-000203 festgelegt.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen erfüllt durch Übereinstimmung mit:

EN 60079-0:2009	EN 60079-11:2012	EN 60079-18:2009

(12) Die Kennzeichnung des Gerätes lautet:

Ex I 2 G Ex ib IIB T4 Gb	für Hauptgerät
Ex I 2 G Ex ib mb IIB T4 Gb	für Akkupack

18.11.2013
Datum der Ausstellung
Date of issue

Dipl.-Ing. K. Mayerhofer
Zertifizierungsbeauftragter
Certification representative

Ende der Gültigkeit
End of validity

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(13) # Anlage

(14) 3. Ergänzung zu EG-Baumusterprüfbescheinigung TÜV-A 08ATEX0001X

(15) **Beschreibung und technische Daten:**

Das „myDatanet" Feldgerät - nimmt je nach Ausführung die Messwerte auf und überträgt sie per GPRS- Funk an den Internet Server und Datenbank, wo sie dem Benutzer über Internet verfügbar sind. Die Stromversorgung des myDatanet- Feldgerätes erfolgt über einen abnehmbaren Akkupack oder Batteriepack mit Primärzellen. Die Sensoreinheit kann in das Gerät integriert oder getrennt und dann per Steckverbindung an das Gerät angeschlossen werden. Das Gerät ist als tragbare Einheit ausgeführt.

Typenschlüssel und Technische Daten

Produktfamilie	Ausführung	Typ-Bezeichnung
myDatalog (Sensor extern)	RS232 Schnittstelle ohne interne Spannungsversorgung	**myDatalogPCM Ex**
	Energieversorgung (Akkupack) für myDatalogPCM Ex	**BP417A; BP434A; BP457A AP424DA**

Die übrigen Produktfamilien myDatalog und Energieversorgungsbaugruppe bleiben unverändert.
Typ **myDatalogPCM Ex** kann entweder mit Akkupack oder mit Primärzellenpack versorgt werden.

Technische Daten

Elektrische Daten:	
Bemessungsspannung U_n	4,1 VDC
Bemessungsstrom I_n	1,16A
Bemessungsleistung P_n	6,97W
Ausgangsspannung ext. Sensor U_{CON7}	±9,21V (Daten, RS232 Spezifikation)
Eingangsspannung ext. Sensor U_{CON7}	±15V (Daten, RS232 Spezifikation)

Mechanische Daten:	
Umgebungstemperatur:	-10°C bis +40°C
Rel. Feuchte.	15 - 90 %
Mech. Schutzart:	IP 67

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Elektrische Parameter eigensicherer Stromkreise:

Bezeichnung:	**Werte:**
Antennenanschluss Typ FME (CON 1)	R_{IN} = 50Ω (Impedanz - Antenne) P_{MAX} = 2 W (HF - Sendeleistung)
Ext. Anschluss - USB - Anschluss (CON 4) (nur bei abgenommenem Akku Batteriepack)	Zum PC für Auslesen/Konfiguration (wird im Ex-Bereich nicht verwendet)
Versorgung von Auswerteelektronik (CON 5) Pin 1: Energiepack-Datenleitung Pin 2: NC Pin 3: +4,1V Energiepack Pin 4-6: GND Energiepack	Ui = 6 V Ii = 1,7 A Pi = 6,97 W Li = 0 µH (vernachlässigbar) Ci = 780 µF (alle Pins)
Anschluss - SIM - Card Slot (CON 6)	SIM-Karte wird im Ex-Bereich nicht ausgetauscht; ein- bzw. ausgesteckt
Externe Sensoren (CON 7) (RS232 Schnittstelle) Pin A: TX0 Datenausgang Pin B: RX0 Dateneingang Pin C, D, E, F Not connected Pin G GND	Parameter Daten nach Sensor (TX0): Uo= +/-9,21 V Io= +/-14,3 mA Po= 0,033 W

L/C Paare	Lo	Co
Option 1	1000µH	6,7µF
Option 2	500µH	8µF
Option 3	100µH	2µF

Parameter Daten von Sensor (RX0):

Ui = +/-15 V
Ii = 20 mA
Pi = 0,1 W
Li = 0 µH (vernachlässigbar)
Ci = 0 µF (vernachlässigbar)

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Kapitel 4 Technical data

Voltage supply	Battery pack BP457A battery : 51Ah Rechargeable battery pack AP424DA rechargeable battery : 19,2Ah
Housing	Material: Noryl GTX 973 Weight: 450g (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, 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 myDatalogPCM Ex .
Antenna connector	FME-M
Serial interface	1 x RS232 for connecting a PCM Pro or PCM 4 flow rate system. • U_o: +/- 9,21V • I_o: +/- 14,3mA • P_o: 0,033W • C_o: 6,7µF • L_o: 1000µH • U_i: +/- 15V • I_i: 20mA • P_i: 0,1W • C_i: 0µH (insignificant) • L_i: 0µH (insignificant)
Data memory	Measurement data: internal flash memory for up to 82.200 measurement cycles Debug data: internal flash memory for up to 96.300 measurement cycles
Data type	Measurement data: f64 (64 Bit floating point), f32 (32 Bit floating point), s16 (16 Bit signed) Debug data: s16 (16 Bit signed)
Data transmission	By means of GSM/GPRS quad-band modem to the respective myDataweb server

SIM	The myDatalogPCM Ex is equipped with an integrated SIM card. Country list profile of the SIM chip: 0 (see www.microtronics.at/footprint)
Monthly data volume	t.b.d at two-minute measurement cycle and 120-minute transmission cycle
Device operating time	Battery pack 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 Rechargeable battery pack 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

Kapitel 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 myDataweb 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 device myDatalogPCM Ex designed for use in areas with a zone 1 explosive atmosphere.

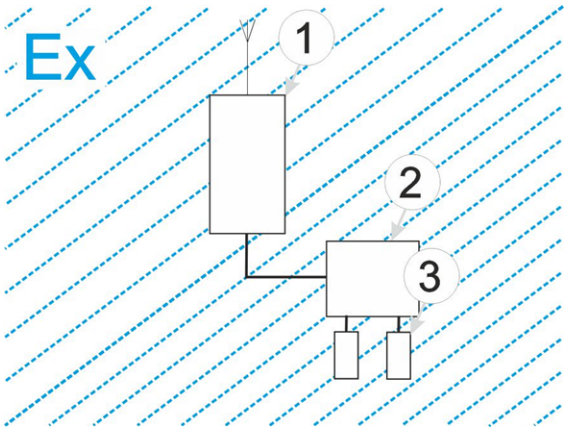
The following conditions must be adhered to:

- 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 using the charging device tested and approved by the manufacturer (see "Charging device" auf Seite 85).
- 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" auf Seite 85).
- 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" auf Seite 85).

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 myDatalogPCM Ex	2 PCM Pro approved for the Ex zone
3 Sensor approved for the Ex zone	

5.5 Safety instructions

For the connection, commissioning and operation of the myDatalogPCM Ex , 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.

Please 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 device is not impaired. Install and use the measuring 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 injury.

> ***Note:*** *Indicates a situation that does not result in any injury to persons.*
>
> ***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:*** *Information that supplements the specifications in the main text.*

5.5.2 Safety and preventative measures for handling GSM/GPRS modems

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



CAUTION:
The GSM/GPRS modem connection may 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 condition for the connection via a GSM/GPRS modem for whose use radio signals and networks are utilized, The GSM/GPRS modem must be switched on and be operated in an area where sufficient signal strength is present.*

5.5.2.1 Safety and precautionary measures for the installation of the GSM/GPRS modem

- This device must only be installed by a trained technician who applies the recognised installation practices for a radio frequency transmitter including the correct grounding of external antennas.
- The device must not be operated in hospitals and/or in the vicinity of medical equipment such as heart pacemakers or hearing aids.
- The device must not be subjected to strong vibrations or impacts.
- The GSM/GPRS modem can cause interferences if it is in the vicinity of television sets, radios or computers.
- Do not open the GSM/GPRS modem. Any modification to the equipment is prohibited and will result in the operating licence being revoked.
- The use of GSM services (SMS messages/data communication/GPRS, etc.) may lead to 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.

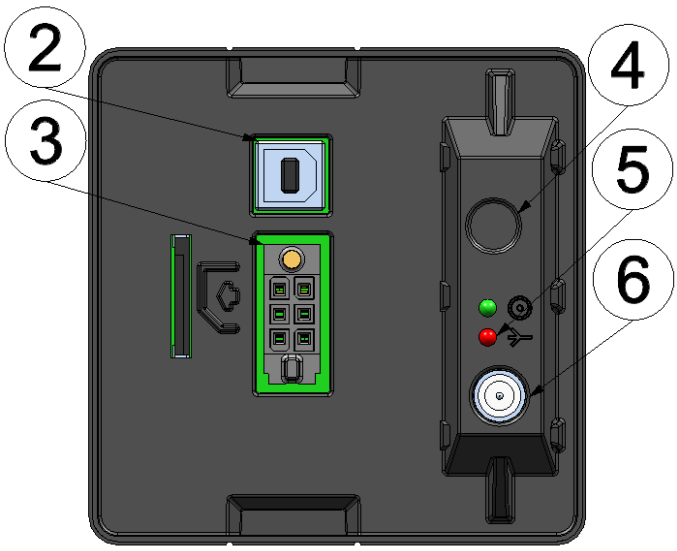
5.5.2.2 Safety measures for installing the antenna

- 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 be extended outside protected buildings and must be protected against lightning strikes.

5.6 Overview



Bottom of the myDatalogPCM Ex



Top of the myDatalogPCM Ex
(view without rechargeable battery or battery pack)

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

5.7 Intended use

The portable data logger is designed to record and transfer measurement signals from the flow rate measurement systems of the PCM Pro and PCM 4 series. The device is battery-operated. The 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 card. The maximum permissible limit values specified in chapter "Technical data" auf Seite 13 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

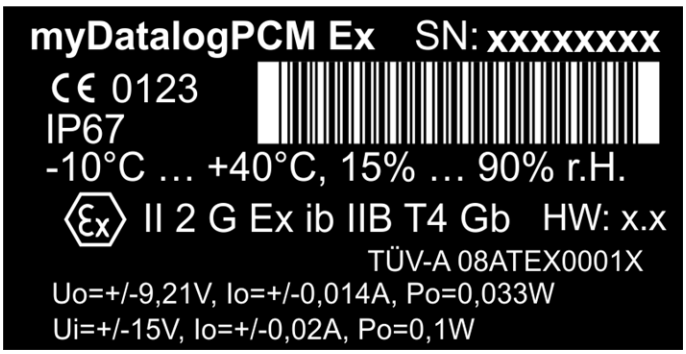
It is a compact, portable ATEX data logger used to record and transfer the measurement signals that are generated by a flow rate measurement system of the PCM Pro or PCM 4 series, whereby the physical connection between the myDatalogPCM Ex and the PCM Pro or PCM 4 is established via the RS232 interface. No energy is transferred between myDatalogPCM Ex and PCM Pro or PCM 4. This means that both devices have their own energy supply. The myDatalogPCM Ex is battery-operated. In addition to the measurement data read from the PCM Pro or PCM 4, the internal "Battery", "GSM level" and "Int. temp" measurement values are calculated (see "Internal channels" auf Seite 55). 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 card. An internal memory area for the debug data is available in addition to the memory area for the measurement data. This data is also transferred wirelessly to the central location. The interval used for generating the debug data of PCM Pro or PCM 4 is a multiple of the record interval for the measurement data.

5.9 Device labelling

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

- Type designation
- Serial number
- CE marking
- Identification number of the testing institute
- Protection class
- Environmental conditions during operation
- Ex protection designation as specified in chapter "Declaration of conformity" auf Seite 7
- Hardware revision
- Certificate number
- Electric parameters of the intrinsically safe current circuits as specified in chapter "Ex certification" auf Seite 9

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



Type plate myDatalogPCM Ex

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

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

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 myDatalogPCM Ex , deactivate the data transmission by switching off the "Transmission" in the input screen of the myDataweb server for configuring the device (see "Device-specific settings" auf Seite 60). Then activate ALOHA transmission mode (see "ALOHA transmission mode" auf Seite 24) via the solenoid contact so that the amended configuration is transferred to the myDatalogPCM Ex . During this process, all of the data that has not yet been transferred to the myDataweb 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" auf Seite 44). Store the myDatalogPCM Ex 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.

The myDatalogPCM Ex is placed in a very energy-saving mode by deactivating the transmission. 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 calculated

data are definitely maintained. The transmission is activated again by re-initiating ALOHA transmission mode (see "ALOHA transmission mode" auf Seite 24) and the myDatalogPCM Ex 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.

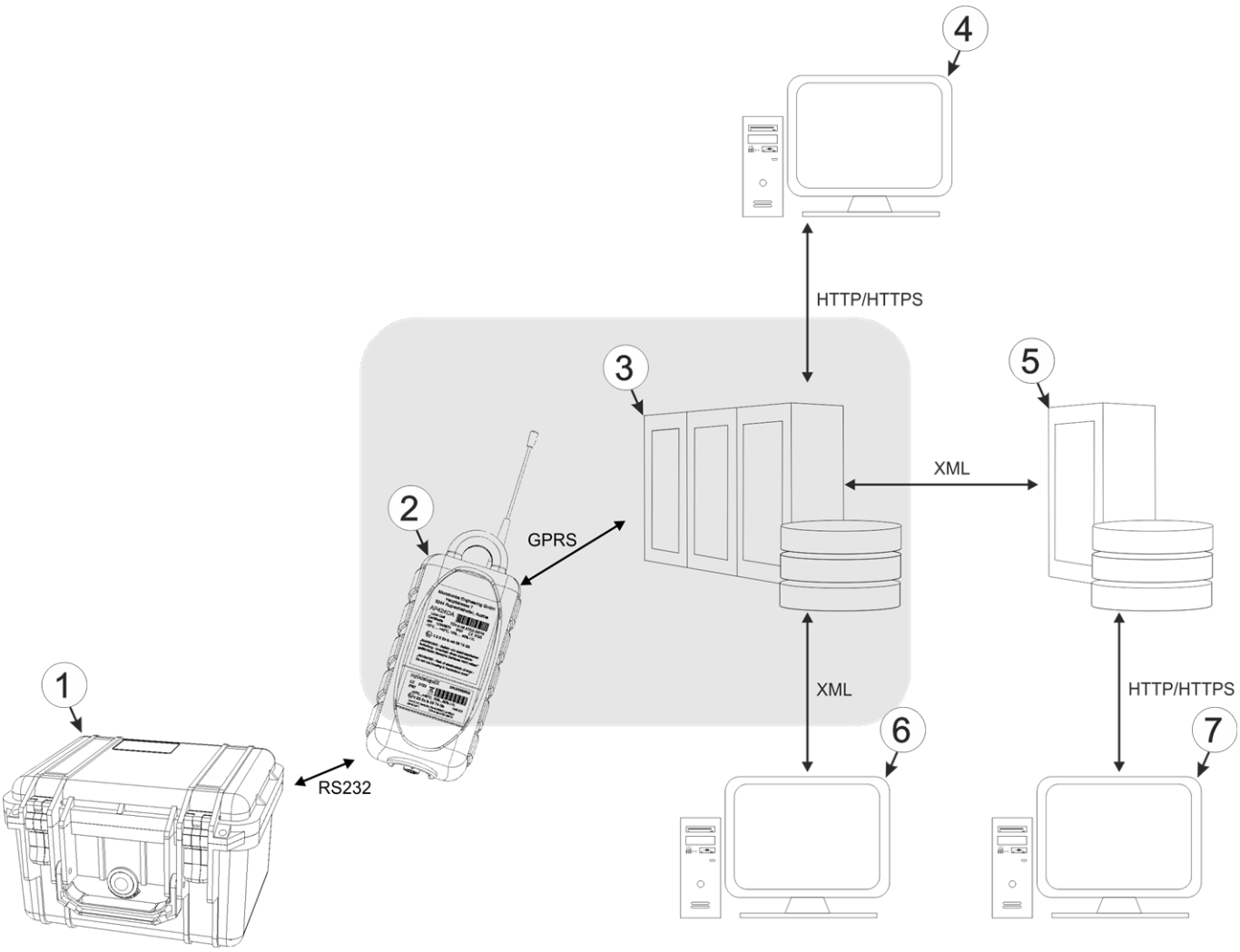
In addition, the operator must comply with the local legal requirements for

- 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.

Kapitel 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	PCM Pro or PCM 4 flow rate measurement system including sensors
2	myDatalogPCM Ex with integrated managed service SIM card (including data transmission)
3	myDataweb server to which the data is transferred
4	Client that accesses the interface of the myDataweb server via the web browser
5	Customer-specific server that provides clients with their own interface. The customer-specific server obtains the data via the XML interface of the myDataweb server (see "XML interface" auf Seite 61).
6	Client, on which a PC program is running, that obtains its data via the XML interface of the myDataweb server (see "XML interface" auf Seite 61)
7	Client that accesses the interface of the customer-specific server via the web browser.

Functions and components provided by myDatanet :

- myDatalogPCM Ex

  The myDatalogPCM Ex is a portable device to connect a flow rate measurement system of the PCM Pro or PCM 4 series (RS232) to the myDataweb 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 and server software, mobile data transmission on a global scale and free support. One contact person for the entire solution.

- myDataweb server

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

Functions and components provided by the customer:

- Flow rate measurement system of the PCM Pro or PCM 4 series

  Flow rate measurement system of the PCM Pro or PCM 4 series, which includes an interface that is compatible with the specifications listed in the "Specifications" chapter (see "Technical data" auf Seite 13). If the device is operated in areas with a zone 1 explosive atmosphere, only flow rate measurement systems that are also approved for zone 1 and for which the Ex parameters are compatible with those of the myDatalogPCM Ex 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 myDataweb server via the XML interface (see "XML interface" auf Seite 61) by the customer-specific server.

6.1 ALOHA transmission mode

ALOHA transmission mode is a special connection mode, during which the myDatalogPCM Ex establishes a connection to the myDataweb server for 10 minutes.

Initiating ALOHA transmission mode:

- Directly on the device using the solenoid switch (see "Solenoid switch" auf Seite 43). 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" auf Seite 26) and that is part of one of the service providers supported by the integrated 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), which contains the internal "Battery" and "GSM level" measurement values. 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 myDataweb server is established.

6.2 Selection of the GSM network

The GSM network to which the device should register must be selected, as the myDatalogPCM Ex 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 but 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 myDatalogPCM Ex logs itself into a GSM network:

- PowerOn
- Initiation of ALOHA transmission mode (see "ALOHA transmission mode" auf Seite 24)
- Expiry of the transmission cycle (see "Basic setting" auf Seite 58)

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

   No errors:

   The myDatalogPCM Ex logs into the same GSM network that was also used last time.

   Error:

   Continue with the next step

   > ***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 first 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" auf Seite 26.*

6.2.1 Ban list

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

If a "BEARER GPRS FAILED" error occurs (see "Modem error" auf Seite 80), an internal counter is increased by 2 . If the 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 coverage area is completed once the ban list is deleted and the network selection is completed with the ban list that is now empty (see item 3 in the chapter"Selection of the GSM network" auf Seite 25).

Kapitel 7 Storage, delivery and transport

7.1 Inspection of incoming deliveries

Please check the shipment immediately after receiving for completeness and intactness. Immediately report any discovered transport damages to the delivering carrier. Also notify the manufacturer in writing about this without delay. Report any incompleteness in the delivery to the responsible representative or directly to the company headquarters of the manufacturer within 2 weeks (see "Contact information" auf Seite 91).

Note: *Any claims received thereafter will not be acknowledged!*

7.2 Scope of supply

The standard scope of supply of the myDatalogPCM Ex (300086) includes:

- myDatalogPCM Ex
- 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)
- Connection cable PCM with cable connector 3m (300007)

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:

myDatalogPCM Ex	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 myDatalogPCM Ex . 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 myDatalogPCM Ex 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 Transportation

The myDatalogPCM Ex is designed for rough industrial applications. Nevertheless, it should not be subjected to heavy shocks, bumps, impacts or vibrations. The original packaging must always be used for transport.

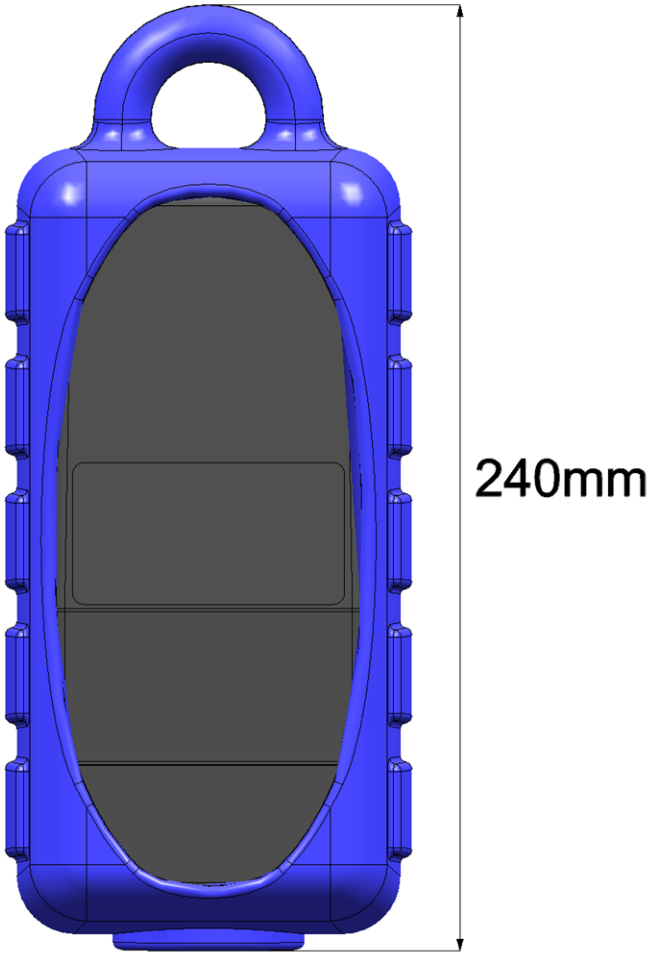
7.5 Return

Every return must be accompanied by a fully field-out return form. This return form is available in the service area of the myDataweb-Server. An RMA number is mandatory for any returns and can be obtained from the Support & Service Centre (see "Contact information" auf Seite 91). The return shipment of the myDatalogPCM Ex must occur in the original packaging and with freight and insurance paid to Microtronics Engineering GmbH (see "Contact information" auf Seite 91). Insufficiently cleared return shipments will otherwise not be accepted!

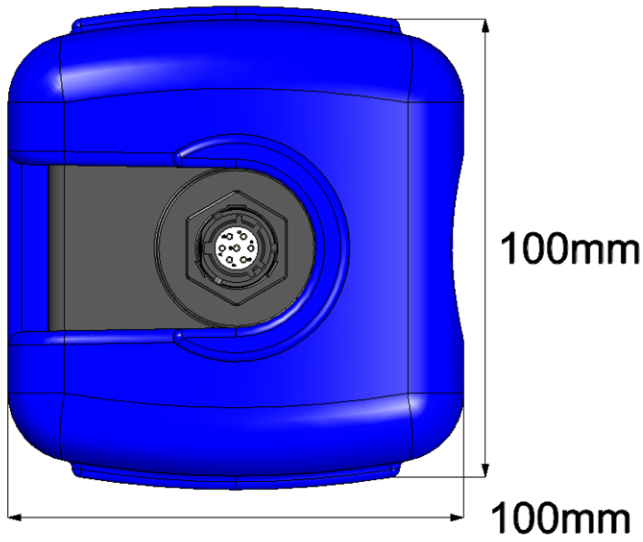
Kapitel 8 Installation

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 myDatalogPCM Ex

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 myDatalogPCM Ex 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.*

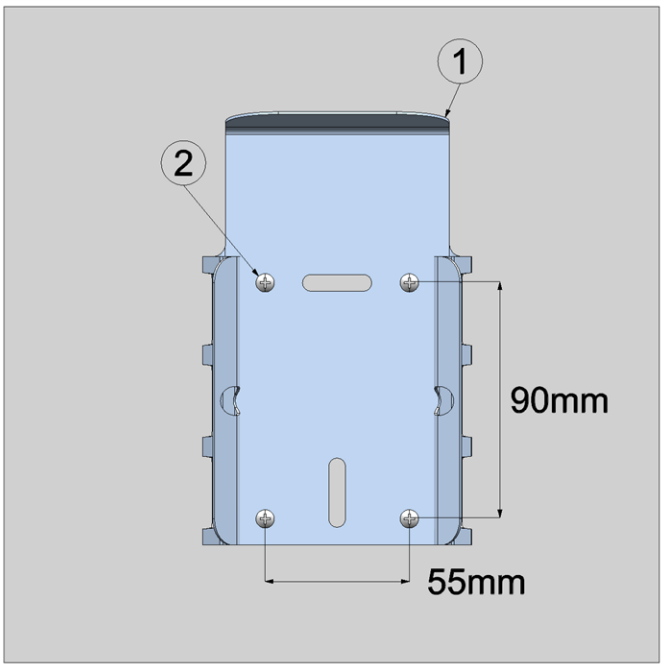
The installation site must be selected according to specific criteria. The following conditions must be avoided in any case:

- 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

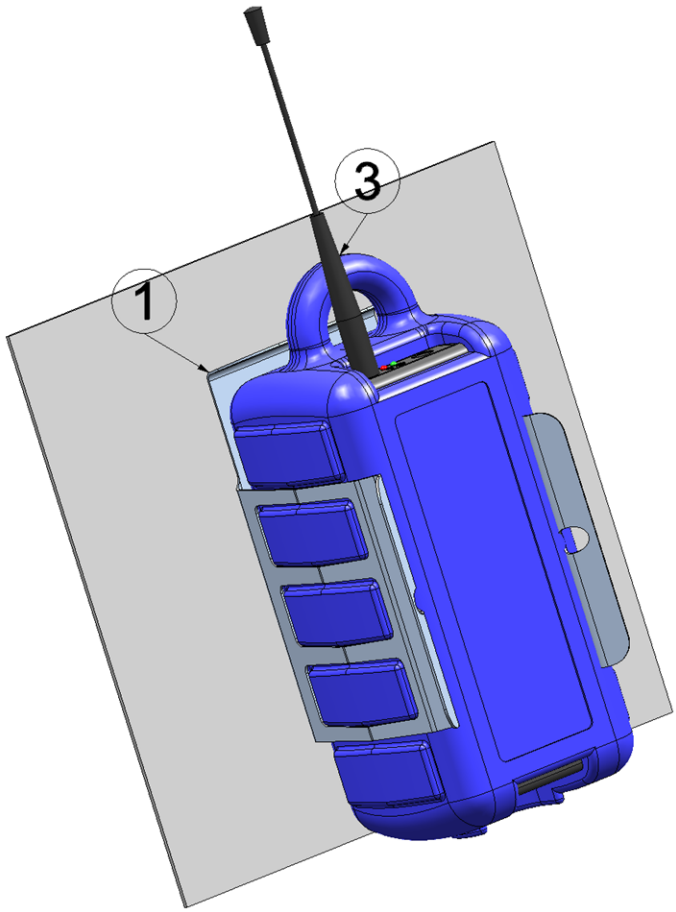
Note: *Leave sufficient space at the upper end to mount the antenna. The space required depends on the antenna used. Approx. 15 cm of space must be left beneath the device. Further information regarding the installation dimensions can be found in the relevant sub-chapter.*

8.2.1 Wall mounting

The optional "MDN wall mounting (206.321)" equipment is required for wall mounting.



Wall mounting - step 1



Wall mounting - step 2

1 Retaining bracket (included in the scope of delivery of 206.321)	3 myDatalogPCM Ex
2 Raised head tapping screw 4x40 (included in the scope of delivery of 206.321)	

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" auf Seite 31.

   If you want to use your own fastening screws you can use the drill guide 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:

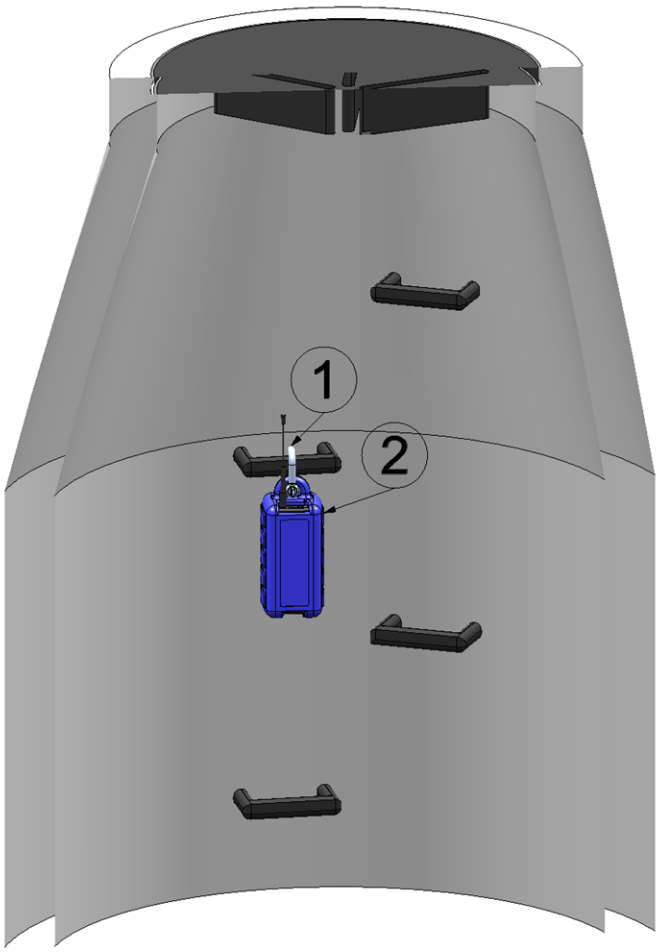
   If you want to use the tapping screws (2) included in the equipment set, first of all insert the supplied wall plugs into each of the four drill holes before screwing the retaining bracket (1) to the wall (see "Wall mounting - step 1" auf Seite 31).

   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" auf Seite 31).

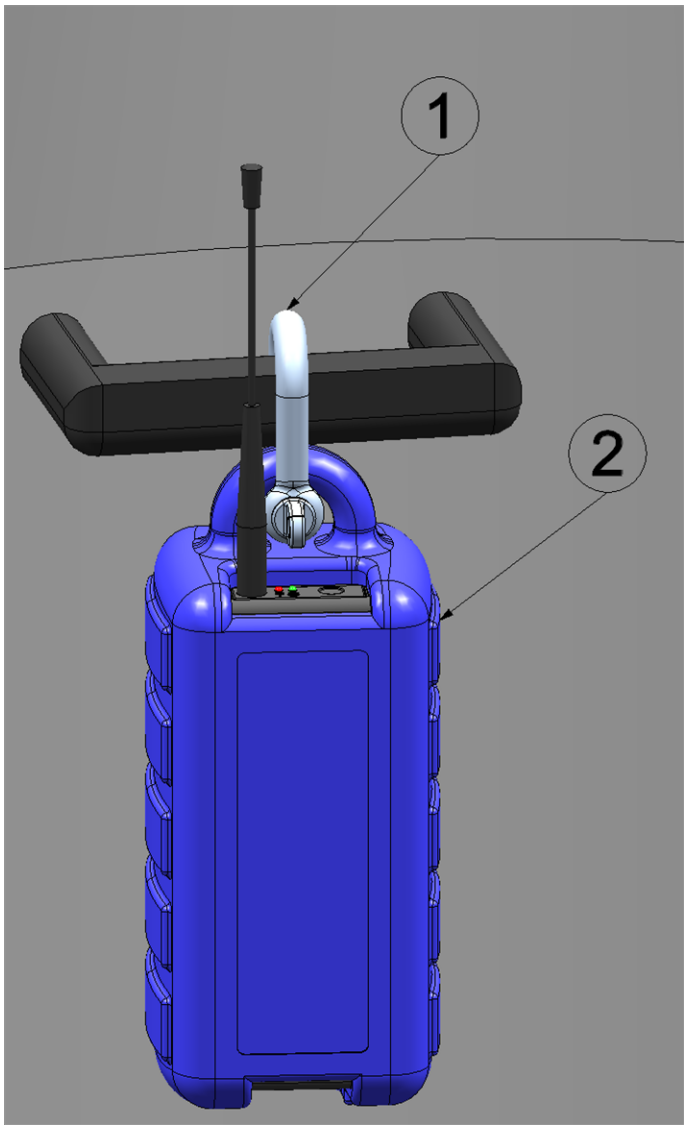
3. Carefully bend the brackets on the retaining bracket (1) apart and insert the myDatalogPCM Ex in accordance with the Figure "Wall mounting - step 2" auf Seite 31. The rear of the myDatalogPCM Ex (the side with the cut-out in the protective cover) must be facing the wall.

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 myDatalogPCM Ex

1. Use the Niro shackle (206.325), to attach the myDatalogPCM Ex to a rung of the channel ladder or a similar fastening point in accordance with the figure "Detailed view of a suspended installation " auf Seite 33.

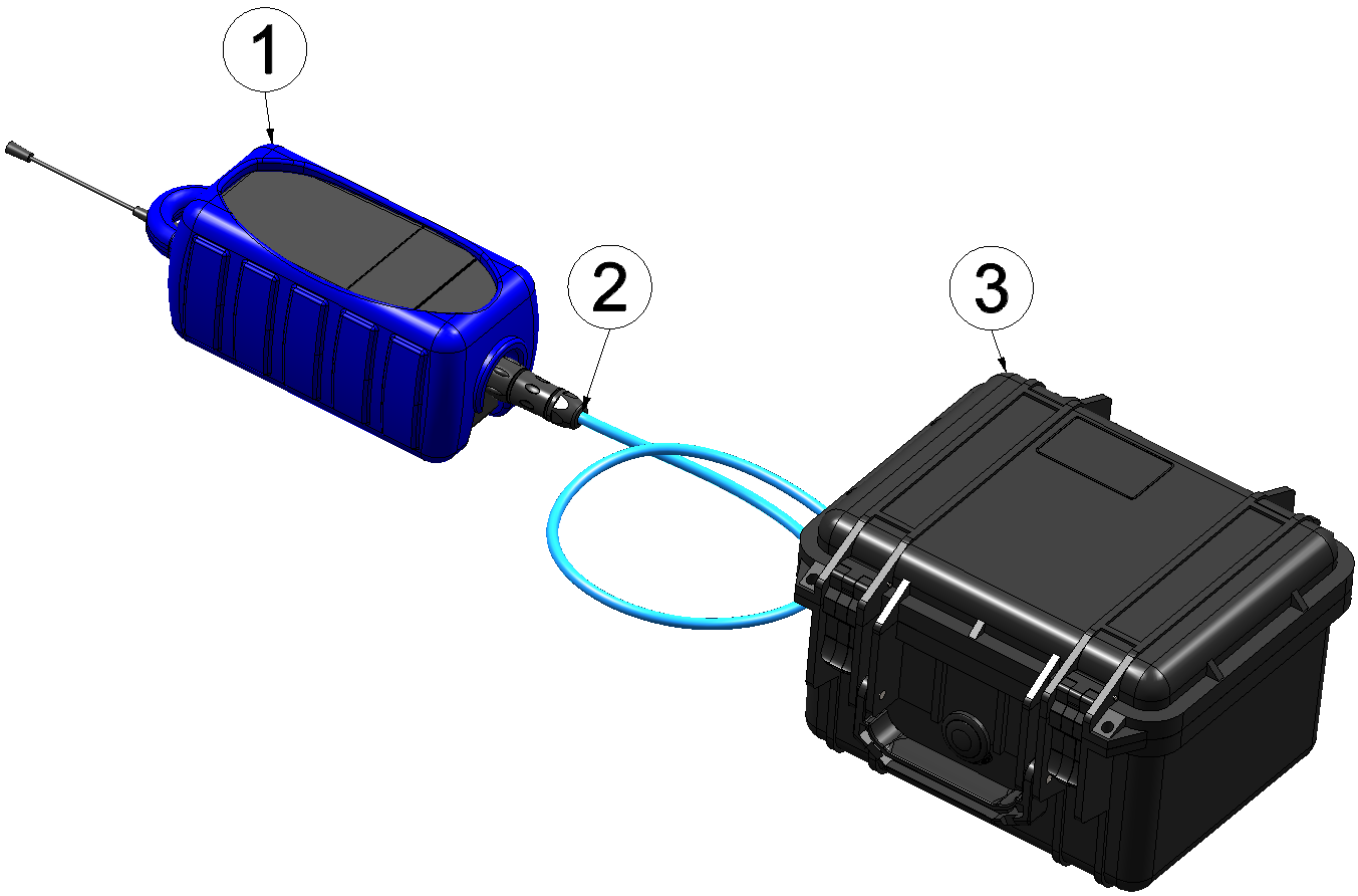
8.3 Electrical installation

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 flow rate measurement system

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 flow rate measurement system

1	myDatalogPCM Ex	3	Flow rate measurement system of the PCM Pro or PCM 4 series
2	Connection cable PCM with cable connector 3m (300007)		

1. Use the "Connection cable PCM with cable connector 3m " (300007), included in the scope of supply of the myDatalogPCM Ex , to connect the sensor connector of the myDatalogPCM Ex (see "Overview" auf Seite 19) to the connector for the "Bluetooth module / GSM module / myDatalogPCM Ex " of the PCM Pro or PCM 4 (see "Overview" chapter in the operating instructions for the PCM Pro or PCM 4).

   Important note: *If the myDatalogPCM Ex is operated in areas with a zone 1 explosive atmosphere, only flow rate measurement systems that are also approved for zone 1 and for which the Ex parameters are compatible with those of the myDatalogPCM Ex must be used.*

2. Connect the antenna (see "Connecting the GSM antenna" auf Seite 35).
3. Initiate ALOHA transmission mode (see "ALOHA transmission mode" auf Seite 24). The status LED should then start to flicker (see "Status LED" auf Seite 44), indicating that a connection is being established.

   Note: *If the data transmission is still deactivated, the transmission is activated 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 myDataweb has worked correctly (see "Testing communication with the device" auf Seite 40).

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" auf Seite 85 will invalidate the Ex approval.*

The standard antenna is directly attached to the antenna connector (see "Overview" auf Seite 19) of the myDatalogPCM Ex .

If the distance between the antenna position and the myDatalogPCM Ex 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 this to the antenna first.
2. Connect the antenna extension or antenna directly to the antenna connection of the myDatalogPCM Ex (see "Overview" auf Seite 19).

   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.*

The following step is not mandatory.

3. Check whether the connection to the myDataweb has worked correctly (see "Testing communication with the device" auf Seite 40).

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: The use of antennas that are 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 myDatalogPCM Ex as described in chapter "Installing the myDatalogPCM Ex " auf Seite 30. During this process, also observe the notes regarding the influences on the signal quality (see "Typical influences on the signal quality" auf Seite 36).

   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" auf Seite 24).

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 myDataweb 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	

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Kapitel 9 Initial Start-Up

9.1 User information

Before you connect the myDatalogPCM Ex 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 myDatalogPCM Ex .

Please contact our technical department if anything is unclear or if you encounter difficulties with regard to installation, connection or configuration (see "Contact information" auf Seite 91).

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 myDatalogPCM Ex and the input screens of the myDataweb-Server before you begin with the configuration.

9.3 Commissioning the system

> ***Note:*** *It is recommended that the myDatalogPCM Ex 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 myDataweb server (see "myDatanet Server Manual " 805002) and determine a site setting (see "Site configuration" auf Seite 45). Take the opportunity to get to know the functions of the device in a stable environment. You can also establish the connection between myDatalogPCM Ex and PCM Pro or PCM 4 immediately to optimally determine the configuration of the myDatalogPCM Ex before actual commissioning. This reduces the amount of time required for on-site installation to a minimum.*

1. The myDatalogPCM Ex is supplied with the transmission deactivated and should also always be stored in this state (see "Storage of the product" auf Seite 21). The transmission is activated by initiating the ALOHA transmission mode (see "ALOHA transmission mode" auf Seite 24), whereby the first connection to the myDataweb server is established.
2. The myDatalogPCM Ex is already ready for operation if you have completed all of the steps in chapter "Connecting the flow rate measurement system" auf Seite 34.

3. Create a site for the operation on the myDataweb server (see "myDatanet Server Manual " 805002).
4. Configure the created site according to your requirements ("Site configuration" auf Seite 45).
5. Link the myDatalogPCM Ex with the created site (see "Site" auf Seite 45).
6. Activate the ALOHA transmission mode (see "ALOHA transmission mode" auf Seite 24) so that the site configuration is transferred to the myDatalogPCM Ex .

9.4 Testing communication with the device

1. Create a site for the operation on the myDataweb server (see "myDatanet Server Manual " 805002).
2. Configure the created site according to your requirements (see "Site configuration" auf Seite 45).
3. Link the myDatalogPCM Ex with the created site (see "Site" auf Seite 45).
4. Initiate the ALOHA transmission mode (see "ALOHA transmission mode" auf Seite 24) so that the configuration of the site is transmitted to the myDatalogPCM Ex .
5. Wait until the list of measurement instruments indicates that the device is in ALOHA transmission mode. This is indicated by a speech bubble with the "Aloha" inscription.



6. Check the incoming data in the ALOHA data window of the myDataweb 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"	
› 3,73V	
3,73V...3,65V	
3,64V...3,59V	
3,58V...3,56V	
3,55V...3,21V	
‹= 3,2V or invalid value	

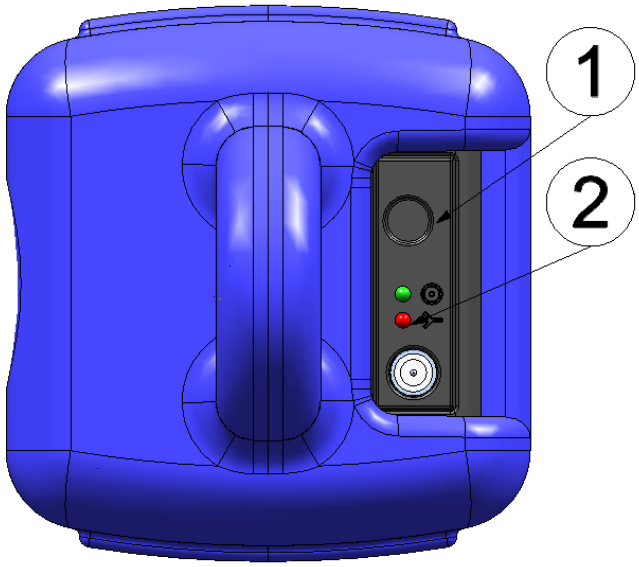
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Kapitel 10 User interfaces

The configuration of the myDatalogPCM Ex is carried out via the web interface on the myDataweb server (see "User interface on the myDataweb-Server" auf Seite 45), which your responsible sales partner will provide to you.

10.1 User interface on the myDatalogPCM Ex

10.1.1 Operating elements



Operating elements

1	Solenoid switch	3	Status LED

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 myDatalogPCM Ex 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" auf Seite 44)
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 status. If the ALOHA transmission mode was activated or the accu or battery pack was connected (PowerOn), the myDatalogPCM Ex switches to advanced signalling mode and indicates the current operating status for 10 minutes via the status LED. During this ten-minute interval, the error/status codes are transmitted every three seconds. The current operating status is not indicated during standard signalling mode and the error/status codes are only transmitted 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 myDatalogPCM Ex 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	Network block/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 network block (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 myDataweb server • Try again later
12x	Faulty SIM card	Contact support

Operating statuses

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 myDataweb-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 myDataweb-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!)

Description
Description of the site saved on PCM Pro or PCM 4 [16 characters] (read only)

10.2.1.2 Comments

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

10.2.1.3 PCM settings

Note: The following parameters are read from the PCM Pro or PCM 4 and cannot be changed via the interface of the myDatawebserver.

Measurement	Operation mode of the PCM Pro or PCM 4	
	off	Switched off, no measurement
	cyclical	Cyclical measurement and record
	triggered	Only record in event mode
	continuous	Continuous measurement and record
Record interval	Time between measurement data recordings	
Event record interval	Time between recordings of the measurement data if PCM Pro or PCM 4 is in event mode	
External record interval	Specifies how often the debug data should be recorded 0 ... no recording of the debug data 1 ...the debug data is recorded at every measurement data recording n ...the debug data is recorded at every nth measurement data recording	

10.2.1.4 Measurement channels

10.2.1.4.1 Basis

Mass flow

Mass flow	Freely selectable channel title for the mass flow recorded by the PCM Pro or PCM 4 (absolute summation counter is only ever incremented and never reset)
Min	Defines the lower scale end of the pointer instruments
Max	Defines the upper scale end of the pointer instruments
Unit	Selection of the flow rate volume unit that is used by all of the server display elements
Decimal places	Number of decimal places that are used by all of the server display elements

Flow rate

Flow rate	Freely selectable channel title for the flow rate recorded by the PCM Pro or PCM 4
Min	Defines the lower scale end of the pointer instruments
Max	Defines the upper scale end of the pointer instruments
Unit	Selection of the flow rate unit that is used by all of the server display elements
Decimal places	Number of decimal places that are used by all of the server display elements

Velocity raw

Velocity raw	Freely selectable channel title for the flow velocity (raw value) recorded by the PCM Pro or PCM 4
Min	Defines the lower scale end of the pointer instruments
Max	Defines the upper scale end of the pointer instruments
Unit	Selection of the velocity unit that is used by all of the server display elements
Decimal places	Number of decimal places that are used by all of the server display elements

Level raw

Level raw	Freely selectable channel title for the level (raw value including automatic error correction) recorded by the PCM Pro or PCM 4
Min	Defines the lower scale end of the pointer instruments
Max	Defines the upper scale end of the pointer instruments
Unit	Selection of the level unit that is used by all of the server display elements
Decimal places	Number of decimal places that are used by all of the server display elements

Watertemp. raw

Watertemp. raw	Freely selectable channel title for the water temperature (raw value) recorded by the PCM Pro or PCM 4
Min	Defines the lower scale end of the pointer instruments
Max	Defines the upper scale end of the pointer instruments
Unit	Selection of the temperature unit used by all of the server display elements
Decimal places	Number of decimal places that are used by all of the server display elements

Note: *There is no configuration for the "Quality" measurement value. It is only visible when downloading the measurement data as a tsv file and contains additional quality information on the measurement values recorded by the PCM Pro or PCM 4.*

Quality

---	---

Channel 1 - 4

Channel 1 - 4	The channel title saved on the PCM Pro or PCM 4 for the analogue measurement values recorded by the PCM Pro or PCM 4 [16 characters] (read only)
0%	The lower end of the scale for the analogue input saved on the PCM Pro or PCM 4 (read only)
100%	The upper end of the scale for the analogue input saved on the PCM Pro or PCM 4 (read only)
Unit	The unit for the analogue input saved on PCM Pro or PCM 4 [8 characters] (read only)
Decimal places	Number of decimal places that are used by all of the server display elements

10.2.1.4.2 Alarms

Warning	Value low	A warning is triggered, if the measurement value drops to or below this value.
	Value high	A warning is triggered, if the measurement value meets or exceeds this value.
Alarm	Value low	An alarm is triggered, if the measurement value drops to or below this value.
	Value high	An alarm is triggered, if the measurement value meets or exceeds this value.
Hyst %	Hysteresis for 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)	

Note: *The level for initiating the event measurement cycle that is entered directly on the PCM Pro or PCM 4 is used for the upper alarm limit (Alarm -› value high) of the height ("Level raw" measurement value) recorded by the PCM Pro or PCM 4. The upper alarm limit for the height can therefore not be entered via the interface of the myDataweb server.*

10.2.1.4.3 Trigger

XM	Initiate transmission	
QX	The "Transmission cycle on event" should be used.	
Level	Levels for initiating 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.

10.2.1.5 Analysis channels

10.2.1.5.1 Basis

Water ultras.

Water ultras.	Freely selectable channel title for the raw value of the ultrasonic water sensor recorded by the PCM Pro or PCM 4
Min	Defines the lower scale end of the pointer instruments
Max	Defines the upper scale end of the pointer instruments
Unit	Selection of the level unit that is used by all of the server display elements
Decimal places	Number of decimal places that are used by all of the server display elements

Pressure raw

Pressure raw	Freely selectable channel title for the raw value of the pressure sensor recorded by the PCM Pro or PCM 4
Min	Defines the lower scale end of the pointer instruments
Max	Defines the upper scale end of the pointer instruments
Unit	Selection of the level unit that is used by all of the server display elements
Decimal places	Number of decimal places that are used by all of the server display elements

Air ultras.

Air ultras.	Freely selectable channel title for the raw value of the ultrasonic air sensor recorded by the PCM Pro or PCM 4
Min	Defines the lower scale end of the pointer instruments
Max	Defines the upper scale end of the pointer instruments
Unit	Selection of the level unit that is used by all of the server display elements
Decimal places	Number of decimal places that are used by all of the server display elements

Note: *The height profile of the flow velocity comprises 16 measurement values and is displayed as a vertical equaliser curve in the default graphic.*

Vel. profile

Min	Defines the lower scale end of the pointer instrumentsas well as the left limit of the vertical equaliser curve in the default graphic
Max	Defines the upper scale end of the pointer instrumentsas well as the right limit of the vertical equaliser curve in the default graphic
Canal height	Canal height that is displayed in the vertical equaliser curve of the default graphic
Unit	Selection of the unit for the canal height that is displayed in the vertical equaliser curve of the default graphic

10.2.1.5.2 Alarms

Note: *The alarm limits for the "Water ultras.", "Pressure raw" und "Air ultras." analysis channels are monitored by the myDataweb server and not the myDatalogPCM Ex . This means that an alarm can only be detected when the measurement data is transferred to the myDatalogPCM Ex server.*

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)	

10.2.1.6 Calculated flow data

The daily flow is calculated by the myDatalogPCM Ex using the flow rate read by the PCM Pro or PCM 4.

10.2.1.6.1 Basis

Daily flow

Daily flow	Freely selectable channel title for the daily flow calculated by the myDatalogPCM Ex
Min	Defines the lower scale end of the pointer instruments
Max	Defines the upper scale end of the pointer instruments
Unit	Selection of the flow rate volume unit that is used by all of the server display elements
Decimal places	Number of decimal places that are used by all of the server display elements

10.2.1.6.2 Config.

Daily flow rate	Day changing time	Time of day when the "Daily flow" is reset

10.2.1.6.3 Alarms

Warning	Value low	A warning is triggered, if the measurement value drops to or below this value.
	Value high	A warning is triggered, if the measurement value meets or exceeds this value.
Alarm	Value low	An alarm is triggered, if the measurement value drops to or below this value.
	Value high	An alarm is triggered, if the measurement value meets or exceeds this value.
Hyst %	Hysteresis for 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)	

10.2.1.6.4 Trigger

XM	Initiate transmission	
QX	The "Transmission cycle on event" should be used.	
Level	Levels for initiating 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.

10.2.1.7 Calculated channels

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

10.2.1.7.1 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	*Min*	*Defines the lower scale end of the pointer instruments*
	Max	*Defines the upper scale end of the pointer instruments*
	Unit	*String that is used as a measurement unit by all of the server display elements [0-16 characters]*
	Decimal places	*Number of decimal places that are used by all of the server display elements*
Digital	*Invert*	*Inverts the input signal*
+, -, x, /	*Min*	*Defines the lower scale end of the pointer instruments*
	Max	*Defines the upper scale end of the pointer instruments*
	Unit	*String that is used as a measurement unit by all of the server display elements [0-16 characters]*
	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 meter reading (m^3) of the source in to a flow rate (m^3/min.) (see "Additional explanation: Delta mode" auf Seite 53).*	
	Min	*Defines the lower scale end of the pointer instruments*
	Max	*Defines the upper scale end of the pointer instruments*
	Unit	*String that is used as a measurement unit by all of the server display elements [0-16 characters]*
	Decimal places	*Number of decimal places that are used by all of the server display elements*



Shift element down

▲

Shift element up

10.2.1.7.2 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 the 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.

Note:

Additional explanation: Delta mode

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

Required configuration

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

Source		*Calculated channel 1*	*Calculated channel 2*
Date/time	*Infinite counter [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 channel as there is no previous value and the different between the meter readings cannot be determined. For the measurement at 12:51, the difference to the meter 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

10.2.1.7.3 Alarms

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

10.2.1.8 Internal channels

10.2.1.8.1 Basis

PCM voltage title	Freely selectable channel title for the internal battery or rechargeable battery voltage of the PCM Pro or PCM 4	
	Unit	String that is used as a measurement unit by all of the server display elements [0-16 characters]
Battery title	Freely selectable channel title for the internal battery or rechargeable battery voltage of the myDatalogPCM Ex	
	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

10.2.1.8.2 Alarms

Note:

The myDatalogPCM Ex monitors the alarm limits for the internal channel "PCM voltage". This means that an alarm can be detected immediately.
The alarm limits for the internal channels "Battery", "GSM level" and "Int. temp" are monitored by the myDataweb server and not the myDatalogPCM Ex . This means that an alarm can only be detected when the measurement data is transferred to the myDatalogPCM Ex server.

PCM voltage	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)	
All of the other internal measurement values	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)	

10.2.1.8.3 Trigger

PCM voltage	XM	Initiate transmission	
	QX	The "Transmission cycle on event" should be used.	
	Level	Levels for initiating 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.

10.2.1.9 Alarm settings

Acknowledgement	Standard	The global server setting is used to determine whether to acknowledge alarms 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 the event that the device does not respond for longer than the set transmission cycles	
Transfer volume	Standard	The configuration for the transfer volume alarm is adopted from the global server setting (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.
	X	The "Transmission cycle on event" should be used.
On warning	A	The alarm is recorded in the alarm list.
	Ü	An immediate transmission is initiated.
	X	The "Transmission cycle on event" should be used.
On fault alarm	A	The alarm is recorded in the alarm list.
	Ü	An immediate transmission is initiated.
	X	The "Transmission cycle on event" should be used.
On fault warning	A	The alarm is recorded in the alarm list.
	Ü	An immediate transmission is initiated.
	X	The "Transmission cycle on event" should be used.

10.2.1.10 Basic setting

Transmission cycle	Time between transmissions	
Transmission cycle on event	Time between the transmissions, if a shortened transmission cycle should be used because of an alarm/warning, a trigger being initiated or because the PCM is in event mode	
Time zone	Regional settings (not relevant for raw measurement data as this is stored in the 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
Position cycle	Position update interval	
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.

10.2.1.11 FTP export settings

Note: *This configuration section is only visible if the "FTP Agent Extended" licence for the myDataweb-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 myDataweb 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]	

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 myDataweb-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
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.
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 on 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	

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 transmitted 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".
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).

10.2.2.3 Device-specific settings

Transmission

Activates/deactivates the transmission

10.2.2.4 GPRS

SIM tariff

Selected SIM tariff

Kapitel 11 XML interface

Important note: The relevant licences are required on the myDataweb server to use the XML interface. If the licence is not available for the XML export, the following message is displayed for every request: "-ERR: XML agent is not active on this server!". Likewise, if the licence is missing for the XML import, the following message is returned for each import attempt: "-ERR: XML upload is not active on this server!". In this case, contact your responsible sales partner.

11.1 General

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

A detailed description of the XML interface is provided in the Programming User Manual for the portable ATEX data dogger myDatalogPCM Ex (300361).

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Kapitel 12 Maintenance

Important note: The work described in this section of these instructions may only be performed by qualified personnel to prevent damage to the instrument.

Before maintenance, cleaning and/or repair work, the device must absolutely be deenergised (zero potential).

12.1 General maintenance

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

1. Ensure that all of the relevant data was transferred to the myDataweb server. If necessary, initiate the ALOHA transmission mode using the solenoid contact (see "ALOHA transmission mode" auf Seite 24) 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" auf Seite 64) and then remove it fully from the protective armour (see "Removing the protective armour - step 2" auf Seite 64)

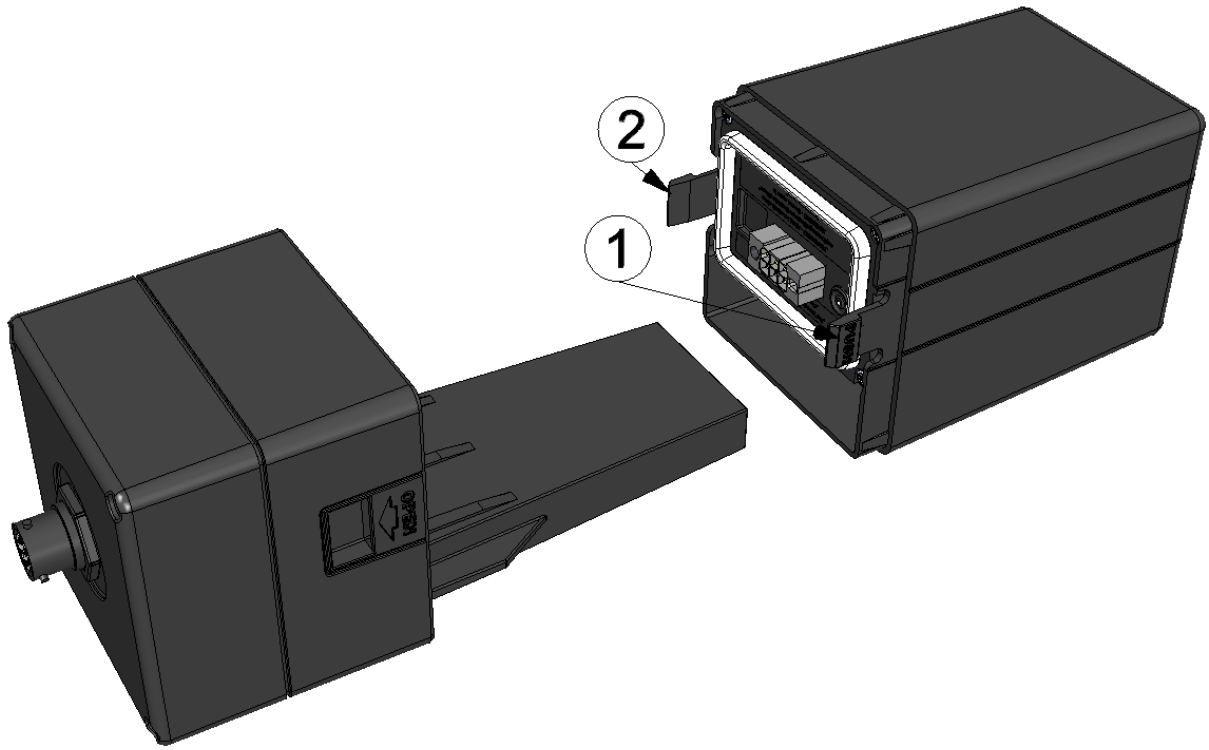


Removing the protective armour - step 1



Removing the protective armour - step 2

4. Briefly (approx. 1 sec.) activate the solenoid switch (see "Operating elements" auf Seite 43) to prepare the myDatalogPCM Ex for the removal of the rechargeable battery pack. This ensures that the most recently generated data is 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" auf Seite 64) while pulling the rechargeable battery or battery pack out of the myDatalogPCM Ex .



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" auf Seite 66.
7. Due to the low energy consumption, one rechargeable battery charge will provide several months of operating time. During this time, the myDatalogPCM Ex is located in an environment that strongly corrodes the seal between the device and the rechargeable battery or battery pack. The rechargeable battery cover must therefore be replaced every time the device is recharged. Instructions are provided in the chapter "Replacing the accu cover" auf Seite 68.

   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 myDatalogPCM Ex can be attributed to damaged or contaminated seals. The seals on the rechargeable battery or battery pack and the contact surface of the device must therefore be cleaned before the seal is greased again. A detailed description is provided in the chapter "Maintenance of the accu seal" auf Seite 69.
9. Now reconnect the rechargeable battery or battery pack and the myDatalogPCM Ex .
10. 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" auf Seite 65 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

11. Assemble the protective armour according to step 1 to 3 in Figure "Fitting the protective armour" auf Seite 66. Ensure that you insert the device in to the protective armour in such a way that the type plate can be read following assembly. 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" auf Seite 43).

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

Fitting the protective armour



Step 1 Step 2 Step 3

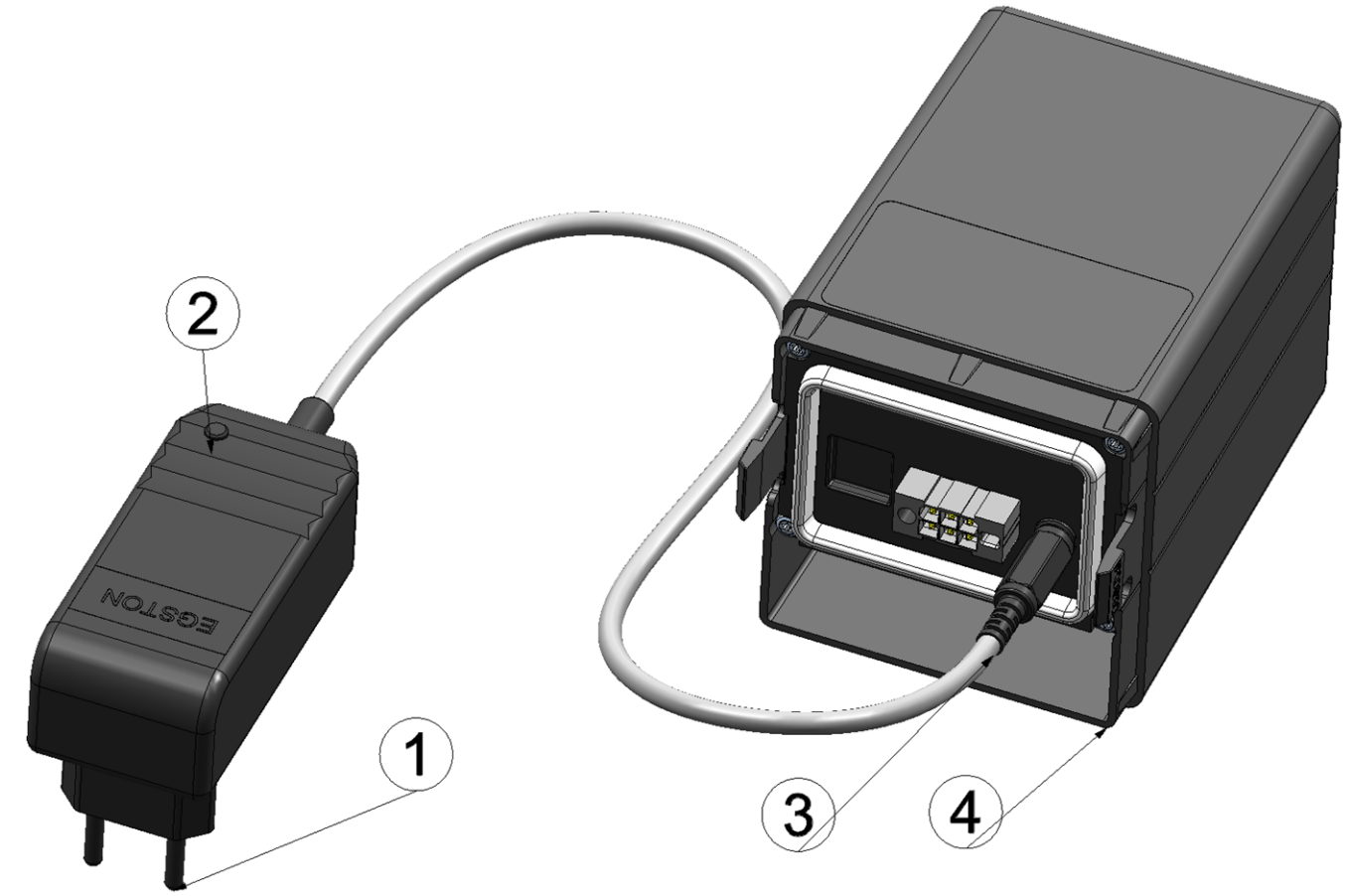
12.3.1 Charging the accu pack

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" auf Seite 63.

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.*

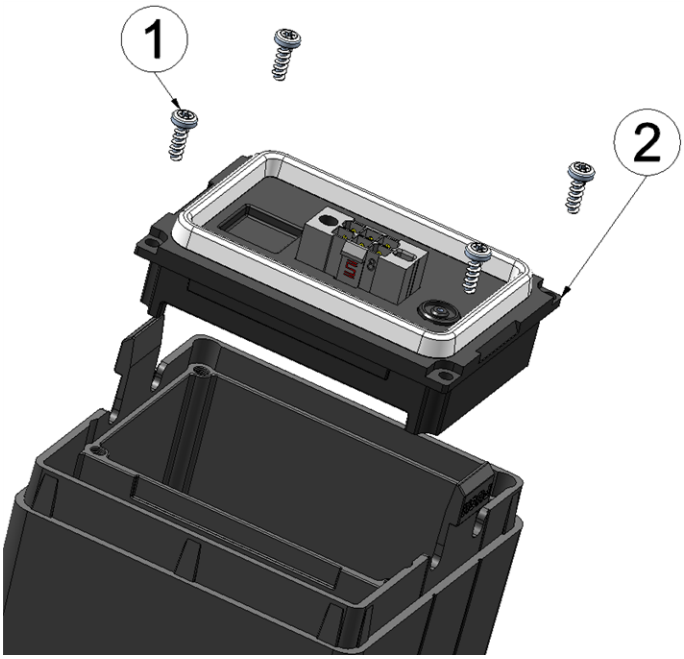
Note: *Ensure that accu and battery packs are disposed of in line with environmental requirements. Used accu or battery packs can be returned to the manufacturer or handed in at suitable collection points.*

12.3.2 Replacing the accu cover

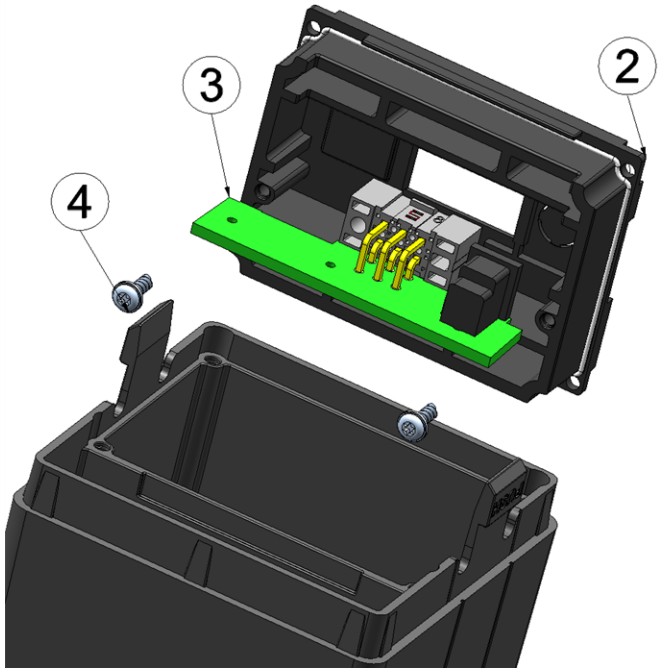
The optional "myDatanet service kit (206.324)" equipment is required for replacing the accu cover.

Important note:

- *The accu cover must not be replaced in the Ex area.*
- *The accu cover must be replaced if impurities on the seal of the accu cover cannot be removed without damaging the seal.*
- *The accu cover must definitely be replaced in the event of noticeable deformations of the seal or the accu cover.*
- *The manufacturer must be contacted if there is any indication of moisture within the sealing area (see "Contact information" auf Seite 91).*
- *The accu cover must generally be replaced on devices supplied before April 2009.*
- *The maximum permissible torque for all of the screws is 0.4 Nm and must not be exceeded under any circumstances!*



Replacing the accu cover - step 1



Replacing the accu cover - step 2

1 Screw	3 Accu electronics
2 Accu cover	4 Screw including shoulder washer

1. Unscrew all four of the screws (1) that secure the accu cover (see "Replacing the accu cover - step 1" auf Seite 68). A suitable Torx wrench (Tx10) is included in the myDatanet service kit (206.324).
2. Carefully lift the accu cover.

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

3. Loosen both of the screws (4) that secure the accu electronics and carefully remove the accu electronics from the accu cover (see "Replacing the accu cover - step 2" auf Seite 68).
4. Then push the accu electronics into the new accu cover and secure the accu electronics with the screws provided (4).

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

5. Place the accu cover back on the accu pack and secure it with all four of the screws (1). Tighten all four of the screws crosswise so that the accu cover is affixed uniformly (ensure the maximum permissible torque of 0.4 Nm is maintained).

12.3.3 Maintenance of the accu seal

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

Important note:

- *Ensure that any impurities are eliminated.*
- *The seal of the device is not guaranteed if the sensor head and accu cover are not cleaned thoroughly.*
- *If residual dirt cannot be removed from the accu cover, it must be replaced (see "Replacing the accu cover" auf Seite 68).*
- *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 accu or battery pack, clean the contact surface on the myDatalogPCM Ex with a standard cleaning cloth and cotton buds.



Cleaning the myDatalogPCM Ex - step 1



Cleaning the myDatalogPCM Ex - step 2

2. Clean the seal and area around the seal of the accu or battery pack with a cleaning cloth and cotton buds.



Cleaning the accu or battery pack

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 accu or battery pack.*



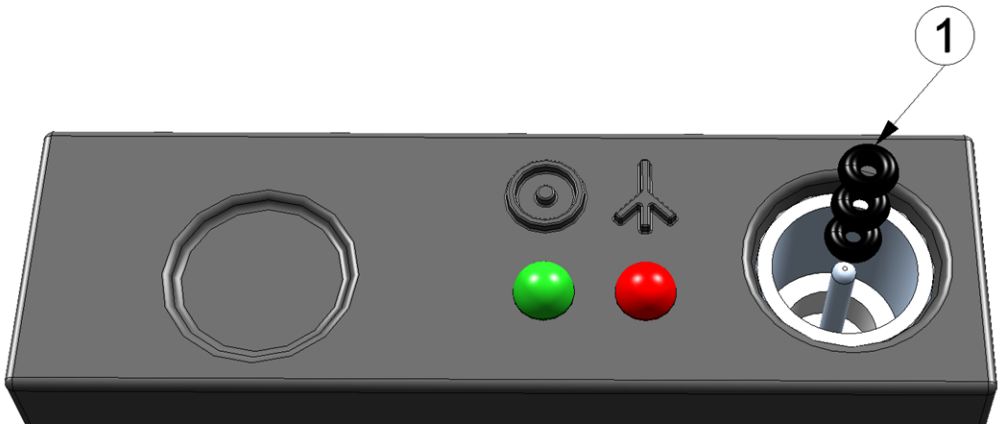
Applying the bead of grease

12.4 Maintenance of the antenna socket

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)	

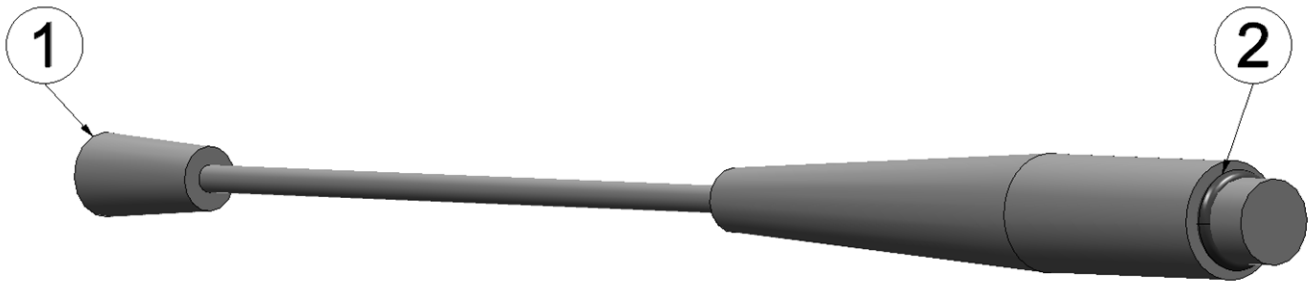
1. Place the three small O-rings on the contact pin of the antenna socket. The O-rings are placed in the end position during initial assembly of the antenna.

12.5 Maintenance of the antenna connector

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 assembled 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. Assemble the O-ring on the antenna connector according to the Figure "Antenna including assembled O-ring" auf Seite 72.
2. The O-ring must be pressed firmly on to the antenna socket following assembly 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.*

Kapitel 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 myDatalogPCM Ex after discharging. Ensure that accu and battery packs are disposed of in line with environmental requirements.

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Kapitel 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" auf Seite 85. • Fully discharge rechargeable battery and battery packs.
Communication problems	• Evaluate the blink code of the status LED (see "Status LED" auf Seite 44). • Load the device log from the myDatalogPCM Ex or the myDataweb server and use DeviceConfig for the evaluation (see "Evaluating the device log" auf Seite 83). • 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" auf Seite 45). • Check the cable connections (see "Connecting the flow rate measurement system" auf Seite 34).
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.
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" auf Seite 91).
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	While searching for the required data record in the data memory area, it was determined that the data is not sorted in ascending order.
		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	When transferring the data to the server, it was determined that the data in the log memory is not sorted in ascending order.
		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" auf Seite 91).
1190	DP INVALID	##	---	
1200	MODEM ERROR	##		Modem error (see "Modem error" auf Seite 80)
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

Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1224	MODEM SIM RESET	---	---	PowerOFF/PowerON cycle completed for the modem
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 the firmware download (see "Modem error" auf Seite 80)
1261	MODEM FW TO	---	---	Timeout during the 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" auf Seite 91).
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" auf Seite 91).
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 the ALOHA transmission mode is initiated, the myDatalogPCM Ex 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"
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 network block (see "myDatanetDeviceConfig Manual " 805004)
		8	NO NET	No GSM network • Improve the 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 myDataweb server available • Check whether port 51241 is enabled on the myDataweb server. • Try again later
		12	SIM CARD ERROR	Faulty SIM chip 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 netlock1).

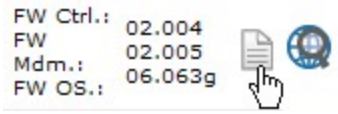
Log entry		Parameter		Description
Code	Plain text	Code	Plain text	
1200	BAND SEL FAILED	-969	---	A network could not be found on the GSM900/1800 or on the GSM85071900 band. • Try to improve the position of the antenna. • Check whether the device is in the coverage area (www.microtronics.at/footprint).
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 myDataweb server

The last 300 log entries on the myDataweb 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 myDatawebserver.

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 myDataweb server, directly from the myDatalogPCM Ex 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).

Kapitel 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
Connection cable PCM with cable connector 3m	1	300007

15.6 Other accessories

Description	Quantity	Order number
MDN Protection casing	1	206.320
MDN Magnet	1	206.803
myDatanet service kit	1	206.324
MDN Anti-theft device	1	206.322

Kapitel 16 Document history

Rev.	Date	Changes
01	06.12.2013	First version

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Kapitel 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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Kapitel 18 Contact information

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