Operating manual M021-1200200400

Valid for: LVL-HT-W1, LVL-HT-W3, LVL-HT-W10

Valid from:

- **Firmware version: 02v000**
- **Server version: ---**
- **Hardware version: ---**



301697 | Rev.05

Microtronics

Additional information

This operating manual is an abridged version. The information contained herein applies to all devices based on the hardware platform "M021-12000200400 ". The complete documentation for the individual devices can be accessed via the following QR codes or links:

LVL-HT-Wx:

https://support.microtronics.com/lvl-ht-wx/manual

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Chapter 2 Declaration of conformity

EU-Konformitätserklärung

EU Declaration of Conformity / Déclaration de conformité UE

Type: **M021-12000200400**
Type code : **M022-12000200400**
Type:

Hersteller: **Microtronics Engineering GmbH**
Manufacturer : Hauptstrasse 7
Fabricant: A-3244 Ruprechtshofen

Das bezeichnete Produkt stimmt mit den folgenden Europäischen Richtlinien überein. Eine oder mehrere der in der zugehörigen Baumusterprüfbescheinigung SIQ 25 ATEX 154 X genannten Normen wurden durch neue Ausgaben ersetzt. Der Hersteller erklärt für das vorstehend genannte Produkt auch die Übereinstimmung mit den Anforderungen der neuen Normenausgaben."
The designated product is in conformity with the following european directives. One or more of the associated listed in the Type Examination Certificate SIQ 25 ATEX 154 X standards have been replaced by new editions. The manufacturer for the above product also compliance with the requirements of the new standard editions.
Le produit décrit est conforme aux directives européennes suivantes. Une ou plusieurs des normes énumérées dans l'attestation de type concernant SIQ 25 ATEX 154 X étaient replacées par des nouvelles éditions. Le producteur déclare pour le produit décrit ci-dessus la conformité aux exigences des nouvelles éditions des normes.

		Europäische Norm	
(2014/30/EU)	**EMC Directive**		
		EN61326-1	
(2014/35/EU)	**LVD Directive**		
		EN61010-1	
(2014/53/EU)	**RED Directive**		
	Safety & Health 3.1a	EN62368-1+A11:2017	
	EMC 3.1b	EN301489-1 V2.1.1 EN301489-17 V3.2.4	
	Radio spectrum efficiency 3.2	EN300328 V2.2.2	
(2014/34/EU)	**ATEX Directive**		
		EN IEC 60079-0 EN 60079-11	
(2015/863/EU)	**RoHS Directive**		
	Prevention 4.1	EN IEC 63000	
	Kennzeichnung/ Markings/ Marquage CE 0123 Ex II 2(1) G Ex ib [ia Ga] IIB T4 Gb		

Klaus Potzmader

Klaus Potzmader, Director Product
Unterschrift
name and signature of authorised person
Nom et signature de la personne autorisée

Stefan Pfeffer, Managing Director Finance
Unterschrift
name and signature of authorised person
Nom et signature de la personne autorisée

Martin Mayer, General Managing Director
Unterschrift
name and signature of authorised person
Nom et signature de la personne autorisée

A. Zuser

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

Ruprechtshofen, den 02.09.2025
Ort und Datum der Ausstellung
Place and date of issue
Lieu et date d'établissement

Chapter 3 Ex certification

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

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

(3) EU-Type Examination Certificate Number:

SIQ 25 ATEX 154 X **Issue: 0**

(4) Product: Gauge sensor, type: M02y-x2000200400

(5) Manufacturer: Microtronics Engineering GmbH

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

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

(8) SIQ Ljubljana, Notified body number 1304 in accordance with Article 17 and Article 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive. Certification body is not accredited for notification purposes.

The examination and test results are recorded in the confidential test report TEx154/25.

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

EN IEC 60079-0:2018 + AC:2020-02 + A11:2024 **EN 60079-11:2012**

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

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

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

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

Ex II 2(1) G Ex ib [ia Ga] IIB T4 Gb

Certification body Ljubljana, 4 September 2025

Gregor Schoss

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The EU-Type Examination Certificate is valid only if signed. The certificate may be reproduced only in full and without changes. Any extracts and changes shall be approved by SIQ Ljubljana.

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

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

Chapter 4 Specifications

Voltage supply	Battery: Li-SOCl2 cell with 1,2 Ah	
Housing	Material: Weight: Protection class: Dimensions (DL):	POM / Stainless Steel (transmission unit / pressure sensor) approx. 270 g (incl. pressure sensor and 5 m cable) IP67 40 x 100 mm / 21 x 74 mm (transmission unit / pressure sensor)
Ex certification	 II 2(1) G Ex ib [ia Ga] IIB T4 Gb The transmission unit may only be located in areas with a zone 1 explosive atmosphere. However, the pressure sensor may also be located in areas with a zone 0 explosive atmosphere (see "Overview" on page 18).	
Operating temperature	-20...+50 °C / -40...+70 °C [1] (transmission unit / pressure sensor)	
Air humidity	15...90 % RH non-condensing	
Storage and transport temperature	-20...+50 °C	
Pressure sensor	Measurement range: Resolution: min. fill level: Cable length: Cable materials: suitable for: unsuitable for: Measurement method:	0-10 m 1 mm 20 mm (results from the position of the diaphragm) up to 12 m PE Fresh and grey water Drinking water Piezoresistive pressure sensor
Temperature sensor	Measurement range: Resolution:	-40...+70 °C [2] 0,05 °C
Data type	Fill level [mm]: Temperature [0,05 °C]:	s16 (16Bit signed) s16 (16Bit signed)
Data transmission	Local radio connection: Range: up to 20 m (depending on the environmental and structural conditions)	
Device operating time	up to 5 years (depending on the measurement cycle)	

[1] The operating temperature or temperature measuring range is limited by the material of the connection cable. The pressure sensor itself is approved for higher temperatures.

[2] The compensation of the temperature-related influences on the fill level measurement only occurs in the range of 0...50 °C .

Chapter 5 General specifications

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

> ***Tip:*** *The specifications in this manual are valid as of the versions listed on the front page. Revised versions of this manual are available via the manufacturer's website (see "Contact information" on page 41).*

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 battery-operated, stationary M021-12000200400 is designed for use in areas with explosive atmospheres and consists of a pressure sensor and a transmission unit. The transmission unit may only be located in areas with zone 1 or zone 2 explosive atmosphere. Thanks to the barrier integrated into the transmission unit, the pressure sensor may be located in areas with a zone 0, zone 1 or zone 2 explosive atmosphere.

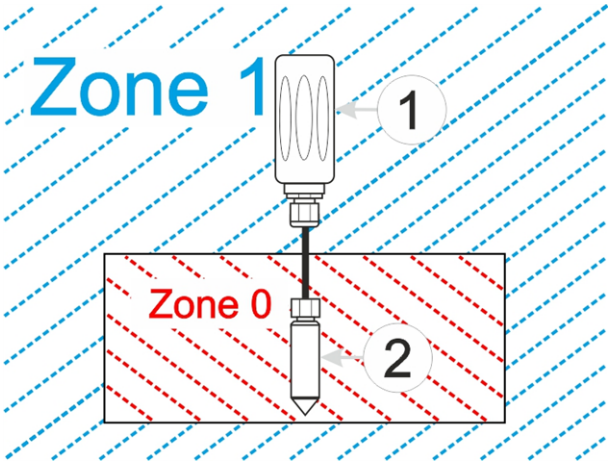
The following conditions must be observed:

- The device is designed for fixed installation and cannot be used as a portable equipment in potentially explosive atmospheres.
- Equipment must be installed in a place with low risk of mechanical impact and shall be adequately protected from falling objects.
- Only the manufacturer is permitted to open the housing to carry out maintenance work, which must only be completed outside the Ex area.
- The battery must only be replaced by the manufacturer with certified identical products.
- Only the manufacturer is permitted to replace the pressure sensor.
- Only the manufacturer's original spare parts must be used.
- Possible risk of electrostatic charge - use a damp or electrostatically dissipating cloth to clean the device.
- A mounting distance of min. 50 mm must be maintained on all sides to prevent any impurities.
- Metal enclosure of the digital pressure sensor "KELLER AG for pressure measurement technology, type: 26DEi", shall be connected to earthing system.
- Metal holders for radio transceivers and cables shall be earthed in the course of installation.
- The device has to be protected from UV radiation.

II 2(1) G Ex ib [ia Ga] IIB T4 Gb

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

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



1 Transmission unit of the M021-12000200400	**2** Pressure sensor of the M021-12000200400

5.5 Safety instructions

For the connection, commissioning and operation of the M021-12000200400 , the following information and higher legal regulations of the country (e.g. ÖVE), such as valid EX regulations as well as the applicable safety and accident prevention regulations for the respective application case must be observed.

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

Ensure that the safety equipment of this measurement instrument is not impaired. Install and use the measurement system only in the manner and method described in this manual. Do not make any changes to the measurement system under any circumstances.

> ***Important:*** *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.



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



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

> ***Important:*** *Indicates a situation that can result in damages to this instrument if it is not avoided. Information that must be particularly emphasised.*
>
> ***Note:*** *Indicates a situation that does not result in any injury to persons.*
>
> ***Tip:*** *Information that supplements the specifications in the main text.*

5.5.2 Safety symbols on the device

	Devices marked with this symbol must be disposed of in accordance with the requirements of Directive 2012/19/EU on waste electrical and electronic equipment.
	This symbol on a device indicates the location of the earth connection.
	This symbol on a device indicates the location of a fuse or current limiting circuit.

5.5.3 General safety instructions

- This manual is intended to be used by qualified personnel (see "Personnel requirements" on page 23). Read this manual thoroughly before unpacking, setting up or operating the device..
- If you encounter difficulties in understanding the information contained in this manual (or parts thereof), please contact the manufacturer or authorised distributors (see "Contact information" on page 41).
- Keep this manual on hand so that you can refer to it whenever you need information.
- Before installation or commissioning, ensure that the device is in good condition. For this purpose, check for visible defects on all important components. Pay particular attention to fastenings, connections, cable connections, seals, moving parts (e.g. hinges or joints), battery packs, power supply units, etc., if present.
- If defects are found that jeopardise operational safety, all further work must be stopped immediately. This applies regardless of whether the defects are found before installation or commissioning, or during installation, commissioning or ongoing operation.
- Do not attempt to repair the device yourself, either mechanically or electrically. In the event of damage, return the device to the manufacturer in its original packaging (see "Repair & return" on page 37).
- The device must not be disposed of with household waste under any circumstances. Information on correct disposal can be found in the chapter "Removal & disposal" on page 39.

5.5.4 Specific safety instructions



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



Danger: Particular caution is required when working above or near water. There is a risk of drowning if you fall into the water. Always wear a life jacket or other suitable flotation device and check it carefully before use. Never work alone above or near water.

5.5.5 Safety and preventative measures for handling devices with wireless modules

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



Caution: The wireless connection must not be used in hazardous environments.

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

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

5.5.5.1 Safety and precautionary measures for devices with wireless module

- 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 wireless module can cause interferences if it is located in the vicinity of television sets, radios or computers.
- Do not open the wireless module. Any modification to the device is prohibited and will result in the operating licence being revoked.
- Do not install the device in any other way to the one described in the operating instructions. Improper use will invalidate the warranty.

5.5.6 Safety and precautionary measures when entering confined spaces and containers



Danger: Confined spaces may only be entered by trained personnel who are familiar with evacuation and first aid procedures and are equipped with detection, protective and safety equipment. Before entering, the confined space must be ventilated and the atmosphere checked.

The employee must obtain information about the applicable safety regulations from their employer in advance. These safety regulations must be observed before entering confined spaces.

Confined spaces and containers are areas that are largely sealed off from the surrounding environment and where exchange with the ambient air is difficult or impossible. Examples include shafts, sewers, storm water overflow basins, tanks, silos, etc. A confined space is also an area that meets or could potentially meet the following conditions:

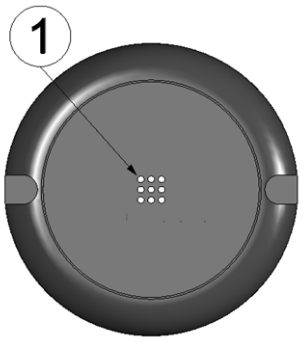
- An atmosphere containing less than 19.5% or more than 23.5% oxygen and/or a certain amount of hydrogen sulphide (i.e. H2S). As an indication, concentrations above 10 ppm of hydrogen sulphide (H_2S) are generally considered hazardous and require protective measures. Refer to the national occupational exposure limits (TWA and STEL) applicable in the country of use.
- An atmosphere that may be flammable or explosive due to gases, vapours, mists, dust or fibres.
- Toxic substances that may cause injury, incapacitation, or even death upon contact or inhalation.

Confined spaces are not intended for permanent occupation by people. Access is restricted to certain individuals and the associated hazards are known. These include:

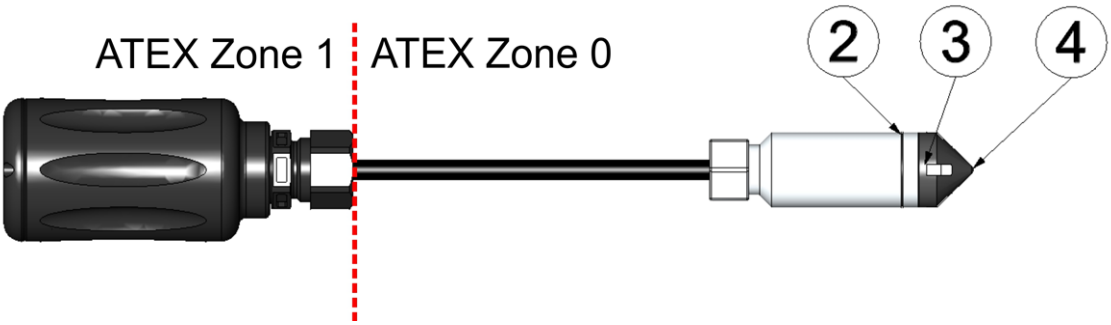
- Oxygen deficiency
- Risk of fire and explosion
- Hazardous and/or biological substances
- Unexpected flooding in of working materials

5.6 Overview

Important: *The transmission unit (black housing at the upper end of the cable) may only be located in areas with a Zone 1 explosive atmosphere. The pressure sensor, on the other hand, may also be located in areas with a Zone 0 explosive atmosphere (see red, dotted line in the illustration "Left side of the M021-12000200400 " on page 18).*



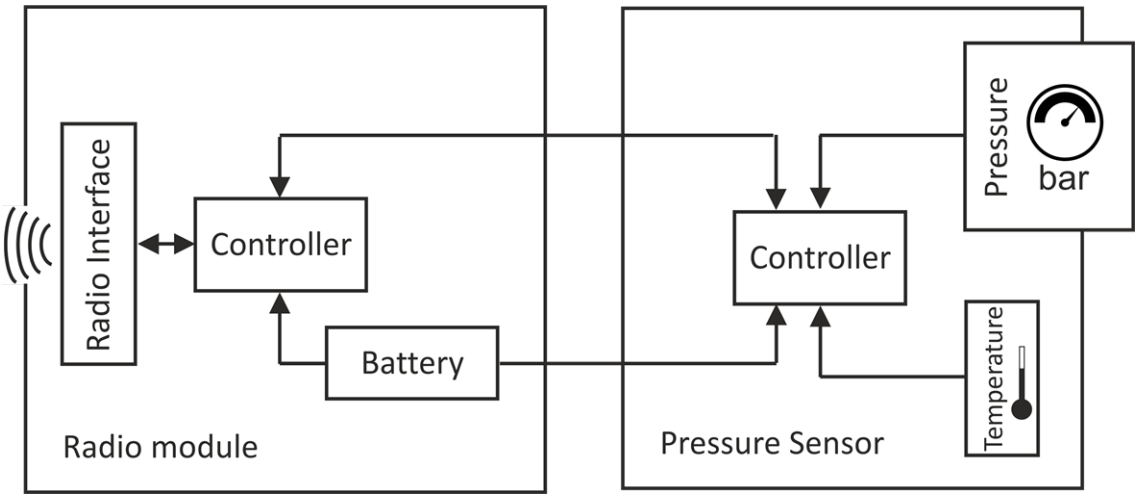
Top of the M021-12000200400



Left side of the M021-12000200400

1 Pressure compensation	**2** Marker for the position of the diaphragm, i.e. the zero point
3 Medium inlet openings	**4** Pressure sensor

5.6.1 Block diagram



Block diagram of the M021-12000200400

5.7 Limitations of use

The following chapters describe the limits within which use of the device is permitted. Reasonably foreseeable misuse is also listed and the use of the device in this way is explicitly excluded.

> ***Note:*** *Any use of the device that is not specified in chapters "Intended use" on page 19, "Type of use" on page 19 and "Field of application" on page 19 is not permitted. This also applies if the device is used in a way that is not explicitly excluded as unauthorised in the chapter "Unauthorised use" on page 20. The manufacturer is not liable for any damage or consequential damage resulting from unauthorised use. The risk is borne solely by the operator.*

5.7.1 Intended use

The battery-powered, stationary measurement instrument is designed to record fill levels in fresh and grey water. The device is battery-operated. Current measurement values can be read out via local radio connection and can be recorded using a compatible data logger. The device is intended exclusively for operation within the limits specified in chapter "Specifications" on page 11.

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

5.7.2 Type of use

Installation, commissioning and maintenance may only be completed by qualified personnel (see "Personnel requirements" on page 23). The device is designed for use in areas with an explosive atmosphere. The transmission unit may only be located in areas with a zone 1 explosive atmosphere. However, the pressure sensor may also be located in areas with a zone 0 explosive atmosphere (see "Overview" on page 18).

5.7.3 Field of application

It is only authorised for use in the industrial sector, business/commercial sector or in small businesses.

5.7.4 Unauthorised use

Note: *The following describes the types of use of the device that are not permitted. This is not a complete list, but rather a list of reasonably foreseeable misuse. Only the use specified in chapters "Intended use" on page 19, "Type of use" on page 19 and "Field of application" on page 19 is permitted. The manufacturer is not liable for any damage or consequential damage resulting from unauthorised use. The risk is borne solely by the operator.*

- The device must not be exposed to direct sunlight or direct weather influences (rain, snow, ...).
- The transmission unit (black housing at the top end of the cable) must not be installed in locations that are permanently flooded.
- The device must not be mounted hanging from the cable. The transmission unit must be mounted using a suitable bracket and the cable to the pressure sensor must be secured using a straining clamp.
- The transmission unit must not be mounted in a perpendicular position. To prevent water droplets from forming and blocking the pressure compensation, it must be mounted at an angle of 45°.
- The connection cable of the pressure sensor must not be bent.
- The bending radius for the connection cable must not be less than 60 mm.
- The device must not be used for level measurement in drinking water.
- The device must not be used for level measurement in blackwater.
- When mounting the pressure sensor using a bracket, do not apply too much pressure to the metal housing. A slight deformation of the housing can affect the pressure measuring cell, especially if the holder is attached to the lower part of the pressure sensor close to the black tip.

5.8 General product information

The device is a compact, battery-powered, stationary measurement system used to determine fill levels. It consists of a pressure sensor and a transmission unit. It is designed for use in fresh and grey water, but it must not be used in conjunction with drinking water. The M021-12000200400 is equipped with an internal battery to supply the integrated logic (radio module, controller and pressure sensor). The capacity of the installed battery is designed for a max. service life of 5 years. In addition to the fill level (taking the installation height and trimming into consideration), the internal measurement values "Pressure" (raw value), "PowerOn Flag" (sensor status), "Battery Sensor" and "Sensor Temp." are determined. This measurement data is determined once every minute and can be read out via a local radio connection and can be recorded using a data logger. A data logger can also be coupled with the M021-12000200400 . In this case, determining the measurement data must be initiated by the data logger. Measurement values generated in this way, can then be read out and can be recorded using a data logger. .

5.9 Device labelling

The specifications in this user manual apply exclusively to the M021-12000200400 device type. The type plates are located on the top and sides of the device and contain the following specifications:

- Product designation
- Type key
- Hardware revision
- Item number
- Serial number
- Ex protection designation as specified in chapter "Declaration of conformity" on page 7
- Week and year of production
- Name and address of the manufacturer
- Environmental conditions during operation
- Protection class
- Logo for the EU WEEE Directive
- CE marking



Type plates M021-12000200400

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

> ***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.*

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

5.10 Installation of spare and wear parts

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

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

5.11 Storage of the product

The M021-12000200400 does not include a special transport mode. The capacity of the installed battery is designed for a max. service life of5 . In the event of unfavourable environmental conditions (e.g. low temperatures), it may occur that the battery capacity is depleted before this period of time has elapsed. Store the M021-12000200400 in its original packaging.

5.12 Warranty

The device has been functionally tested before delivery. If it is used as intended (see "Intended use" on page 19) and the operating instructions, the applicable documents and the safety notes and instructions contained therein, are observed, no functional restrictions are to be expected and perfect operation should be possible.

> ***Tip:*** *Please also note in this regard the next chapter "Disclaimer" on page 22.*
>
> ***Note: Limitation of warranty***
>
> *In the event of non-compliance with the safety instructions and instructions in this document, the manufacturer reserves the right to limit the warranty.*

5.13 Disclaimer

The manufacturer assumes no liability

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

5.14 Obligation of the operator

Attention: In the EEA (European Economic Area), the national implementation of the framework directive (89/391/EEC) as well as the associated specific directives and from these in particular, the directive (2009/104/EC) about the minimum safety and health requirements for use of work equipment by workers at work, each in their respective version are to be complied with.

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

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

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

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

5.15 Personnel requirements

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

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

Tip: Qualified personnel

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

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

Chapter 6 Storage, delivery and transport

6.1 Inspection of incoming deliveries

Check the shipment immediately upon receipt to ensure it is complete and intact. Immediately report any discovered transport damages to the delivering carrier. Also notify Microtronics Engineering GmbHin writing about this without delay. Report any incompleteness of the delivery to the responsible representative or directly to the company headquarters of the manufacturer within two weeks (see "Contact information" on page 41).

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

6.2 Storage

The following storage conditions must be adhered to:

M021-12000200400	Storage temperature	-20...+50 °C
	Humidity	15...90 % RH

Note: *The battery remains in the M021-12000200400 during storage.*

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

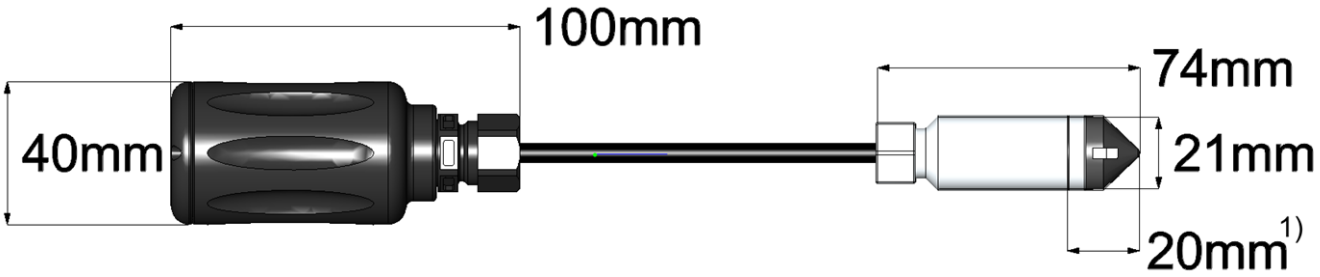
6.3 Transport

Protect the M021-12000200400 against heavy shocks, bumps, impacts or vibrations. The original packaging must always be used for transport.

Chapter 7 Installation

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

7.1 Dimensions



Dimensions transmission unit and pressure sensor: Length and diameter

1) Position of the diaphragm, i.e. the zero point

7.2 Installing the M021-12000200400

Important:

- *Ensure installation is completed correctly.*
- *Comply with existing legal and/or operational directives.*
- *Improper handling can cause injuries and/or damage to the devices.*
- *The pressure compensation must be protected against contamination.*
- *When using metal mounting components, these must be integrated into the grounding concept in a suitable manner.*

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

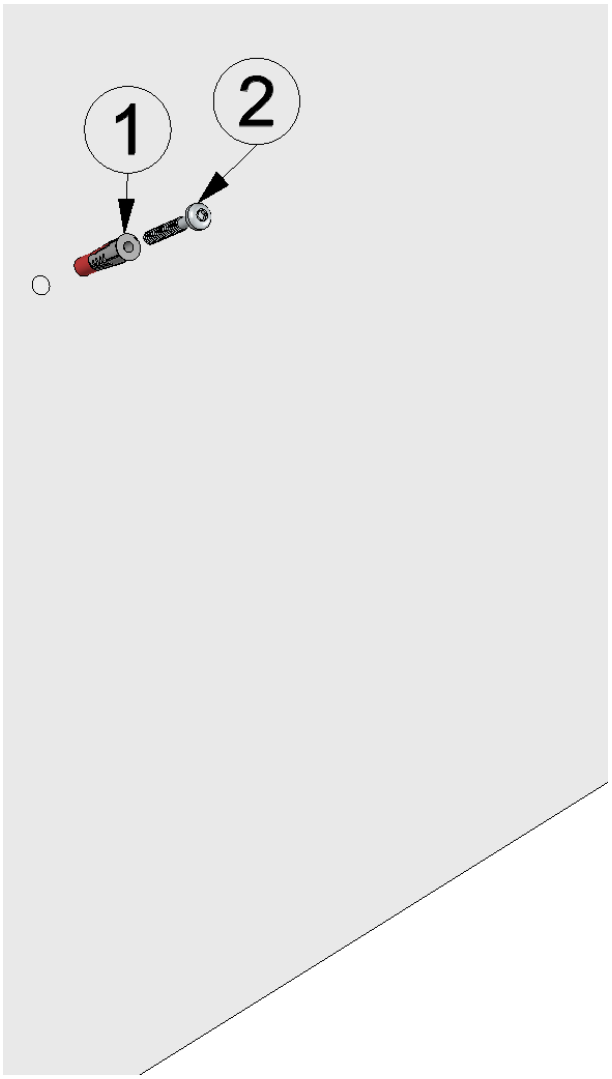
- Direct sunlight
- Direct weather exposure (rain, snow, etc.)
- Objects that radiate intense heat (maximum ambient temperature: -20...+50 °C)
- Objects with a strong electromagnetic field (frequency converter or similar)
- Corrosive chemicals
- Mechanical impacts
- Direct installation on paths or roads
- Vibrations
- Radioactive emissions

7.2.1 Suspended installation

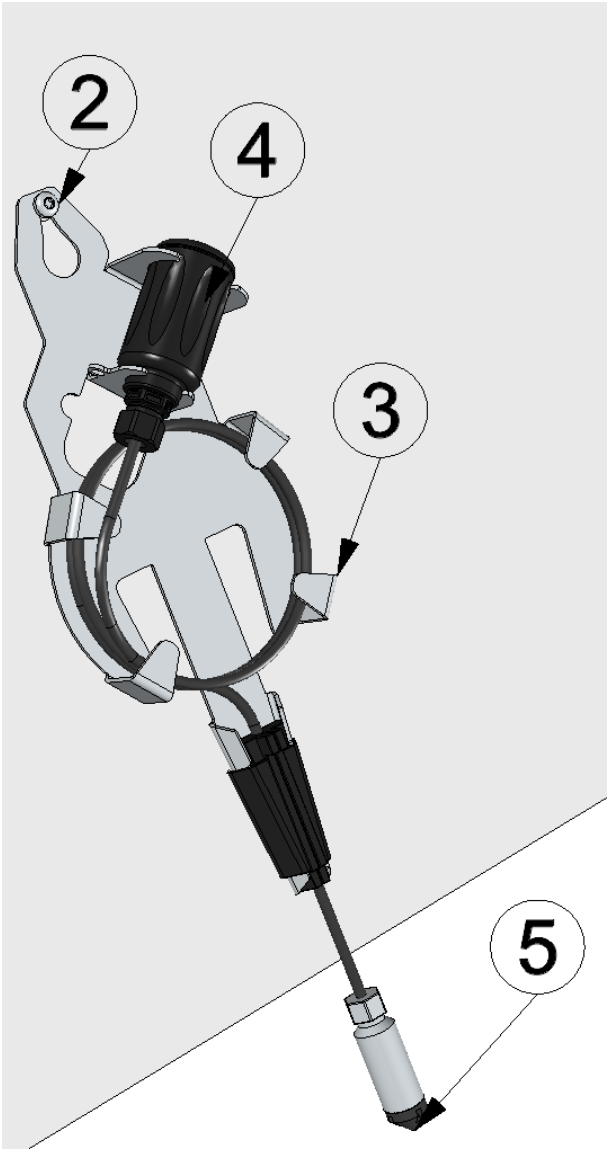
Important:

- *There must not be any kinks in the connection cable for the pressure sensor.*
- *The bend radius of the connection cable must not fall below the minimum value of 60 mm .*
- *Both the Mounting fixture and the metallic housing of the pressure sensor must be included in the earthing concept of the facility by the installation (see "Earthing of the M021-12000200400 when installed suspended " on page 33).*

The optional "Mounting fixture (300881)" accessories are required for suspended installations.



Suspended installation – step 1



Suspended installation – step 2

1 10x50 wall plug (included in the scope of delivery of 300881)	**4** Transmission unit
2 6.3x60 Torx 30 rounded head screw (included in the scope of delivery of 300881)	**5** Pressure sensor
3 Mounting fixture (300881)	

1. Drilling the hole for installation:

   If you want to use the rounded head screw included in the accessories set to secure the mounting fixture to the wall, drill one hole with a diameter of 10 mm.

   If you want to use your own fastening screw, the diameter of the hole will be based on the screw and wall plug that may be required.

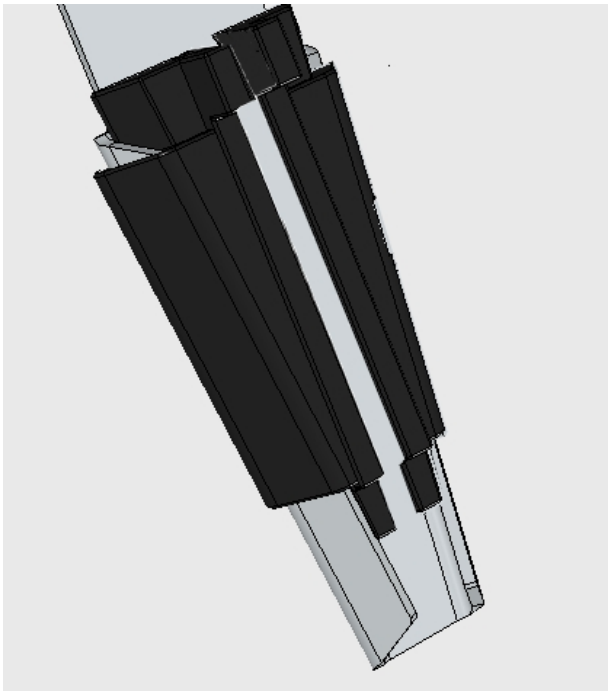
2. Preparing the mounting point on the wall:

   If you want to use the rounded head screw, included in the accessories set, first of all insert the wall plug that is also included in the accessories set in to the drill hole before you screw the rounded head screw, on which you want to hang the mounting fixture, in to the wall (see "Suspended installation – step 1" on page 28).

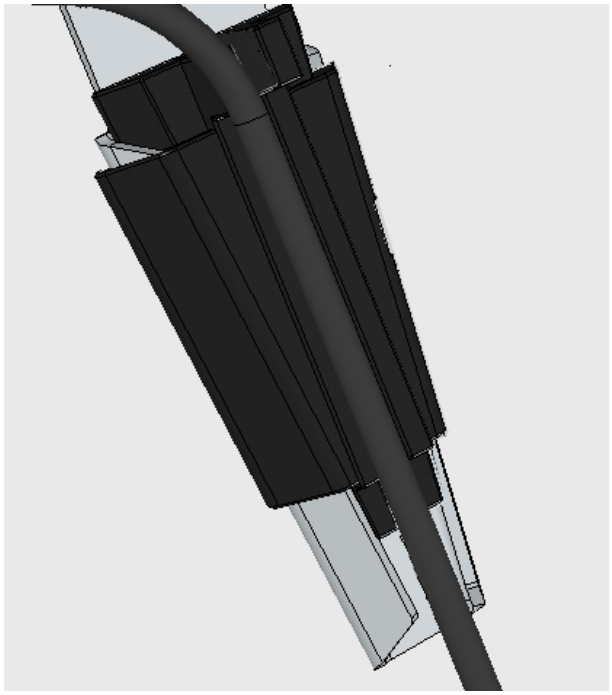
   If you are using your own screw, you must also insert the wall plug into the hole before screwing the screw, on which you want to hang the mounting fixture (3), in to the wall (see "Suspended installation – step 1" on page 28).

   Once screwed in, the distance between the rear of the screw head and the wall should be at least 4 mm so that the mounting fixture can be mounted easily.

3. Push the tension clamp up until the resulting gap is large enough to insert the connection cable of the pressure sensor. Determine the cable length required to position the pressure sensor in the required installation position, insert the connection cable in the tension clamp and secure the cable by pressing the tension clamp down again.



Opening the tension clamp

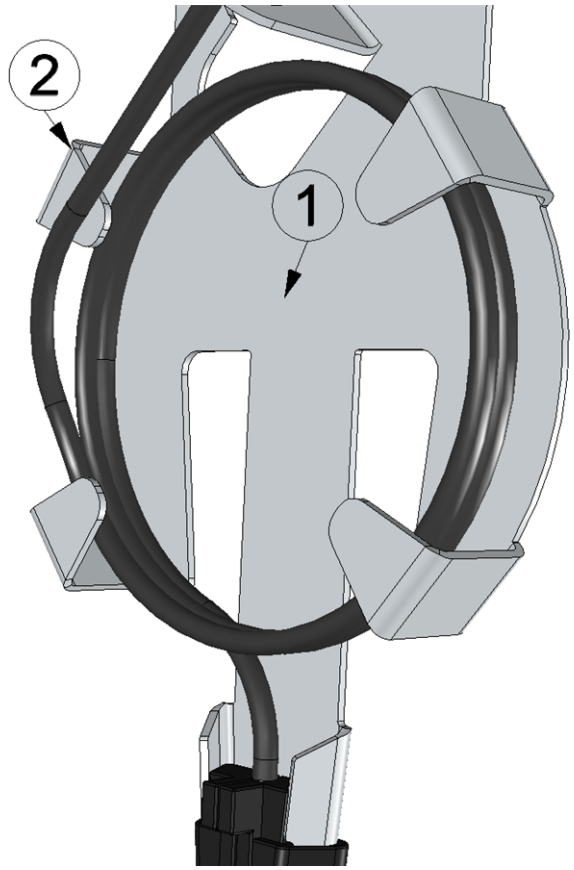


Inserting the cable

1 Tension clamp	**2** Connection cable

4. If the connection cable is considerably longer than required to position the pressure sensor in the required installation position, you can roll up the excess part of the cable within the cable holder of the mounting fixture. The cable holder can hold up to 3 m of cable. Roll up the cable in a clockwise direction. Start in such a way that the cable runs from the tension clamp towards the left upper bracket and the circle then continues towards the right upper bracket.

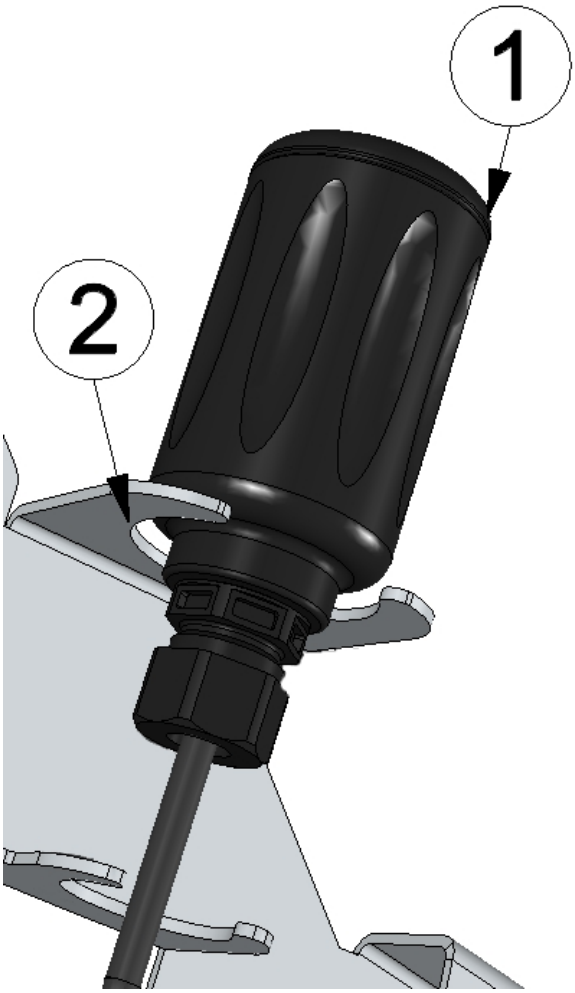
   Important: *When rolling up the cable, it must be ensured that the bend radius does not fall below the minimum permissible value of 60 mm .*



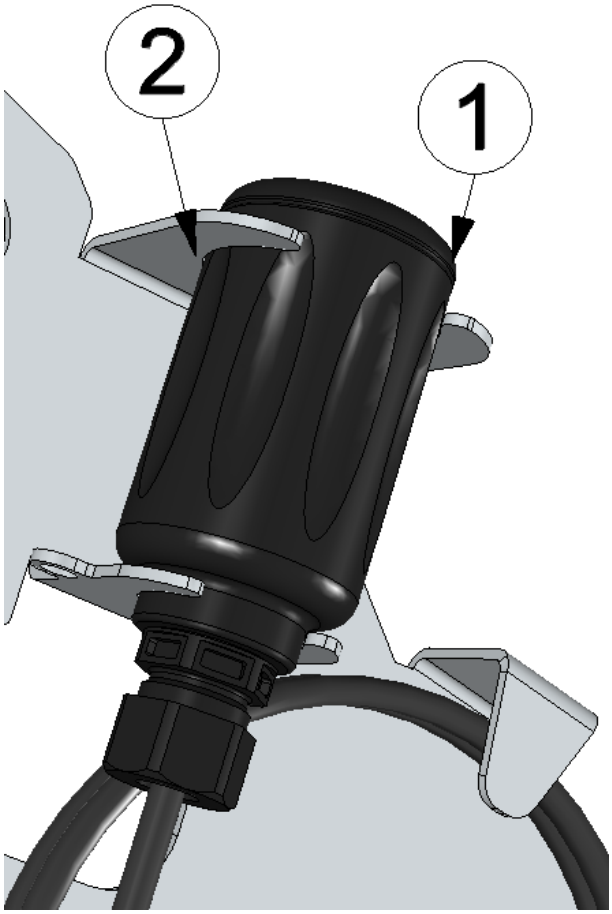
Rolling up the connection cable

1 Cable holder	**2** Bracket

5. As illustrated in the following figures, guide the transmission unit into the relevant bracket of the mounting fixture from above. Always ensure that the minimum permissible bend radius of 60 mm is also observed. It may be necessary to remove some of the connection cable from the cable holder again.



Inserting the transmission unit



Transmission unit in final mounting position

1 transmission unit	**2** Bracket for the transmission unit

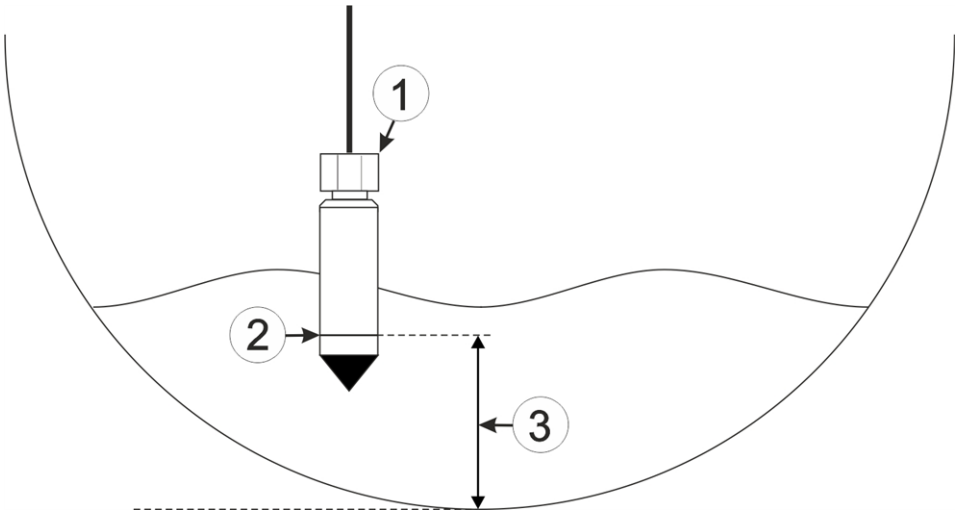
6. Now hang the mounting fixture including the mounted M021-12000200400 on the previously prepared screw (see "Suspended installation – step 2" on page 28).

The following step is not mandatory.

7. Tighten the screw on which the mounting fixture is suspended.

8. Position the pressure sensor. The marking at the lower end of the metal housing indicates the zero point (position of the diaphragm). The mounting height must be determined relative to this marking.

   Note: *Please note that the position of the diaphragm results in a minimum fill level of 20 mm provided the pressure sensor is not installed below the zero level (e.g. in a pump sump).*



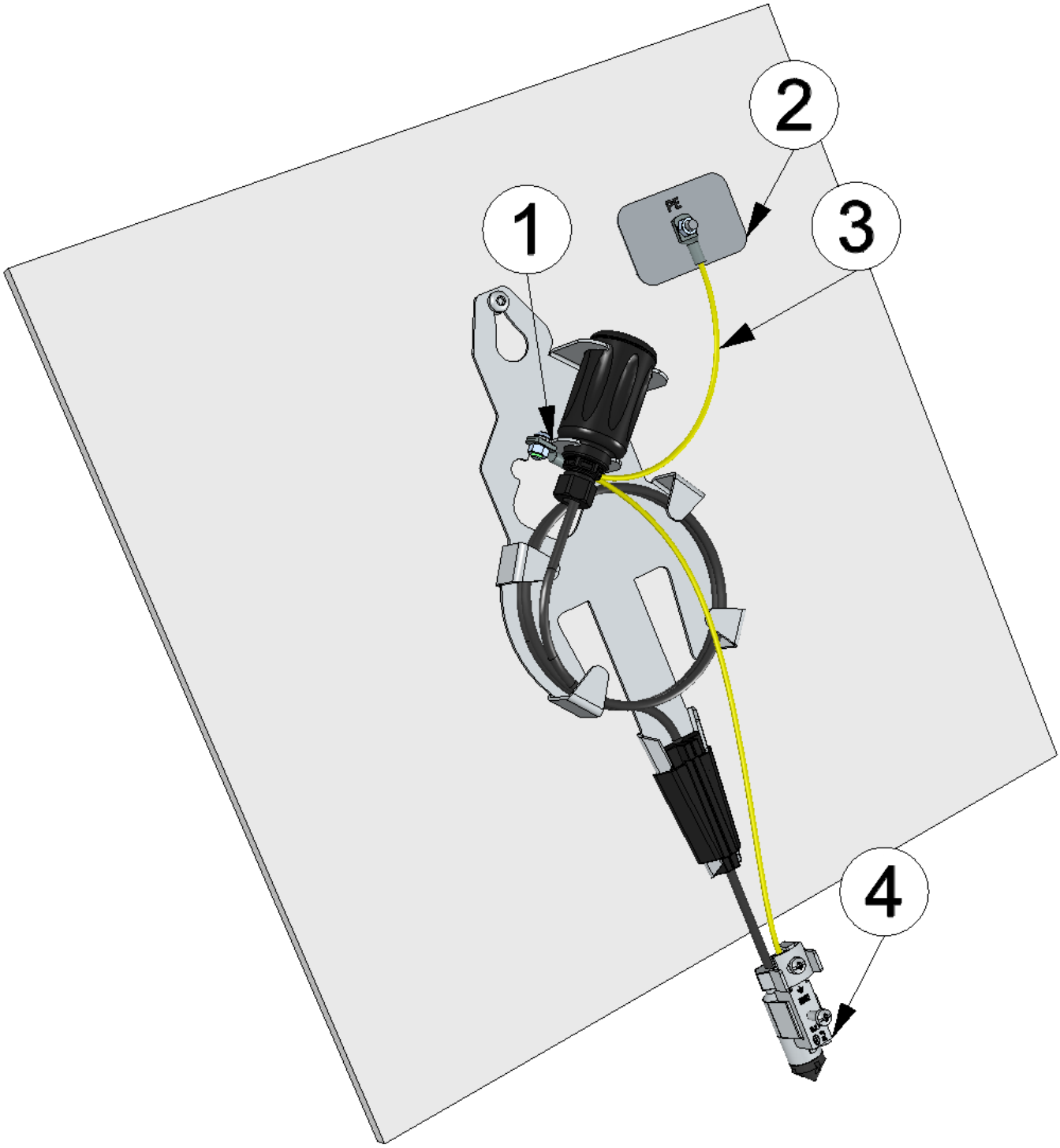
Positioning the pressure sensor

1 Pressure sensor	**3** Mounting height
2 Zero point (Position of the diaphragm)	

7.2.2 Earthing of the M021-12000200400 when installed suspended

Important: *The following standards must be observed:*

- *EN60079-0 (Chapter 15: Connection parts for earthing or equipotential bonding conductors)*
- *EN60079-11 (Chapter 6.5: Earth conductors, connections and terminals)*



Earthing of the M021-12000200400 when installed suspended

1 Earthing point of the Mounting fixture	**3** Earth cable (minimum requirement: 4 mm²)
2 Earth potential of the facility	**4** Earthing pipe clamp

Chapter 8 Maintenance

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

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

8.1 General maintenance

- Regularly check the M021-12000200400 for mechanical damage.
- Clean the M021-12000200400 with a soft, moist cloth. Use a mild cleaning agent, if necessary.

Important: *Due to the electrostatic effects, the M021-12000200400 must not be rubbed with cloths in the Ex zone.*

8.2 Replacing the battery

Important: *Only the manufacturer is permitted to open the housing to carry out maintenance work, which must only be completed outside the Ex area.*

The capacity of the installed battery is designed for a max. service life of 5 . In the event of unfavourable environmental conditions (e.g. low temperatures), it may occur that the battery capacity is depleted before this period of time has elapsed. To replace the battery, the M021-12000200400 must be sent back to the manufacturer in the original packaging (see "Repair & return" on page 37). The remaining number of days until the battery of the M021-12000200400 must be replaced is shown on the display of the data logger connected to the device.

8.3 Services

The Microtronics Engineering GmbH offers the following maintenance services for the M021-12000200400 :

Description	Order number
Inspection fee	206.395
Cleaning flat	206.355
Software Update	206.555
Maintenance	301094

Chapter 9 Repair & return

Microtronics products are manufactured using quality-assured processes. The Microtronics Engineering GmbH production site is ISO 90001 certified. All products are tested and/or calibrated before being shipped to the customer. This ensures that Microtronics Engineering GmbH products perform to their full capacity upon delivery.

Despite Microtronics Engineering GmbH's most rigurous quality assurance measures, malfunctions may occur as well within as outside the warranty period. In some cases, however, it is not necessary to return the product. Some issues can be resolved remotely by the Support & Service Centre (e.g. via OTA firmware update). If your device shows unexpected behaviour or malfunctions, please proceed as follows:

1. Contact the support & service center (support.microtronics.com)

   In the Microtronics Help Center, select the category "Technical support (device)" to create a ticket. Please describe the problem in as much detail as possible to help our staff diagnose the issue. One of our staff members will then contact you and attempt to resolve the problem remotely with you.

2. Wait for the completed RMA form you will receive in response

   If it was not possible to resolve the problem remotely, you will receive a completed RMA form that you must enclose with the return shipment. At the bottom of the form, you will also find more detailed information on how to return the product.

3. Return the M021-12000200400

   Do not dispatch the device until you have received the RMA form and the RMA number noted on it. Microtronics will not reject shipments that arrive without a clearly indicated RMA number or without the enclosed RMA form. However, processing will take significantly longer in such cases.

If you return the M021-12000200400 for repair under warranty or outside of warranty, check with your national customs/tax authorities for applicable regulations, procedures and necessary documentation for tax-free return of products. Special customs tariff numbers are usually available to confirm that the item is being returned for repair and has no commercial value.

The customs invoice/shipping documents should clearly state: "Goods being returned to manufacturer for repair – No commercial value". It is mandatory that any returned goods are accompanied by a commercial invoice on headed paper. Microtronics reserves the right to charge the customer for time spent rectifying incorrect customs documents.

> ***Note:*** *Ensure that the M021-12000200400 is packed carefully and securely. Damage incurred during transport is not covered by the warranty and may be subject to a charge.*

Chapter 10 Removal & disposal

Material separation only by qualified personnel!

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

Incorrect disposal can cause environmental hazards.

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



Logo of the EU WEEE Directive

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

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

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

The product can be returned to Microtronics Engineering GmbH in case of disposal (see "Contact information" on page 41). This also applies to the original packaging and any batteries or rechargeable batteries. Devices contaminated with hazardous substances will not be taken back for repair or disposal.

Chapter 11 Contact information

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

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