Operating manual D022-2Z00012xxx05

Valid for: D022-2Z00121L905, D022-2Z001200D05

Valid from:

- **Firmware version: 00v013**
- **Server version: ---**
- **Hardware version: ---**



CE

301733 | Rev.03

Microtronics

Additional information

This operating manual is an abridged version. The information contained herein applies to all devices based on the hardware platform "D022-2Z0012xxx05 ". The complete documentation for your device can be accessed via the following QR code or link:

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Chapter 2 Declaration of conformity

EU-Konformitätserklärung

EU Declaration of Conformity / Déclaration de conformité UE

Type: **D022-2Z001200D05**
Type code : **D022-2Z00121L906**
Type:

Microtronics

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

Das bezeichnete Produkt stimmt mit den folgenden Europäischen Richtlinien überein.
The designated product is in conformity with the following european directives.
Le produit décrit est conforme aux directives européennes suivantes.

		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 EN62368-1+A11:2017 EN62311	
	EMC 3.1b	EN301489-1 V2.2.3 EN301489-19 V2.2.1 EN301489-52 V1.1.0 EN301489-1 V2.1.1 EN301489-17 V3.2.4	
	Radio spectrum efficiency 3.2	EN301908-1 V15.2.1 EN301908-13 V13.2.1 EN303413 V1.2.1 EN300328 V2.2.2	
	Cybersecurity 3.3	EN18031-1	
(2015/863/EU)	**RoHS Directive**		
	Prevention 4.1	EN IEC 63000	

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

Ruprechtshofen, den 15.07.2025
Ort und Datum der Ausstellung
Place and date of issue
Lieu et date d'établissement

Chapter 3 Specifications

Voltage supply	Battery: 1 x Li-SOCl2 cells with 5800 mAh
Housing	Material: Noryl GTX 973 / PC (housing/cover) Weight: 260 g (incl. battery) Dimenstions (WHD): 91 x 129 x 46 mm Protection class: IP68 : • 105 days at an immersion depth of 1 m • 35 days at an immersion depth of 4 m
Operating temperature (standard)	-10...+60 °C
Operating temperature (extended)	-20...+60 °C Operation with possible deterioriation of the connection stability (especially when the signal strength is low and/or the capacity of the battery is virtually depleted) outside the standard operating temperature range.
Air humidity	15...90 % RH non-condensing
Storage and transport temperature	-30...+85 °C
Display	12 individual symbols illuminated via LED
Operation	Reed switch
Antenna connector	Type key D022-2Z0012**1L9**05: internal antenna Type key D022-2Z0012**00D**05: FME-M
Inputs[1)]	4 x counter or digital Minimum pulse length: >1 ms Additional information is provided in "Technical details about the inputs" on page 39.
Data memory	512 kB Internal flash memory
Data transmission	LTE-M/NB-IoT modem (world): M1: LTE B1, B2, B3, B4, B5, B8, B12, B13, B14, B18, B19, B20, B25, B26, B28, B66 NB1/NB2: LTE B1, B2, B3, B4, B5, B8, B12, B13, B17, B19, B20, B25, B26, B28, B66
SIM	Integrarted SIM chip

[1)] For devices based on the "D022-2Z0012xxx05 " hardware platform, not all of the inputs and operating modes listed here are always available. Please refer to the respective manual to find out which inputs and operating modes are available.

Chapter 4 General specifications

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

> ***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 49).*

4.1 Translation

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

4.2 Copyright

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

4.3 General descriptive names

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

4.4 Safety instructions

For the connection, commissioning and operation of the D022-2Z0012xxx05 , 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. The operator is responsible for protecting the joint between the product's sensor cable and the sensor against penetrating moisture and dust in a suitable way and complying with local safety regulations.*

4.4.1 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.*

4.4.2 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.

4.4.3 General safety instructions

- This manual is intended to be used by qualified personnel (see "Personnel requirements" on page 25). 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 49).
- 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 45).
- 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 47.

4.4.4 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 mobile network modem contained in the device.



Attention: Never use this device in potentially explosive atmospheres and in the vicinity of highly combustible areas (fuel stations, storage areas for combustible material, chemical plants and detonation sites) or in the vicinity of flammable gases, vapours or dust.

4.4.5 Safety and preventative measures for handling devices with mobile network modems

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



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

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

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

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

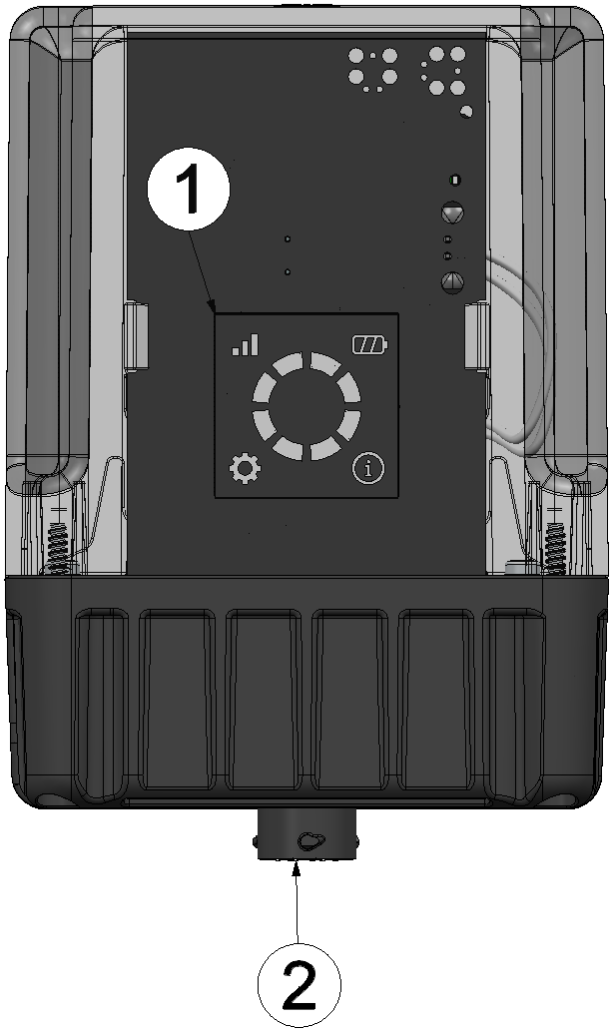
4.4.5.1 Safety and precautionary measures for devices with mobile network modem

- 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 operated in highly flammable areas such as petrol filling stations, fuel storage sites, chemical factories and explosion sites.
- The device must not be operated in the vicinity of flammable gases, vapours or dusts.
- The device must not be subjected to strong vibrations or impacts.
- The mobile network modem can cause interferences if it is located in the vicinity of television sets, radios or computers.
- Do not open the mobile network modem. Any modification to the device is prohibited and will result in the operating licence being revoked.
- The use of mobile network services (text messages/data communication/GPRS, etc.) may incur additional costs. The user is solely responsible for any resulting damages and costs.
- Do not install the device in any other way to the one described in the operating instructions. Improper use will invalidate the warranty.

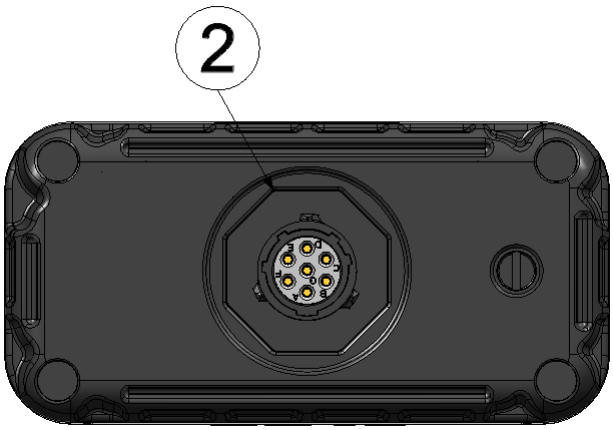
4.4.5.2 Safety measures for installing the antenna

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

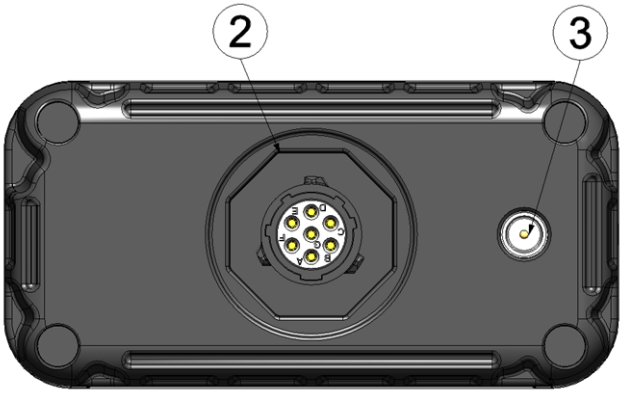
4.5 Overview



Front of the D022-2Z0012xxx05



Bottom of the D022-2Z0012xxx05 (Type key D022-2Z0012**1L9**05)

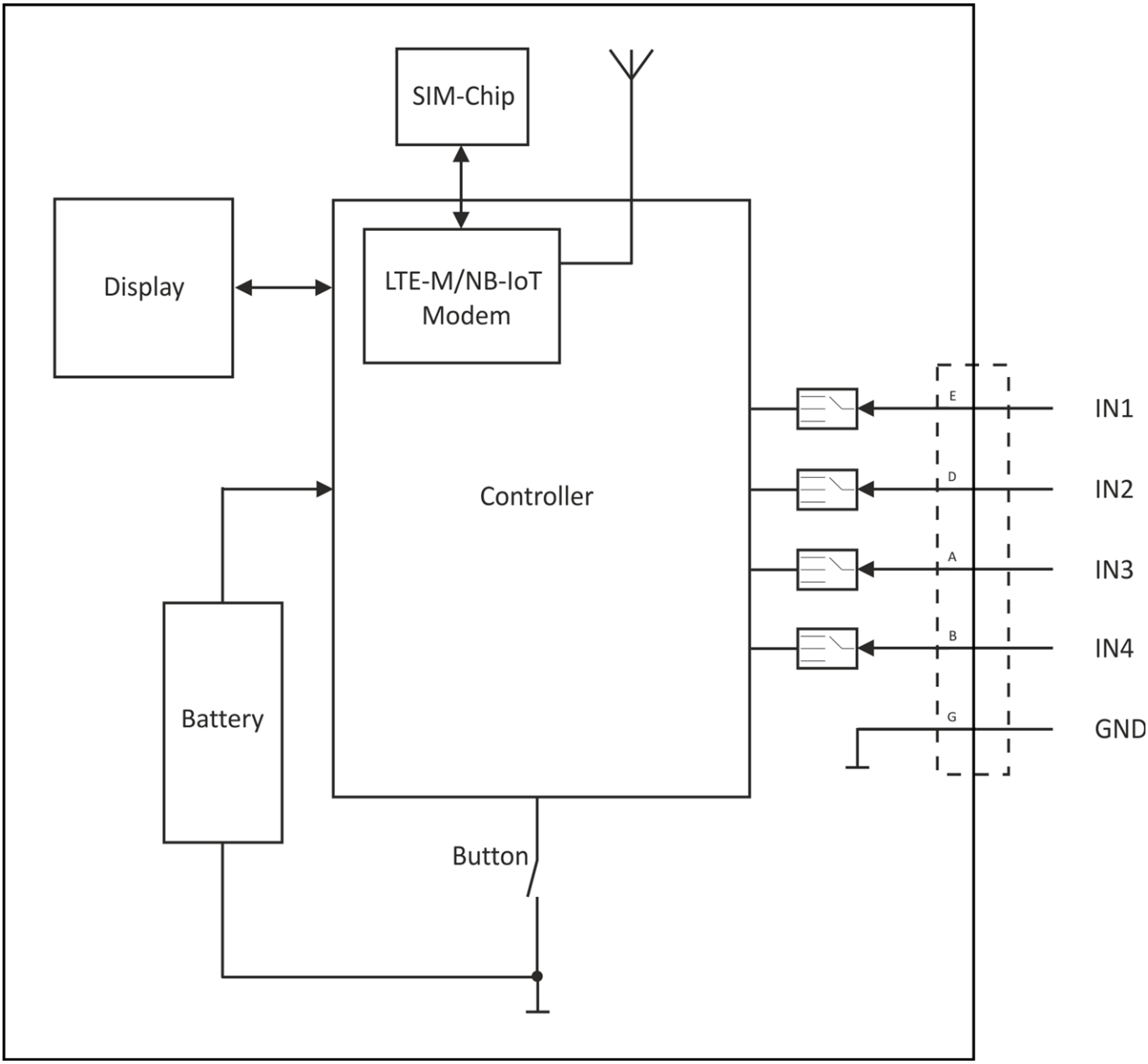


Bottom of the D022-2Z0012xxx05 (Type key D022-2Z0012**00D**05)

1 Display	**3** Antenna connector (only with D022-2Z0012**00D**05)
2 Sensor connector	

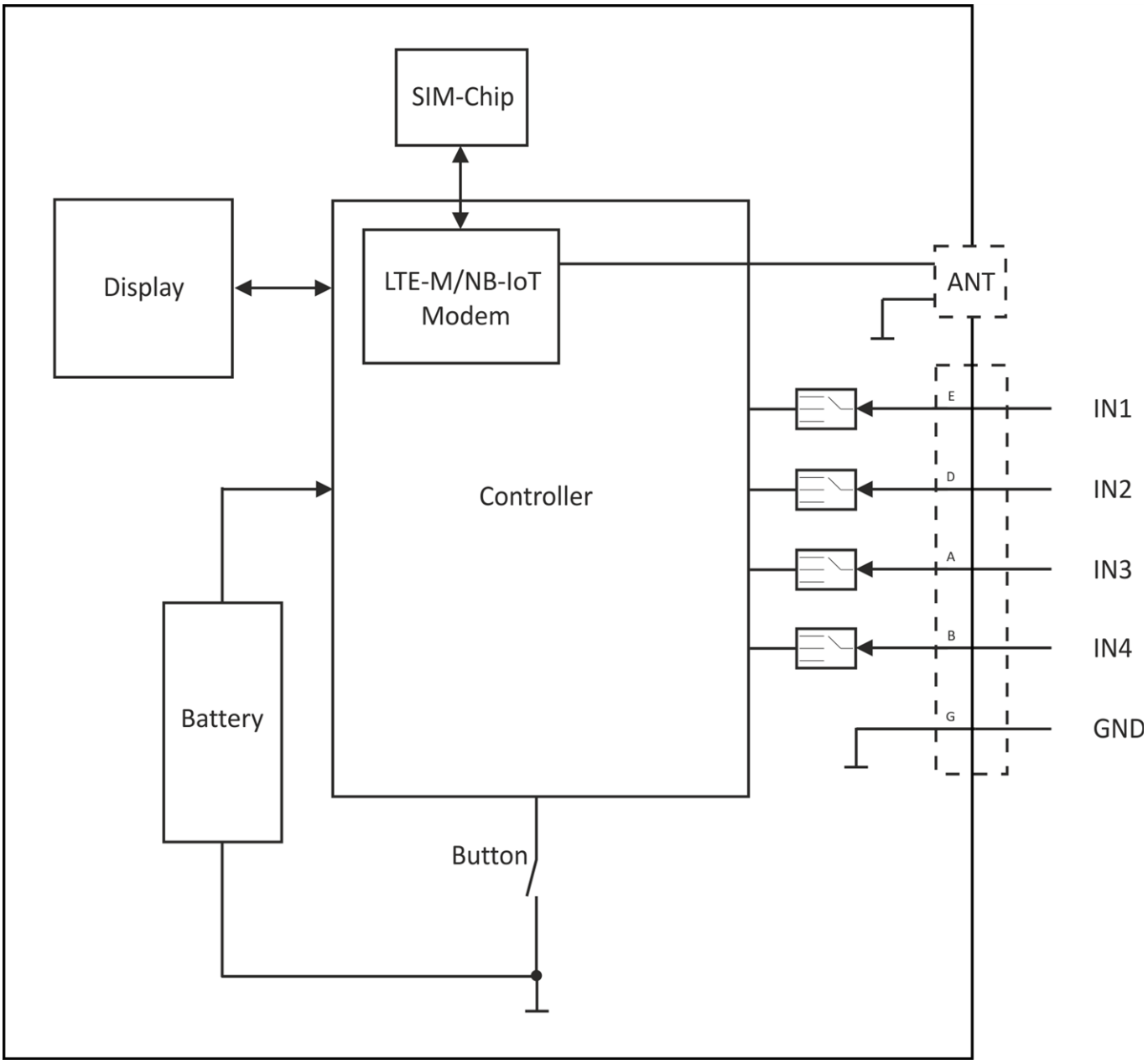
4.5.1 Block diagram

4.5.1.1 Variant with internal antenna



Block diagram of the D022-2Z0012xxx05 (Type key D022-2Z0012**1L9**05)

4.5.1.2 Variant with external antenna connector



Block diagram of the D022-2Z0012xxx05 (Type key D022-2Z0012**00D**05)

4.6 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 20, "Type of use" on page 20 and "Field of application" on page 20 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 21. The manufacturer is not liable for any damage or consequential damage resulting from unauthorised use. The risk is borne solely by the operator.*

4.6.1 Intended use

The measurement device is used to process and transmit measurement data collected via inputs that can be operated in various digital modes. It can operate independently of the mains and was designed for use in shafts without explosive atmospheres. The measured and recorded data is stored on a non-volatile storage medium. This stored data is sent via the mobile network to a central server for further processing. The device is equipped with an integrated SIM chip for this purpose. The device is designed 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.*
>
> ***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. A Managed Service contract with Microtronics Engineering GmbH is required for use of the mobile data transmission (see www.microtronics.com/managedservice). This includes the provisioning of the mobile communications connection via the network of the service provider included in the above-mentioned list.*

4.6.2 Type of use

Installation, commissioning and maintenance may only be completed by qualified personnel (see "Personnel requirements" on page 25). The device is only approved for use in shafts without an explosive atmosphere.

4.6.3 Field of application

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

4.6.4 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 20, "Type of use" on page 20 and "Field of application" on page 20 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, etc.).
- The device must not be installed in locations that are permanently flooded.
- The device must not be mounted hanging from the connection cable.
- The device is not authorised for use in sewers.

The following aspects must also be observed for the variant with external antenna connector:

- The device must not be operated without antenna.
- A rod antenna must not be connected directly to the antenna connector. Use the "Multiband antenna with bracket" or another antenna with connection cable.
- When using antennas with a connection cable, neither the device nor the antenna may be suspended from the antenna cable.

4.7 General product information

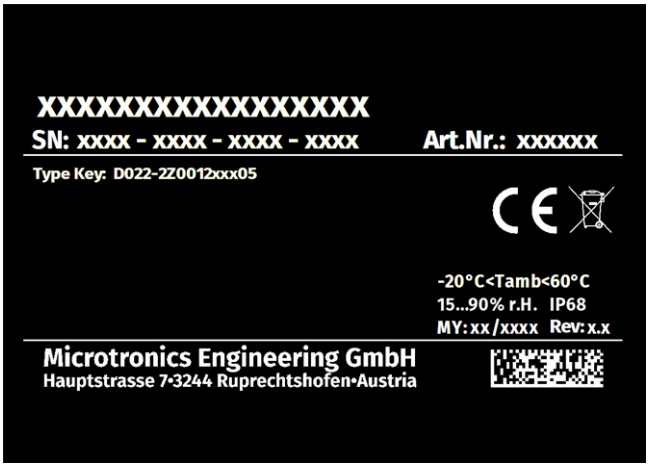
The device is a compact, battery-powered, stationary data logger designed for operation in inspection chambers. It is used to determine, record and transmit pulses of water meters and of the switching state of digital contacts. To do so, the D022-2Z0012xxx05 is equipped with 4 inputs that can either be configured as meter inputs or as digital inputs. A meter contact or digital contact can be connected to the inputs without an additional energy supply (see "Technical details about the inputs" on page 39).

> ***Tip:*** *Not all inputs and operating modes are always available on devices based on the "D022-2Z0012xxx05 " hardware platform. Please refer to the relevant manual to find out which inputs and operating modes are available.*

4.8 Device labelling

The information in this user manual applies exclusively to the D022-2Z0012xxx05 device type. The type plate is located on the rear of the device and contains the following information::

- Product designation
- Serial number
- Item number
- Type Key
- CE marking
- Logo for the EU WEEE Directive
- Environmental conditions during operation
- Protection class
- Week and year of production
- Product revision
- Name and address of the manufacturer



Type plate D022-2Z0012xxx05

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.

4.9 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.

4.10 Storage of the product

When storing the D022-2Z0012xxx05 , ensure that all relevant data was transferred to the myDatanet server. Then deactivate the device. If necessary, initiate a transmission directly on the device or wait until the next scheduled data transmission for all of the data to be sent to the myDatanet server. Once the mobile network connection has been terminated, the sensor cable and, for devices with external antenna connector (Type key D022-2Z0012**00D**05), the antenna can be removed. Store the D022-2Z0012xxx05 in its original packaging.

> ***Important:*** *When storing the D022-2Z0012xxx05 , ensure that the MDN Magnet is not positioned in the vicinity of the solenoid switch as this could accidentally trigger transmissions. Beachten Sie bei der Aufbewahrung des D022-2Z0012xxx05 , dass der MDN Magnet nicht in der Nähe des Magnetschalters zu liegen kommt, da es dadurch zum versehentlichen Auslösen von Übertragungen kommen kann.*

When deactivatd, theD022-2Z0012xxx05 is in an ultra energy-saving mode. However, it may still occur that the battery is fully discharged if the device is stored for very long periods. The configuration and the most recently determined data are retained in any case.

> ***Tip:*** *For information on how to deactivate the device, how to trigger a transmission and how to recognise that the mobile network connectionhas been terminated, please refer to the manual for the respective device.*

4.11 Warranty

The device has been functionally tested before delivery. If it is used as intended (see "Intended use" on page 20) 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 24.*

> ***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.*

4.12 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**.

4.13 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.

4.14 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 5 Storage, delivery and transport

5.1 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 49).

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

5.2 Storage

The following storage conditions must be observed:

D022-2Z0012xxx05	Storage temperature	-30...+85 °C
	Humidity	15...90 % RH

Note: *The battery pack remains in the D022-2Z0012xxx05 during storage.*

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

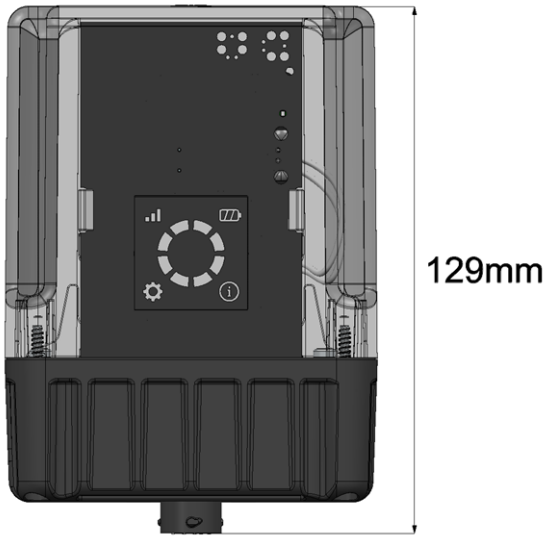
5.3 Transport

Protect the D022-2Z0012xxx05 against heavy shocks, bumps, impacts or vibrations. The original packaging must always be used for transport.

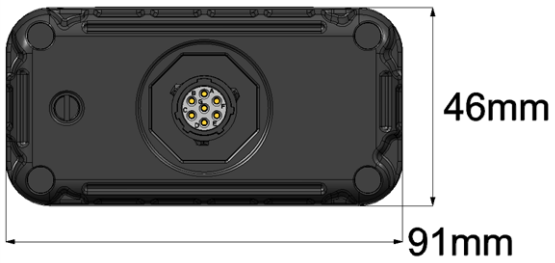
Chapter 6 Installation

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

6.1 Dimensions



Dimensions: height



Dimensions: width and depth

6.2 Installing the D022-2Z0012xxx05

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 D022-2Z0012xxx05 is not approved for use in closed drains.*

Note: *It is recommended that all metal mounting fixtures be properly earthed.*

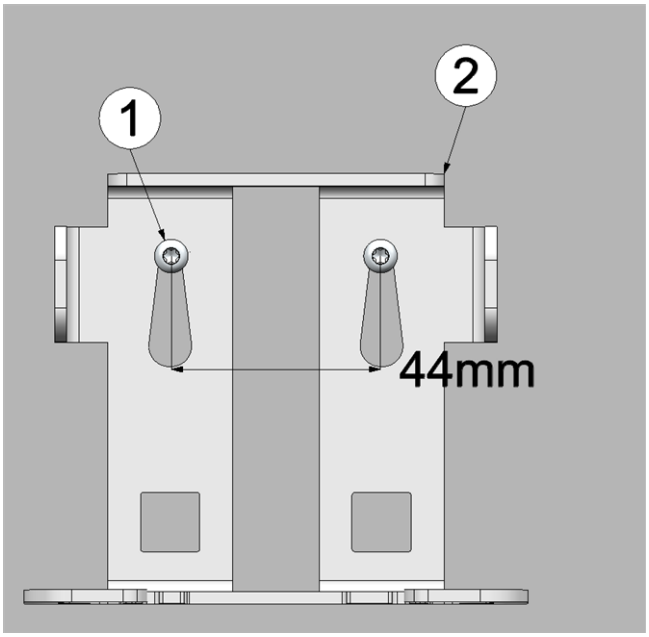
The installation site must be selected according to specific criteria. The following conditions must be avoided in any case:

- Direct sunlight
- Direct influence of weather (rain, snow, ...)
- Objects that radiate intense heat (maximum ambient temperature: -20...+60 °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

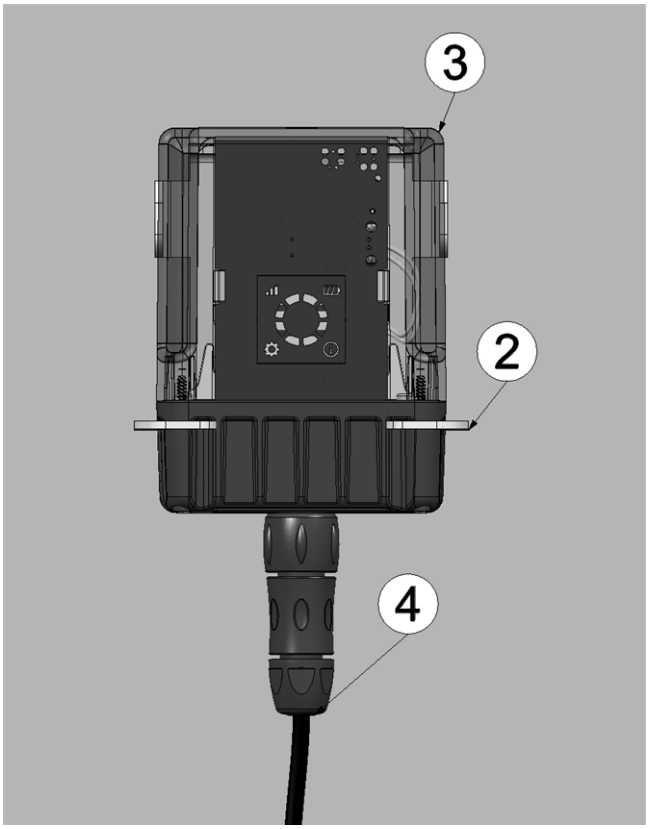
Tip: *Approx. 15 cm of space should be left beneath the device for the cable connections. Further information about the installation dimensions can be found in the relevant sub-chapter.*

6.2.1 Wall mounting

For wall mounting, the optional accessory "Wall bracket (301435)" is required.



Wall mounting step 1



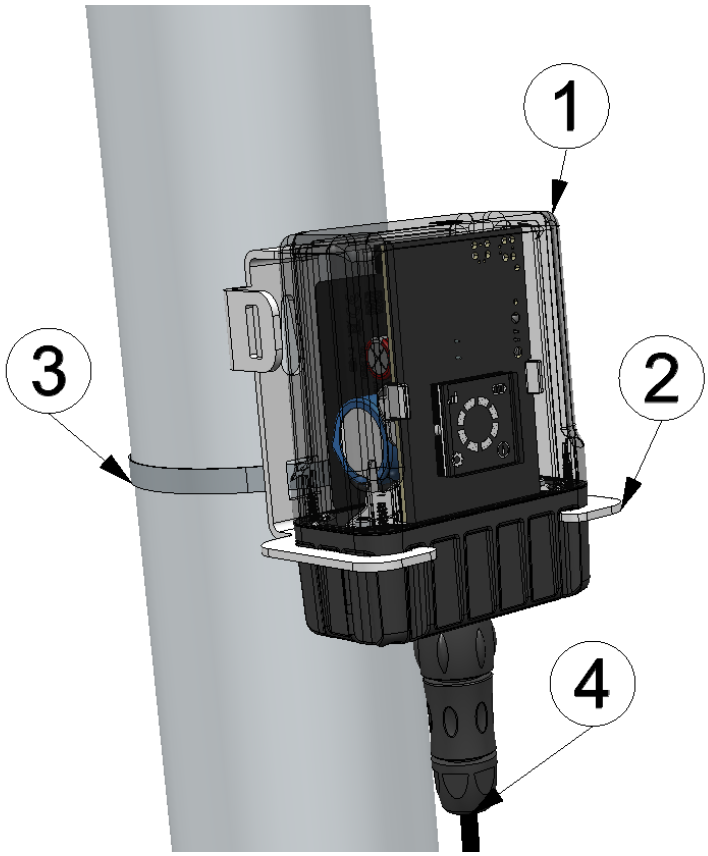
Wall mounting step 2

1	Lens head screw with tapping screw thread ST3,5x32 Torx 15 (included in the scope of supply of 301435)	**3**	D022-2Z0012xxx05
2	Retaining bracket (included in the scope of supply of301435)	**4**	Connection cable

6.2.2 Pipe mounting

For the installation on a pipe the optional accessory "Pipe holder (301437)" is required.

How-To-Video: Pipe mounting



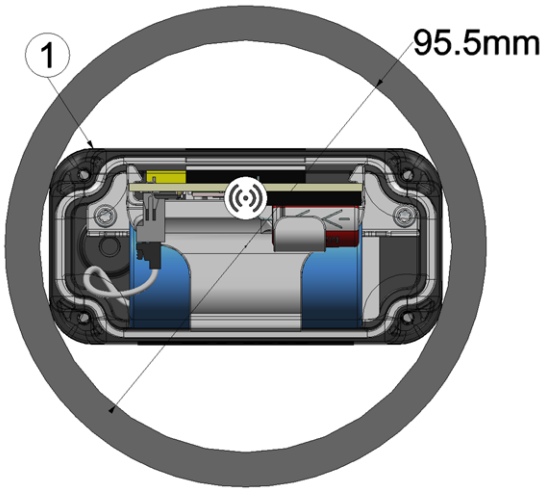
Pipe mounting

1	D022-2Z0012xxx05	**3**	Tightening strap (for pipe diameter 38-120 mm; included in the scope of supply of 301437)
2	Retaining bracket (included in the scope of supply of 301437)	**4**	Connection cable

6.2.3 Installation in an inspection chamber

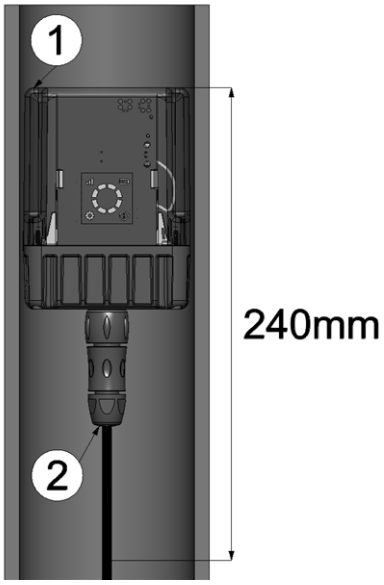
The D022-2Z0012xxx05 can be installed in round inspection chambers from a diameter of 95,5 mm and a depth of at least 240 mm .

The Protection casing (300662) , available as an optional accessory, provides the D022-2Z0012xxx05 with additional protection against impact and mechanical stress and is recommended for installation in an inspection chamber. The Protection casing increases the diameter of the shaft required for installing the D022-2Z0012xxx05 to 114 mm . The minimum depth is also increased to 280 mm .



D022-2Z0012xxx05 without protection casing in the chamber

(View from above)



D022-2Z0012xxx05 without protection casing in the chamber

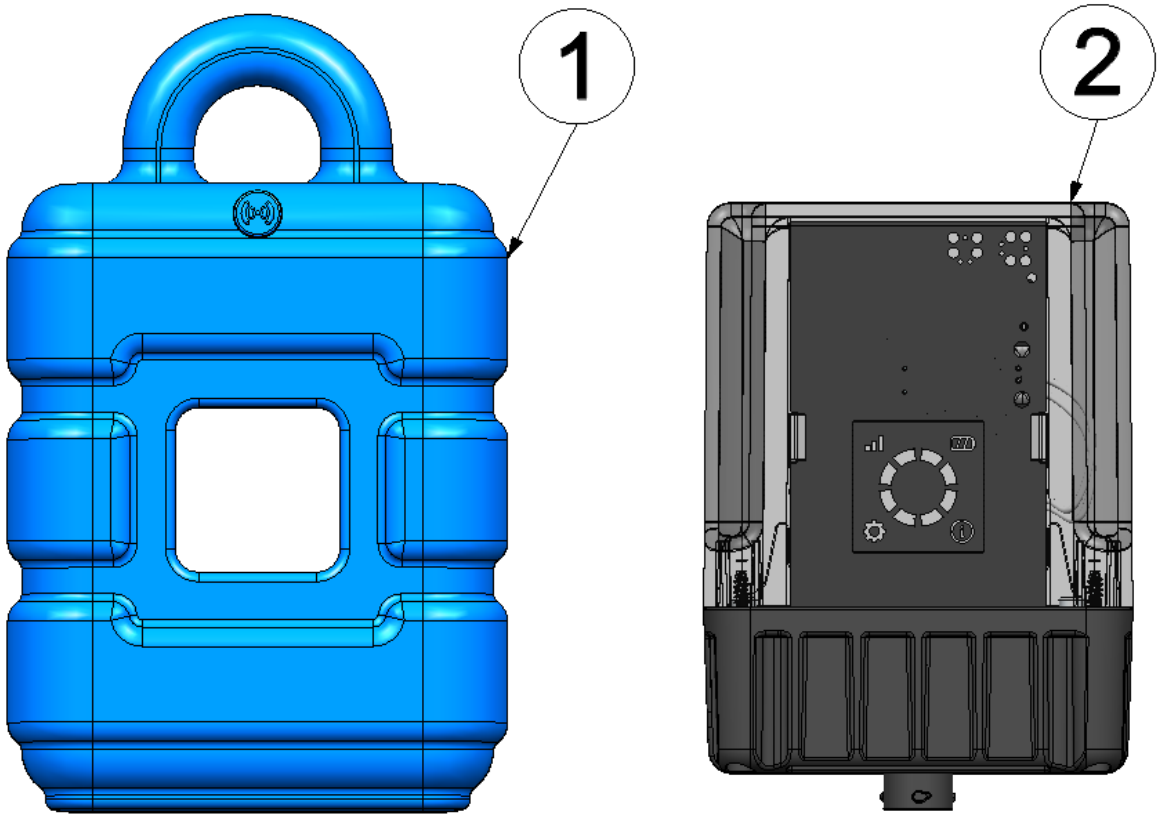
(View from the side)

1 D022-2Z0012xxx05	**2** Connection cable

6.2.4 Installing the protection casing

The Protection casing (300662) is available as an optional accessory. It protects the device against impacts and has a retaining bracket.

How-To-Video: Installing the protection casing



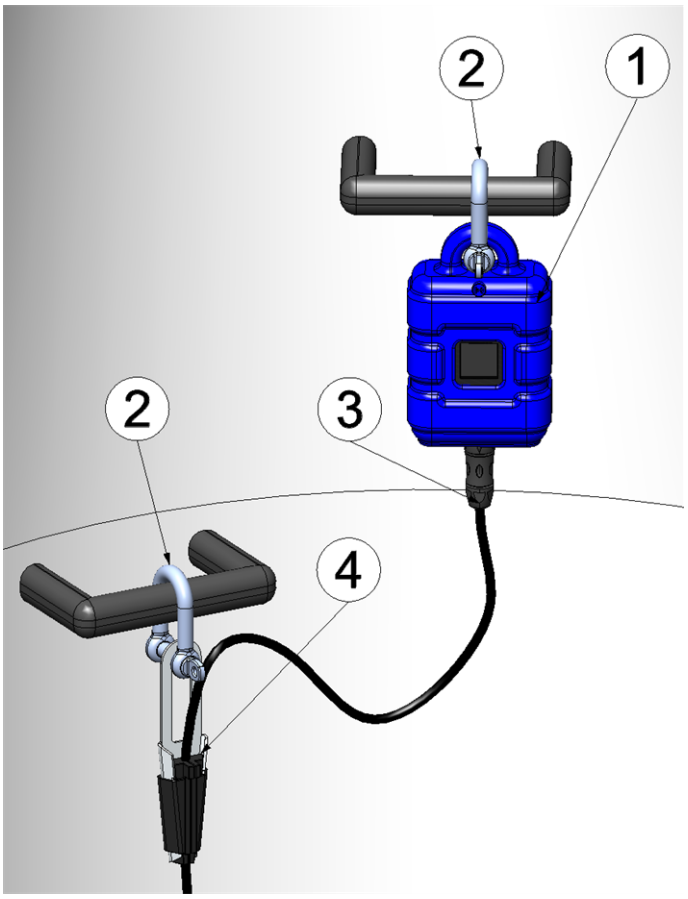
Installing the protection casing

1 Protection casing (300662)	**2** D022-2Z0012xxx05

6.2.5 Suspended installation

The following optional accessory sets are required for suspended installations:

- 2 x Niro shackle (206.330)
- 1 x Anchor clamp 5,5 - 10,5 mm (301017)
- 1 x Connection cable 7pin 8 m (301689)
- 1 x Protection casing (300662)



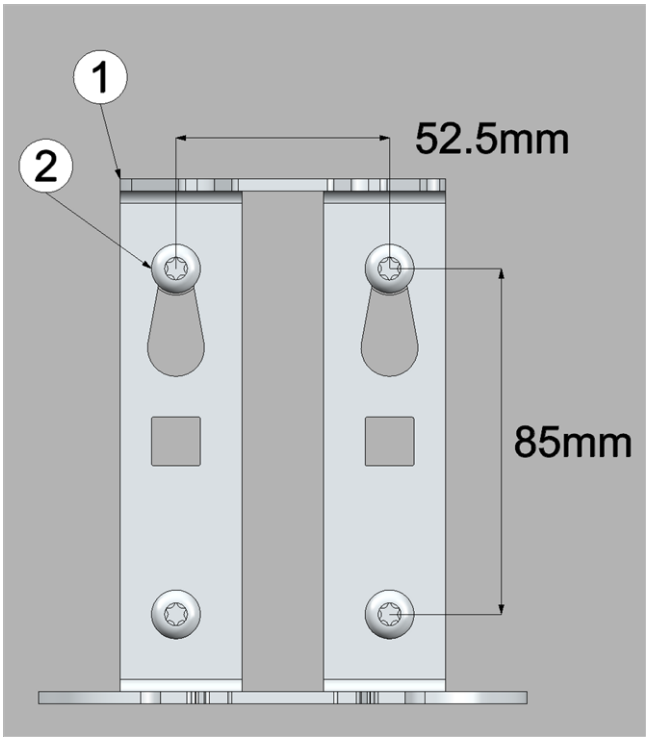
Suspended installation

1	D022-2Z0012xxx05 with installed Protection casing (300662)	**3**	Connection cable 7pin 8 m (301689)
2	Niro shackle (206.330)	**4**	Anchor clamp 5,5 - 10,5 mm (301017)

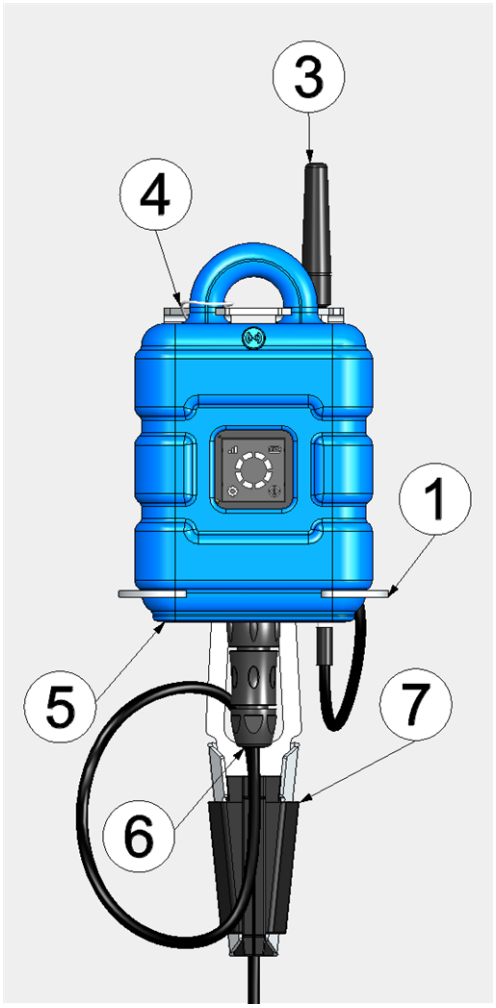
6.2.6 Wall mounting with mounted protection casing

The following optional accessory sets are required for wall mounting:

- 1 x Protection casing (300662)
- 1 x Wall bracket for Jellox with protection casing (400109)
- 1 x Multi band rod antenna with connection cable 250 mm (400110)
- 1 x Anchor clamp 5,5 - 10,5 mm (301017)
- 1 x Connection cable 7pin 8 m (301689)



Wall mounting step 1



Wall mounting step 2

1	Mounting bracket (included in the scope of supply of 400109)
2	Pan head screw with sheet metal screw thread ST6,3x60 Torx 30 (included in the scope of supply of 400109)
3	Multi band rod antenna with connection cable 250 mm (400110)
4	Seal for detecting tampering (optional)
5	D022-2Z0012xxx05 with mounted Protection casing (300662)
6	Connection cable 7pin 8 m (301689)
7	Anchor clamp 5,5 - 10,5 mm (301017)

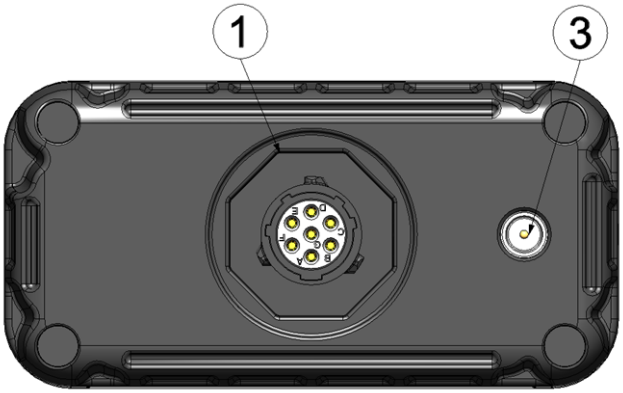
6.3 Electrical installation

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

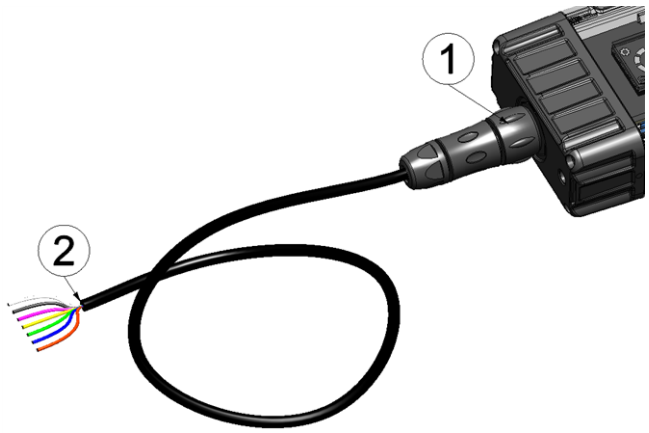
6.3.1 Connecting the meters and the digital contacts

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.*
- *Run all data cables so that they do not pose a trip hazard and ensure that cables do not have any sharp bends.*
- *Data cables must not exceed a lenght of 30m.*



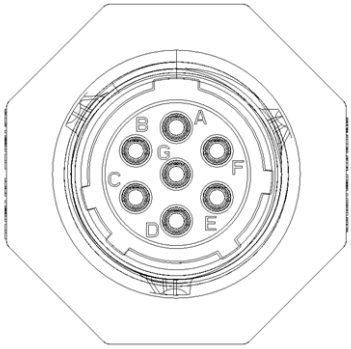
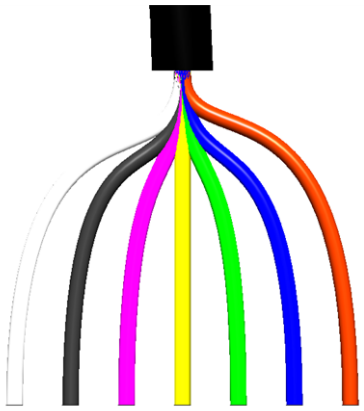
Sensor connector on the D022-2Z0012xxx05



D022-2Z0012xxx05 with connection cable

1 Sensor connector (7-pin MIL connector)	**3** Antenna connector (only with D022-2Z0012**00D**05)
2 Connection cable	

Sensor connector

	Sensor connector (7-pin MIL connector)	Connection cable	Signal
 Sensor connector  Connection cable	A	White	Input 3
	B	Gray	Input 4
	C	Pink	Reserved for extensions
	D	Yellow	Input 2
	E	Green	Input 1
	F	Blau	Reserved for extensions
	G	Brown	Ground

6.3.2 Connecting the mobile network antenna (only with D022-2Z001200D05)

Important:

- *To ensure the correct functionality, only use antennas that are supplied by the manufacturer.*
- *When using extension cables, the total lenght of the cable connection for the antenna must not exceed 30 m.*

The standard antenna is directly connected to the antenna connector (see "Front of the D022-2Z0012xxx05 " on page 17) of the D022-2Z0012xxx05 .

6.3.2.1 Optimum antenna positioning for assembly in a shaft

6.3.2.1.1 Typical influences on the signal quality

Signal losses compared to the reference measurement

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

Tip: *Practical example:*

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

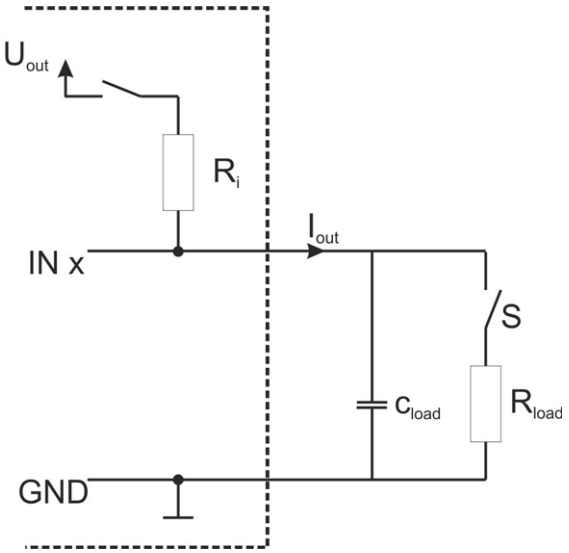
6.3.2.1.2 Possibilities for improving the signal quality

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

6.3.3 Technical details about the inputs

4 inputs are available to which a meter contact can be connected without an additional energy supply.

> ***Important:*** *The D022-2Z0012xxx05 has only one common grounding connection for all inputs. If multiple counter or digital contacts are connected to the D022-2Z0012xxx05 and these are not potential free contacts (i.e. open collector or open drain ouptus for example), the earth potentials are joined.*



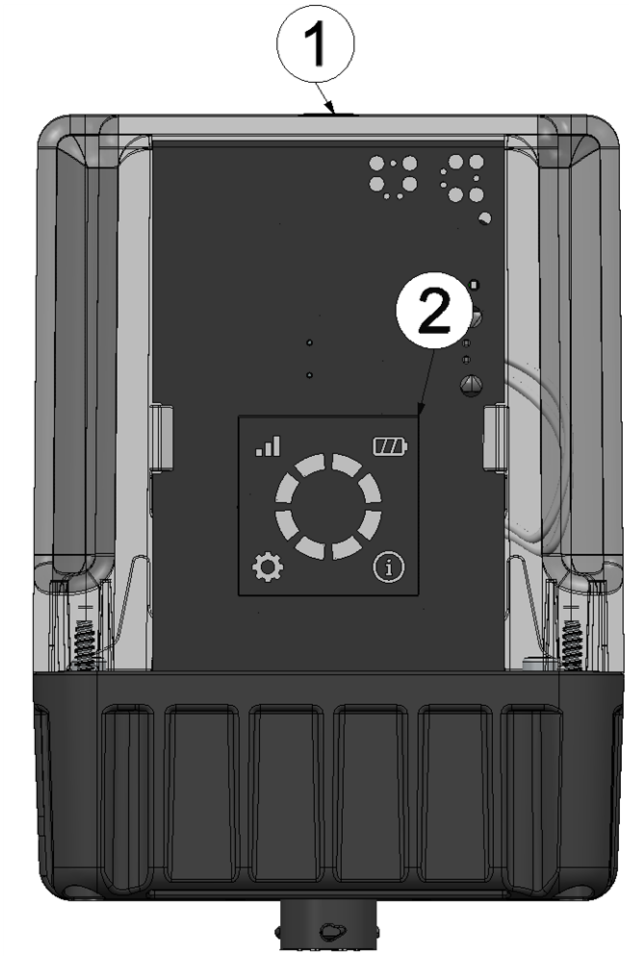
Schematic diagram of an input

$U_{out\ max}$	3,3 V
$I_{out\ max}$	317 µA
R_i	10k5
$R_{load\ max}$	6 k
$C_{load\ max}$	10 nF

The following conditions must be observed for the pulses to be detected correctly:

Low	< 1,2 V
High	> 1,9 V
Pulse length	>1 ms

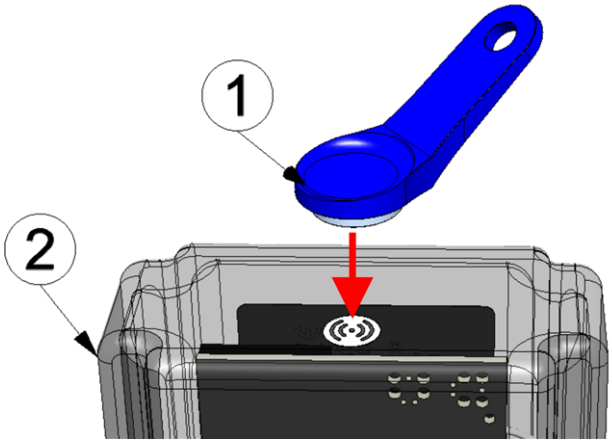
Chapter 7 Operating elements



Operating elements

1 Reed switch	**2** Display

7.1 Reed switch



Operating the reed switch

1 MDN Magnet (206.803)	**2** D022-2Z0012xxx05

7.2 Display

Important:

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

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 D022-2Z0012xxx05 for mechanical damage.
- Check all of the connections for leaks or corrosion on a regular basis.
- Check all of the cables for mechanical damage at regular intervals.
- Clean the D022-2Z0012xxx05 with a soft, moist cloth. Use a mild cleaning agent, if necessary.

8.2 Replacing the battery

The batteries must only be replaced by the manufacturer (see "Contact information" on page 49) or a certified service partner. The device must be returned in its original packaging for this purpose.

8.3 Services

Microtronics Engineering GmbH offers the following maintenance services for the D022-2Z0012xxx05 :

Description	Order number
Inspection fee	206.395
Cleaning flat	206.355
Software Update	206.555
Battery replacement	301630

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 D022-2Z0012xxx05

   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 D022-2Z0012xxx05 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 D022-2Z0012xxx05 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).

1. Disconnect any connected cables using a suitable tool.



Logo of the EU WEEE Directive

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

Microtronics Engineering 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.

Chapter 11 Contact information

Support & Service:
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3244 Ruprechtshofen
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Tel. +43 (0)2756 7718023
support@microtronics.com
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