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DK access monitoring sensor



7010.160

Assembly and operating instructions

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SOFTWARE & SERVICES

FRIEDHELM LOH GROUP



Foreword

Dear Customer,

Thank you for choosing our access monitoring sensor!

We wish you every success.

Yours

Rittal GmbH & Co. KG

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We are always happy to answer any technical questions regarding our entire range of products.

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1 Notes on documentation

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1 Notes on documentation

1.1 CE labelling

Rittal GmbH & Co. KG hereby confirms that the access monitoring sensor is compliant with the EU EMC Directive 2014/30/EU. An appropriate declaration of conformity has been prepared. It can be provided on request.



of the individual parameters on the Rittal embedded device website. Depending on the set language, the displays on the Rittal embedded device website may be different (see assembly and operating instructions for the Rittal embedded device used).

1.2 Storing the documents

The assembly and operating instructions as well as all applicable documents are an integral part of the product. They must be passed to those persons who are engaged with the unit and must always be available and on hand for the operating and maintenance personnel.

1.3 Symbols used in these operating instructions

The following symbols are used in this documentation:



Danger!
A dangerous situation in which failure to comply with the instructions will result in death or severe injury.



Warning!
A dangerous situation which may cause death or serious injury if the instructions are not followed.



Caution!
A dangerous situation which may lead to (minor) injuries if the instructions are not followed.



Note:
Important notices and indication of situations which may result in material damage.

- This symbol indicates an "action point" and shows that you should perform an operation or procedure.

1.4 Associated documents

- Installation and Short User Guide
- Assembly and operating instructions of the Rittal embedded device used

1.5 Area of validity

This documentation shows the English screenshots. English terminology is also used in the descriptions

2 Safety instructions

2.1 General safety instructions

Please observe the subsequent general safety instructions for the installation and operation of the system:

- The access monitoring sensor may only be assembled and installed by properly trained specialists.
- The casing of the access monitoring sensor must not be opened!
- The access monitoring sensor must not come into contact with water, aggressive or flammable gases and vapours!
- The access monitoring sensor can be used only within the limits of the specified technical data!
- The access monitoring sensor may only be supplied with the required operating voltage via the CAN bus.
- The access monitoring sensor must not be used in locations where children might be present.
- Use only original Rittal products or products recommended by Rittal in conjunction with the access monitoring sensor.
- Please do not make any changes to the access monitoring sensor that are not described in this manual or in the associated manuals.
- The operational safety of the access monitoring sensor is guaranteed only for its approved use. The technical specifications and limit values stated must not be exceeded under any circumstances. In particular, this applies to the specified ambient temperature range and IP degree of protection.
- Other than these general safety instructions, ensure you also observe the specific safety instructions when the tasks described in the following chapters are performed.

REACH safety information in accordance with Regulation (EC) No 1907/2006

- The product contains the SVHC "Lead – CAS no. 7439-92-1".
- The manufacturer specifies that no health risks of any kind arise during use of the product when handled properly.
- After use, the product must be disposed of properly in accordance with the applicable statutory regulations.

2.2 Service and technical staff

- The mounting, installation, commissioning, maintenance and repair of this unit may only be performed by qualified mechanical and electro-technical trained personnel.
- Only properly instructed personnel may work on a unit while in operation.

3 Product description

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3 Product description

3.1 Functional description and components

3.1.1 Function

The access monitoring sensor offers the option of incorporating a CMC III access sensor VX (7030.128) into the current system. It supplies the values measured by this sensor to the connected Rittal embedded device. It is also designed for access monitoring on a server rack and for general vibration monitoring. It reports to the Rittal embedded device whether the monitored door is closed or open and whether there are vibrations. The access monitoring sensor contains an identification that allows it to be recognised automatically by the Rittal embedded device.

3.1.2 Components

The device consists of a compact plastic housing in RAL 9005 with a ventilated front.

3.2 Intended use, foreseeable misuse

The access monitoring sensor is solely intended for connecting the CMC III access sensor VX (7030.128) and incorporating it into the current system, as well as for access and general vibration monitoring on a server rack. It must only be used in conjunction with Rittal embedded devices (software version 10.0.0 or above). Envisaged deployment locations are enclosures and enclosure systems, as well as racks for the installation of server and network technology in secure and technology rooms. The access monitoring sensor must only be combined and operated with the intended Rittal system accessories and cables (see Assembly and Operating Instructions for the CMC III Processing Unit – Document D-0000-00000553-00). Any other use is not permitted.

The unit is state of the art and built according to recognised safety regulations. Nevertheless, incorrect use may result in damage to or faults with the system and other material assets.

Consequently, the unit must only be used properly and in a technically sound condition! Any malfunctions which impair safety should be rectified immediately! Follow the operating instructions!

The intended use also includes the observance of the documentation provided and fulfilling the inspection and maintenance conditions.

Rittal GmbH & Co. KG is not liable for any damage which may result from failure to comply with the documentation provided. The same applies to the non-observance of the valid documentation for any deployed accessories and the Rittal embedded device.

Inappropriate use may result in danger. Inappropriate use includes:

- Use of impermissible tools.
- Improper operation.
- Improper rectification of malfunctions.
- Use of accessories not approved by Rittal GmbH & Co. KG.

3.3 Scope of supply

- Access monitoring sensor
- Accessories provided (fig. 1)
- Installation and Short User Guide

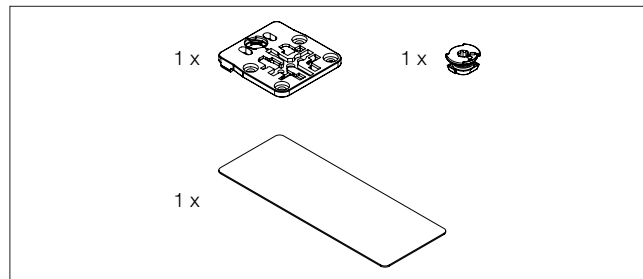


Fig. 1: Accessories provided

4 Transport and handling

4.1 Transport

The unit is delivered in a carton.

4.2 Unpacking

- Remove the unit's packaging materials.



Note:

After unpacking, the packaging materials must be disposed of in an environmentally friendly way. They consist of the following materials: Polyethylene film (PE film), cardboard.

- Check the unit for any damage that may have occurred during transport.



Note:

Damage and other faults, e.g. incomplete delivery, should be reported immediately, in writing, to the shipping company and to Rittal GmbH & Co. KG.

- Remove the unit from the PE film.
- Remove the protective film from the front cover of the device.

5 Installation

5.1 Safety instructions

- Please observe the valid regulations for installation in the country in which the access monitoring sensor is installed and operated, and the national regulations for accident prevention. Please also observe any internal company regulations, such as work, operating and safety regulations.
- The technical specifications and limit values stated must not be exceeded under any circumstances. In particular, this applies to the specified ambient temperature range and IP degree of protection.
- If a higher IP protection class is required for a special application, the access monitoring sensor must be installed in an appropriate housing or in an appropriate enclosure with the required IP degree of protection. Under certain circumstances, the integral infrared sensor may then no longer function.

5.2 Siting location requirements

To ensure the unit functions correctly, the conditions for the installation site of the unit specified in section 8 "Technical specifications" must be observed.

Electromagnetic interference

- Interfering electrical installations (high frequency) should be avoided.

5.3 Installation procedure

There are generally several options for installing the access monitoring sensor:

1. Installation on the frame of the enclosure or IT enclosure using the bracket included.
2. Installation with the provided bracket on a punched section with mounting flange.
3. Optional: Installation on a top-hat rail using the bracket included along with a spring clip (accessories).

5.3.1 Installation notes

- Install the access monitoring sensor in such a way that the front with the transmitter and receiver points toward the door to be monitored.
- Preferably, install the access monitoring sensor in such a way that the infrared access sensor points toward the lock-side and not the hinge-side of the door to be monitored.
Because the angle of the reflecting foil changes faster, an opened door will be detected faster.
- The access monitoring sensor must be positioned so that it is ventilated with an adequate amount of air and the ventilation slots are not covered.
- Glue the reflecting foil provided at the door position exactly opposite the infrared access sensor.
- Ensure observance of the minimum and maximum clearances between the sensor and the reflecting foil

that depend on the set value for "sensitivity" specified in the following table.

Sensitivity	Min. clearance mm	Max. clearance mm
1	20	70
2	20	100
3	20	130

Tab. 1: Minimum and maximum clearances



Note:

In the delivered state, the sensitivity is preset to the value "2".

- Ensure that the access monitoring sensor is installed only in one of the shown positions.

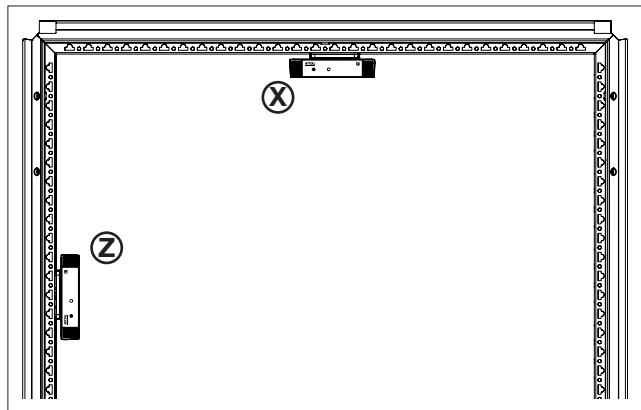


Fig. 2: Mounting positions

5.3.2 Installation with the provided bracket on the enclosure frame

The provided bracket is used for installation on the frame of an IT enclosure.

- For installation on a TS IT enclosure, break off the protruding lugs at the rear of the bracket.

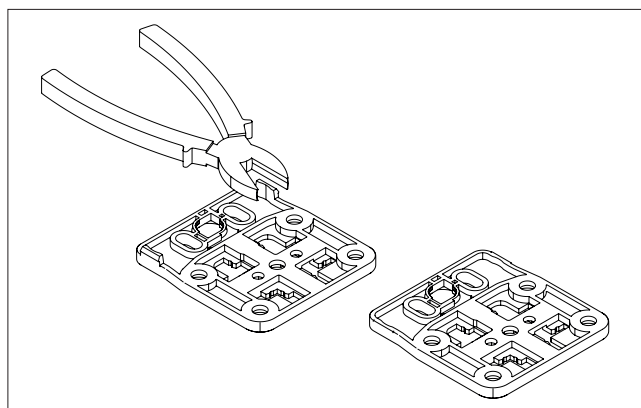


Fig. 3: Preparing the bracket for installation on a TS IT enclosure

- Place the access monitoring sensor on the bracket from above.

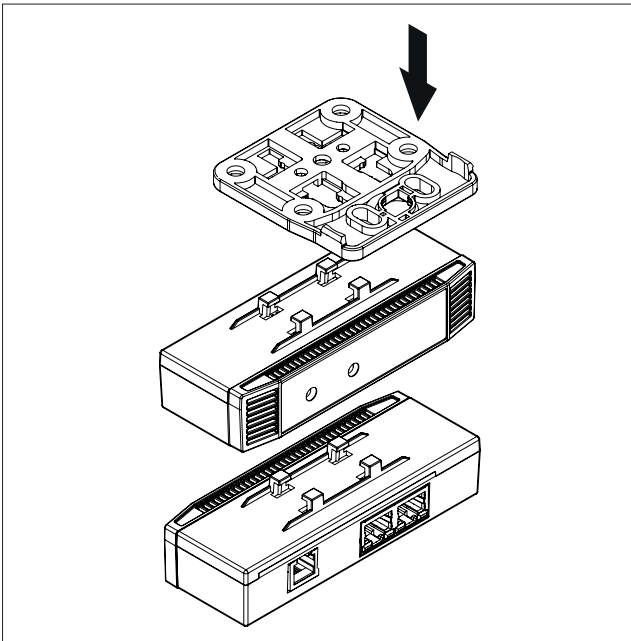


Fig. 4: Attaching the sensor to the bracket

- Move the sensor sideways slightly on the bracket so that it latches into place.

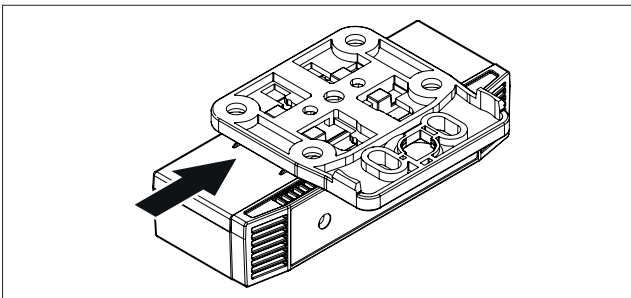


Fig. 5: Latching the sensor into place on the bracket

- Fasten the bracket, including access monitoring sensor, at the desired position in the enclosure or the IT enclosure by making a quarter-turn of the connector.

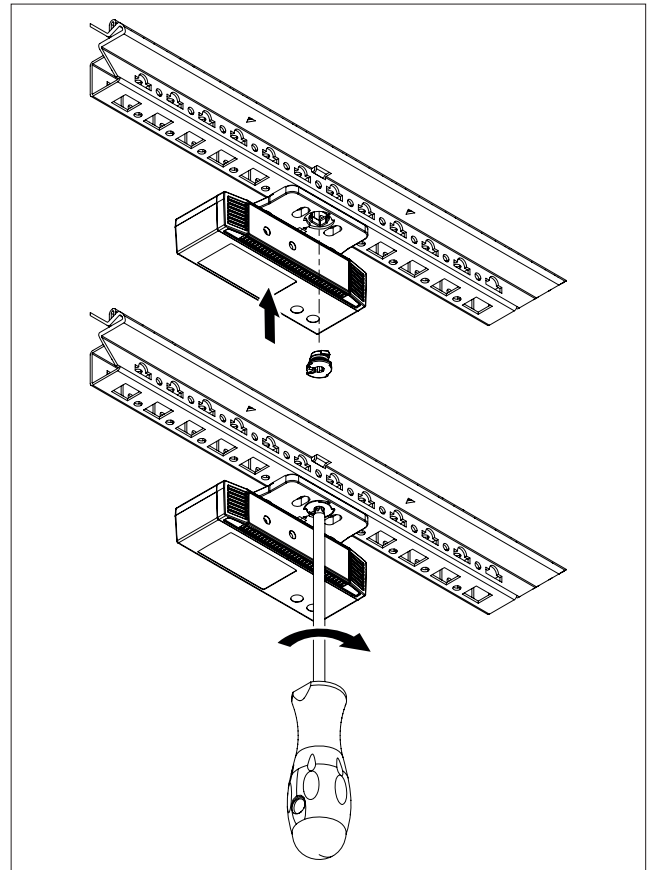


Fig. 6: Mounting the enclosure section "X"

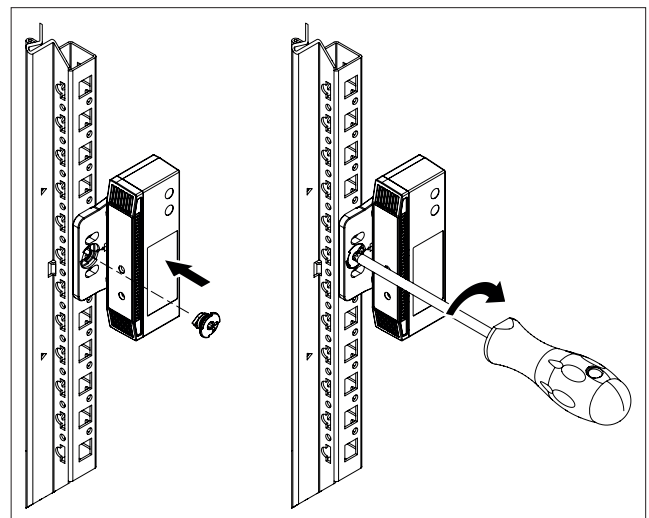


Fig. 7: Mounting the enclosure section "Z"

- Optionally secure the bracket using the two screws M5.5 x 13.

5 Installation

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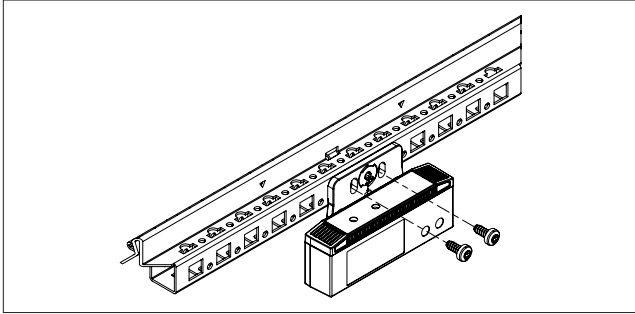


Fig. 8: Optional securing of the bracket (enclosure section "X" or enclosure section "Z")

5.3.3 Installation with the provided bracket on a punched section with mounting flange

The provided bracket is used for installation on a punched section with mounting flange.

- Place the access monitoring sensor on the bracket from above and latch it similar to the installation on the enclosure frame.
- Fasten the bracket, including access monitoring sensor, at the desired position in the enclosure on the punched section with mounting flange by making a quarter-turn of the connector.

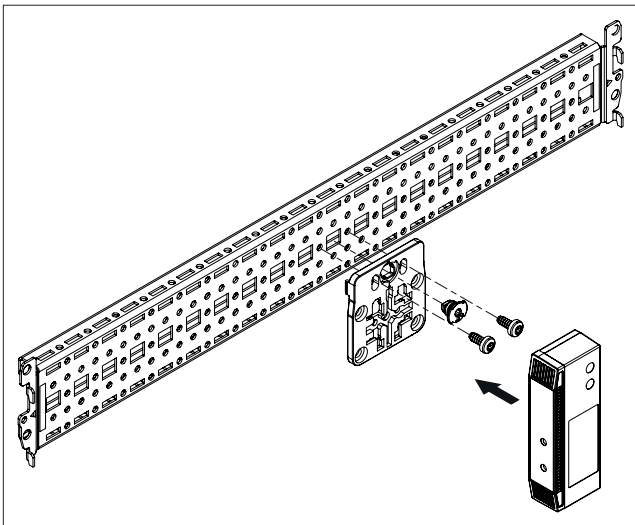


Fig. 9: Fastening the sensor to a punched section with mounting flange

- Optionally secure the bracket using the two screws M5.5 x 13 similar to the installation on the enclosure frame.

5.3.4 Installation on a top-hat rail

The sensor can also be mounted on a top-hat rail using the bracket included in the scope of delivery along with a spring clip (accessories).

- First screw the bracket onto the spring clip for installation on a top-hat rail using two screws M4 x 10.
- Then place the access monitoring sensor on the bracket and latch it into place.

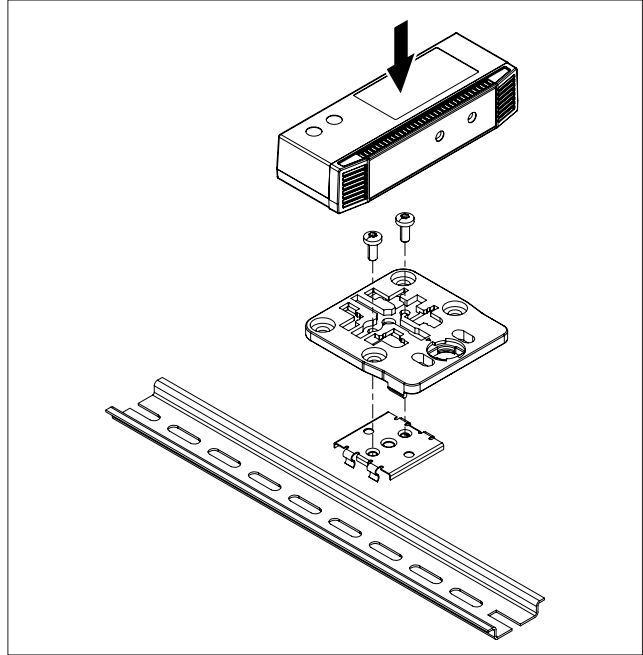


Fig. 10: Fastening the bracket to the spring clip

- Latch the spring clip into place at the desired position on the top-hat rail.

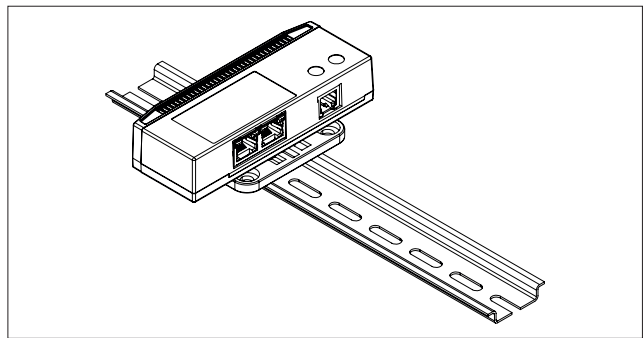


Fig. 11: Sensor with spring clip on the top-hat rail

5.4 Connection of the sensor

The access monitoring sensor is supplied with the necessary operating voltage via the CAN bus connection. A separate power supply unit does not need to be connected.

- Connect a CMC III access sensor VX (7030.128) to the appropriate connection (fig. 12, item 4).
- Use a CAN bus connection cable to connect the access monitoring sensor to a CAN bus interface on the Rittal embedded device or the neighbouring component on the CAN bus (fig. 12, item 5, 6).

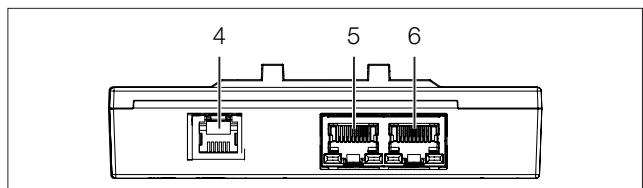


Fig. 12: Rear of the access monitoring sensor

Key

- 4 Connection for sensor 7030.128 (RJ 12)
- 5 CAN bus connection, 24 V , 1 A
- 6 CAN bus connection, 24 V , 1 A

The following CAN bus connection cables are available from Rittal:

- DK 7030.090 (length 0.5 m)
- DK 7030.091 (length 1 m)
- DK 7030.092 (length 1.5 m)
- DK 7030.093 (length 2 m)
- DK 7030.480 (length 3 m)
- DK 7030.490 (length 4 m)
- DK 7030.094 (length 5 m)
- DK 7030.095 (length 10 m)

The sensor software is updated, if necessary, after being connected. The status LED of the access monitoring sensor glows blue throughout the entire update process, while the sensor itself is being updated. In addition, the status LED of the Rittal embedded device flashes white and a corresponding message appears on the website.



Note:

No settings can be modified as long as the update process is running.

for approx. 3 seconds until a second audio signal is heard.



Note:

See section 6.3.1 "Multi-LED displays" for a list of all of the multi-LED displays.

The update of the sensor is complete when the following conditions have been fulfilled:

1. The LEDs on the bus connection of the sensor light green.
2. The multi-LED of the sensor behind the front panel flashes blue and also green, yellow or red depending on the status of the sensor.

Further components are connected as a daisy chain.

■ When connecting other components to the CAN bus, please note the following restrictions:

- When installing sensors or other compatible components, the total current per CAN bus channel must not exceed 1 A.
- Electricity consumption of access monitoring sensor: 40 mA

■ If necessary, connect another component (e.g. another sensor type) to the second, free CAN bus interface of the access monitoring sensor (fig. 12, item 5, 6).

Status change display:

- The two green and the two red CAN bus LEDs on the CAN bus connection flash.
- The multi-LED of the Rittal embedded device flashes continually in the sequence green – yellow – red.
- The multi-LED of the access monitoring sensor flashes blue continuously.

■ Press the "C" key on the Rittal embedded device (an initial audio signal will sound) and keep it pressed

6 Operation

6.1 Activating the access monitoring sensor

After connecting the access monitoring sensor to a neighbouring component using a CAN bus connecting cable, the access monitoring sensor starts automatically (see section 5.4 "Connection of the sensor"). Separate activation is not required.

6.2 Operating and display elements

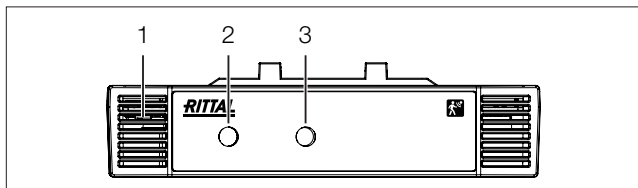


Fig. 13: Front of the access monitoring sensor

Key

- 1 Multi-LED for status display
- 2 Infrared diode (transmitter)
- 3 Infrared receiver

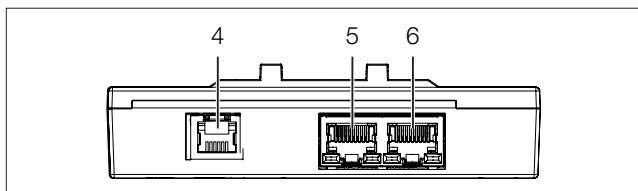


Fig. 14: Rear of the access monitoring sensor

Key

- 4 Connection for sensor 7030.128 (RJ 12)
- 5 CAN bus connection, 24 V, 1 A
- 6 CAN bus connection, 24 V, 1 A

6.3 LED displays

A multi-LED for the status display is integrated into the front of the access monitoring sensor (fig. 13, item 1). Further LEDs are located at the rear on the CAN bus connection (fig. 14, item 5 and 6).

6.3.1 Multi-LED displays

The status of the access monitoring sensor can be read on the multi-LED.

Continuously lit

Colour	Status
Red	Invalid measured value.
Blue	An access monitoring sensor software update is being carried out.

Tab. 2: Multi-LED continuously lit

Flashing codes

Colour	Status
Green	When the measured value changes or, at the latest, every 5 seconds.
Red	The access sensor (Access) has the status "Open", the connected CMC III VX access sensor (Input) has the status "Open" or the vandalism sensor (gValues) has the status "Alarm".
Blue	Communication via the CAN bus.

Tab. 3: Multi-LED flashing codes

6.3.2 LED displays on the CAN bus connection

A red and a green LED are located on the CAN bus connection. They display the status of the CAN bus.

Colour	Status
Green (continuously lit)	Communication via the CAN bus possible.
Red (flashing)	Transmission fault.

Tab. 4: LEDs for the CAN bus connection

6.4 Operating from the Rittal embedded device website

After logging on to the Rittal embedded device, the web interface for operating the device is displayed.

- First select the "CMCX-ACCM" entry in the navigation area.

Similar to the Rittal embedded device, the **Configuration** tab can be used to individually configure the access rights for the access monitoring sensor (**Device Rights** button) and the alarm messages (**Alarm Configuration** button).

The **Monitoring** tab is used to configure all of the settings for the access monitoring sensor, such as the sensitivity of the integrated access sensor. In the following sections 6.4.1 "Device" to 6.4.4 "Input", only those parameters which you can modify are described. There are also display values that provide information.

6.4.1 Device

General settings for the access monitoring sensor are configured at the "Device" level.

Parameter	Explanation
Description	Specific description of the access monitoring sensor.

Parameter	Explanation
Location	Installation location of the access monitoring sensor.

Tab. 5: Settings at "Device" level

In addition, parameters that provide detailed information about the access monitoring sensor, such as its software and hardware versions, are also displayed. You should have such information available, in particular to enable rapid troubleshooting when requesting assistance from Rittal.

6.4.2 Access

The access sensor settings are configured on the "Access" level.

Parameter	Explanation
DescName	Specific description of the access sensor.
Sensitivity	Distance between the sensor and the door (1 = small, 3 = large) or sensor deactivated (0)
Delay	Time delay after which the status message changes.

Tab. 6: Settings at "Access" level

The following parameters are also displayed for the access sensor:

Parameter	Explanation
Value	The current value of the access sensor (0 = door closed, 1 = door open).
Status	Current status of the access sensor, taking into account the time delay.

Tab. 7: Displays at "Access" level

6.4.3 gValues

The vandalism sensor settings are configured on the "gValues" level.

Parameter	Explanation
DescName	Specific description of the vandalism sensor.
SetPtHigh-Alarm	Upper limit acceleration for which an alarm message is issued when exceeded.

Tab. 8: Settings at "gValues" level

The following parameters are also displayed for the vandalism sensor:

Parameter	Explanation
X Axis - Value	Currently measured acceleration value in X direction.
Y Axis - Value	Currently measured acceleration value in Y direction.

Parameter	Explanation
Z Axis - Value	Currently measured acceleration value in Z direction.
Status	Current status of the vandalism sensor, taking into account the time delay.

Tab. 9: Displays at "gValues" level



Note:

If the value "0" is entered for all limit values at the "gValues" level, the status of the vandalism sensor is always "OK".

6.4.4 Input

The digital input or digital output settings are configured on the "Input" level.

Parameter	Explanation
DescName	Specific description of the input or output.
Delay	Time delay after which the status message changes.

Tab. 10: Settings at "Input" level

The following parameters are also displayed for the digital input or digital output:

Parameter	Explanation
Value	The current value of the digital input or digital output (0 or 1).
Status	Current status of the digital input or digital output, taking into account the time delay.

Tab. 11: Displays at "Input" level

7 Storage and disposal

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7 Storage and disposal

7.1 Storage

If the device is not used for a long period, Rittal recommends that it be disconnected from the mains power supply and protected from damp and dust.

7.2 Disposal

Since the access monitoring sensor consists mainly of the "housing" and "circuit board" parts, the device must be passed on to the electronic waste recycling system for disposal.

8 Technical specifications

Technical specifications		DK access monitoring sensor
Model no.		7010.160
W x H x D (mm)		110 x 30 x 40
Operating temperature range		0 °C...+55 °C
Storage temperature		-20 °C...+70 °C
Operating humidity range		5%...95% relative humidity, non-condensing
Mode of operation		optical
Transmitter		Infrared diode
Receiver		Infrared receiver
Protection category		IP 30 to IEC 60 529
Inputs and outputs	CAN bus (RJ 45)	2 x
	CMC III Sensor (RJ 12)	1 x
Operation/signals	LED display	OK/warning/alarm/CAN bus status

Tab. 12: Technical specifications

9 Customer service addresses

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9 Customer service addresses

For technical queries, please contact:

Tel.: +49(0)2772 505-9052

E-mail: info@rittal.de

Homepage: www.rittal.de

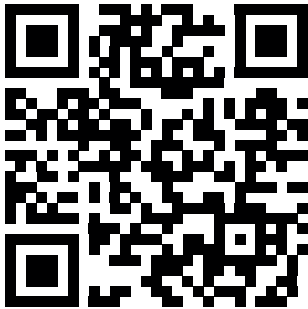
For complaints or service requests, please contact:

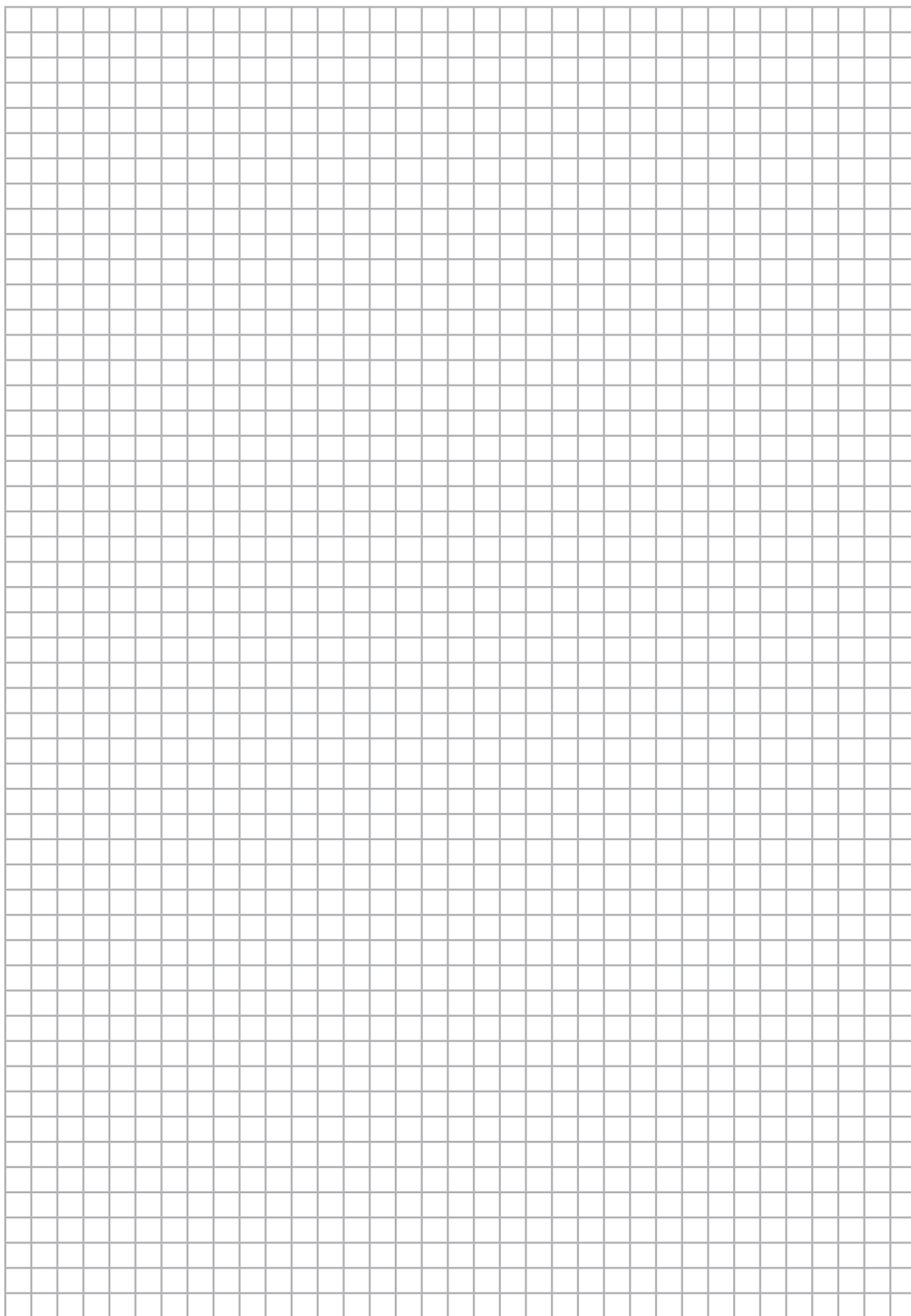
Tel.: +49(0)2772 505-1855

E-mail: service@rittal.de

Contact details can be found on the Rittal website at:

– <https://www.rittal.com/rittal-locations>





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