

Your Global Automation Partner

TURCK

IMX12-CCM... Cabinet Guard

Instructions for Use



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1 About These Instructions

These instructions for use describe the structure, functions and the use of the product and will help you to operate the product as intended. Read these instructions carefully before using the product. This is to avoid possible damage to persons, property or the device. Retain the instructions for future use during the service life of the product. If the product is passed on, pass on these instructions as well.

1.1 Target groups

These instructions are aimed at qualified personnel with knowledge of explosion protection (e.g. EN 60079-14 etc.) and must be carefully read by anyone mounting, commissioning, operating, maintaining, dismantling or disposing of the device.

1.2 Explanation of symbols used

The following symbols are used in these instructions:



DANGER

DANGER indicates a dangerous situation with high risk of death or severe injury if not avoided.



WARNING

WARNING indicates a dangerous situation with medium risk of death or severe injury if not avoided.



CAUTION

CAUTION indicates a dangerous situation of medium risk which may result in minor or moderate injury if not avoided.



NOTICE

NOTICE indicates a situation which may lead to property damage if not avoided.



NOTE

NOTE indicates tips, recommendations and useful information on specific actions and facts. The notes simplify your work and help you to avoid additional work.



CALL TO ACTION

This symbol denotes actions that the user must carry out.



RESULTS OF ACTION

This symbol denotes relevant results of actions.

1.3 Other documents

Besides this document the following material can be found on the Internet at www.turck.com:

- Data sheet
- Quick Start Guide
- Approvals

1.4 Feedback about these instructions

We make every effort to ensure that these instructions are as informative and as clear as possible. If you have any suggestions for improving the design or if some information is missing in the document, please send your suggestions to techdoc@turck.com.

2 Notes on the Product

2.1 Product identification

These instructions apply to the following cabinet guard:

- IMX12-CCM02-MTI-1I2T-HC/L
- IMX12-CCM02-MTI-1I2T-HC/L/CC

2.2 Scope of delivery

The scope of delivery includes:

- Cabinet guard
- Quick Start Guide
- Adhesive foil (Target) for attaching reflective surfaces

2.3 Legal requirements

The device is subject to the following EC directives:

- 2014/30/EU (electromagnetic compatibility)
- 2014/34/EU (ATEX directive)
- 2011/65/EU (RoHS directive)

3 For Your Safety

The product is designed according to state-of-the-art technology. However, residual risks still exist. Observe the following warnings and safety notices to prevent damage to persons and property. Turck accepts no liability for damage caused by failure to observe these warning and safety notices.

3.1 Intended use

These devices are designed solely for use in industrial areas.

The IMX12-CCM... cabinet guard monitors temperature, relative air humidity and the door status in control cabinets. The devices are suitable for operation in Zone 1.

The devices may only be used as described in these instructions. Any other use is not in accordance with the intended use. Turck accepts no liability for any resulting damage.

3.2 Obvious misuse

- The device is not a safety component and must not be used for the protection of persons and property.

3.3 General safety instructions

- The device only meets the EMC requirements for industrial areas and is not suitable for use in residential areas.
- The device may only be assembled, installed, operated, parameterized and maintained by professionally-trained personnel.
- The device may only be used in accordance with applicable national and international regulations, standards and laws.
- The device must only be used in enclosed housing or control cabinets.

3.4 Notes on Ex protection

- When using the device in explosion-protection circuits, the user must have a working knowledge of explosion protection (EN 60079-14 etc.).
- Observe national and international regulations for explosion protection.
- Only use the device in Ex areas when installed in the appropriate protective housing.
- Use the device only within the permissible operating and ambient conditions (see approval data and Ex approval specifications).
- Cables and terminals with intrinsically safe circuits must be indicated – use light blue for color-coding. Separate cables and terminals from non-intrinsically safe circuits or isolate accordingly (EN 60079-14).
- Perform "Proof of intrinsic safety".
- Never connect equipment to intrinsically safe circuits if this equipment was previously used once in non-intrinsically safe circuits.

4 Product Description

The IMX12-CCM... cabinet guards are available with removable screw or spring-loaded terminals.

4.1 Device overview

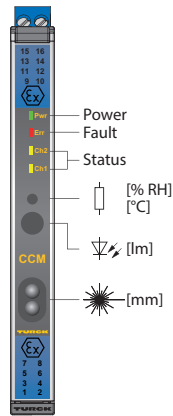


Fig. 1: Front view

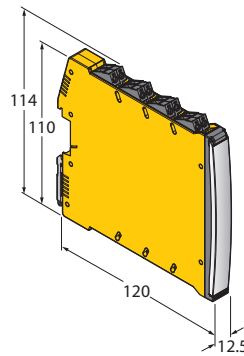


Fig. 2: Dimensions – device with screw terminals

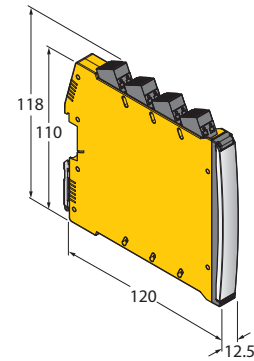


Fig. 3: Dimensions – device with spring-loaded terminals

4.1.1 Indication elements

The devices each have a green Power LED (Pwr). A red Error LED and two yellow Status LEDs are also provided.

4.2 Properties and features

- Sensors for monitoring humidity, temperature and distance
- Manual teach-in process via gesture control
- Device variants with screw or spring-loaded terminal connection
- Freely configurable switching outputs (NC/NO contacts)

4.3 Operating principle

The cabinet guards of the IMX12-CCM... series monitor temperature and humidity within the set limit parameters and door status (open/closed) in control cabinets. The ambient humidity/temperature sensor and a triangulation sensor are used to detect the ambient conditions. Values above or below the limits are indicated by the LED and the corresponding switching output. The switching contacts indicate limit value overshoots and undershoots to the higher field level.

The device processes the data via an 8-bit microprocessor with a 256-byte internal EEPROM.

4.4 Functions and operating modes

Two galvanically isolated potential-free switching outputs, each with a 100 mA load capacity at 30 V, are provided for outputting limit value overshoots. The assigning of limit value overshoots to switching outputs and the output type (NC/NO contact) can be set via the HART communication interface.

4.4.1 Internal EEPROM

The internal EEPROM has a total capacity of 256 Kbytes and consists of 4 memory modules with a memory capacity of 64 Kbytes each. 12 bytes for each data set are required to store the internal sensor values. If only internal sensor values are stored, the following recording intervals are possible:

Time_interrupt_storage	For 12 data bytes
5 min	76 days
30 min	455 days
60 min	910 days

The following data is stored in the internal EEPROM:

- Article number
- Firmware version
- Production order
- Manufacturing date
- Serial number of the device
- Limit values for humidity, temperature, door gap and brightness
- Comparison values for humidity, temperature, door gap and brightness
- Hysteresis for humidity, temperature, door gap
- Additions (in %) for the automatic generation of limit values from the calibration values
- Time interval for storing data in the external EEPROM
- The time interval between two consecutive measurements
- Max. tuning time until the settled state
- Number of errors until the error message for humidity, temperature and door gap is triggered
- Configuration bytes and error byte

5 Installing



DANGER

Potentially explosive atmosphere

Risk of explosion due to spark ignition!

- ▶ Install the device in a housing tested in accordance with EN 60079-0, which meets the requirements of protection type IP54 or IP4X.
- ▶ When installing in a housing with protection type IP4X: Only install the device in areas that offer sufficient protection against the penetration of foreign bodies and liquids.
- ▶ Maintain a distance of 50 mm (thread distance) between the connection circuits of intrinsically safe and non-intrinsically safe circuits.



WARNING

Operation under severe ambient conditions

Explosion through device damage!

- ▶ Ensure sufficient heat dissipation.
- ▶ Install the device so that the permissible ambient temperature range of $-25\dots+60\text{ }^{\circ}\text{C}$ is observed.
- ▶ Protect the installation location from UV and heat radiation, rapid temperature fluctuations, dust, dirt, humidity and environmental influences.



NOTICE

Reflective surfaces

Malfunction when monitoring the control cabinet door

- ▶ Cover glass and highly reflective surfaces on the control cabinet door with matt adhesive foil (supplied with the device).

The device can be mounted on a DIN rail according to EN 60715 (TH35).

- ▶ Fasten the device vertically and free-standing on a DIN rail.

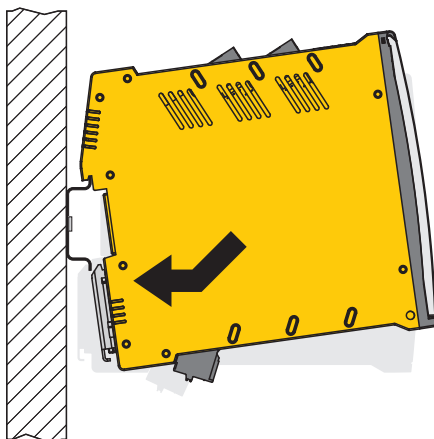


Fig. 4: DIN rail mounting

6 Connection

The inputs and outputs as well as the supply voltage can be connected by screw or spring-loaded terminals, depending on device type. The removable terminal blocks are coded.



DANGER

Potentially explosive atmosphere
Risk of explosion due to spark ignition!

- ▶ When used in Zone 1: Only connect the device if there is no potentially explosive atmosphere present.



WARNING

Consequential damage through incorrect connection
Explosion through device damage!

- ▶ Observe the connection requirements in all cases.

6.1 Connecting devices with screw terminals

- ▶ Only use cables (rigid or flexible) with a cross section of 0.2...2.5 mm².
- ▶ When using stranded wire: Secure the wire ends with ferrules.
- ▶ Insert the stripped cable ends into the guides of the cable glands.
- ▶ Tighten screws. The max. tightening torque is 0.5 Nm.

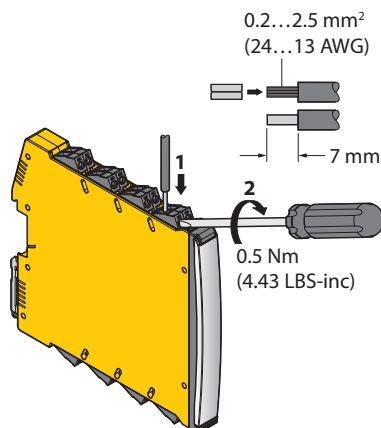


Fig. 5: Connecting devices with screw terminals

6.2 Connecting devices with spring-loaded terminals

- ▶ Only use cables (rigid or flexible) with a cross section of 0.2...2.5 mm².
- ▶ When using stranded wire: Secure the wire ends with ferrules.
- ▶ Prise open the spring-loaded terminals using a screwdriver.
- ▶ Insert the stripped cable ends into the guides of the spring-loaded terminals.
- ▶ Remove the screwdriver.

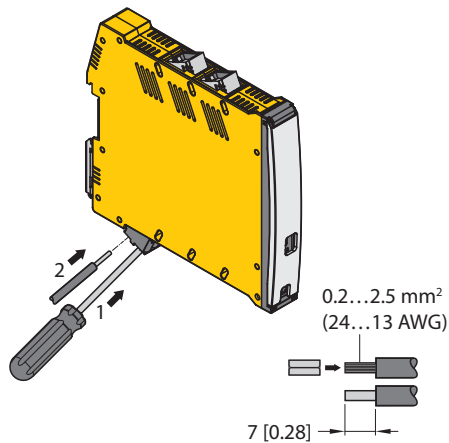


Fig. 6: Connecting the power supply via spring-loaded terminals

6.3 Wiring diagram

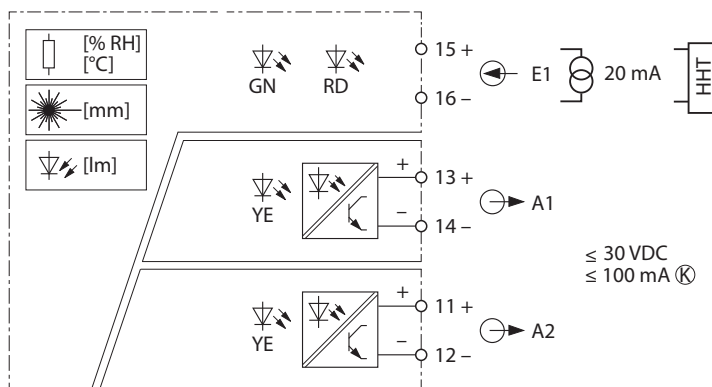


Fig. 7: Connection diagram IMX12-CCM...

7 Commissioning

The device is operational automatically once the cables are connected and the power supply is switched on.

**NOTE**

Turck recommends that the short circuit monitoring is deactivated when the device is supplied by a DCS/PLC card.

8 Operation

In normal operation, the device performs the following processes automatically:

- Reading configuration data
- Recording current measured values (temperature, humidity, brightness, door gap)
- Monitoring measured values for limit value overshoots and undershoots
- Storing of measured values in the external EEPROM
- Cyclical sampling after teach-in processes

If an error occurs during normal operation at one of the integrated sensors, the red LED is lit and the current consumption increases to > 20 mA. The device continues to run in normal operation.

8.1 LED indications

The devices each have a green Power LED (Pwr). A red Error LED and 2 Status LEDs are also provided.

The LEDs have the following indication functions:

LED	Color	Meaning
Pwr	Green	Device is operational
	Green flashing (0.5 Hz)	Manual teach-in running
Err	Red	Error at one or multiple sensors
	Short red	Manual input error
	Red flashing (0.5 Hz)	Error during teach-in
Ch1	Yellow	Limit value at switching output 1 overshoot or undershot
	Off	Parameters within the limit values
Ch2	Yellow	Limit value at switching output 2 overshoot or undershot
	Off	Parameters within the limit values

The HART interface outputs limit value overshoots and undershoots as follows:

Parameter	Memory	Bit
General limit value overshoot	Internal/external	Bit 0
Humidity limit value	Internal/external	Bit 1
Temperature limit value	Internal/external	Bit 2
Door gap limit value	Internal/external	Bit 3
Error during teach-in		Bit 4
Output NC contact/NO contact		Bit 5

9 Setting

9.1 Setting limit values (via the teach-in function)

The device can be adapted to the particular installation requirements via a manual teach-in operation.

The following default limit values are set in the device:

Parameter	Lower limit value	Upper limit value
Humidity	0 %	80 %
Temperature	-25 °C	+60 °C
Door gap	4 cm	20 cm

The teach-in operation is controlled by the brightness sensor. If faults occur during the teach-in operation, the red LED is lit for 1 s and the green LED switches from flashing to constant. The teach-in operation is aborted and the device switches to Normal mode.

- ▶ Cover the door sensor (t1...t2).
- ▶ Cover the brightness sensor for 2...10 s (t2...t3).
- ⇒ The Pwr LED flashes green.
- ▶ Uncover the brightness sensor again for max. 10 s (t3...t4).
- ▶ Cover the brightness sensor for max. 10 s (t4...t5).
- ▶ Uncover the brightness sensor again for max. 10 s (t5...t6).
- ▶ Uncover the door sensor (t6).
- ▶ Close the control cabinet door (t6...t7).
- ⇒ The device accepts the measured values as the set configuration (t8) in normal operation after the tuning phase (t6...t9). The green LED is continuously lit.

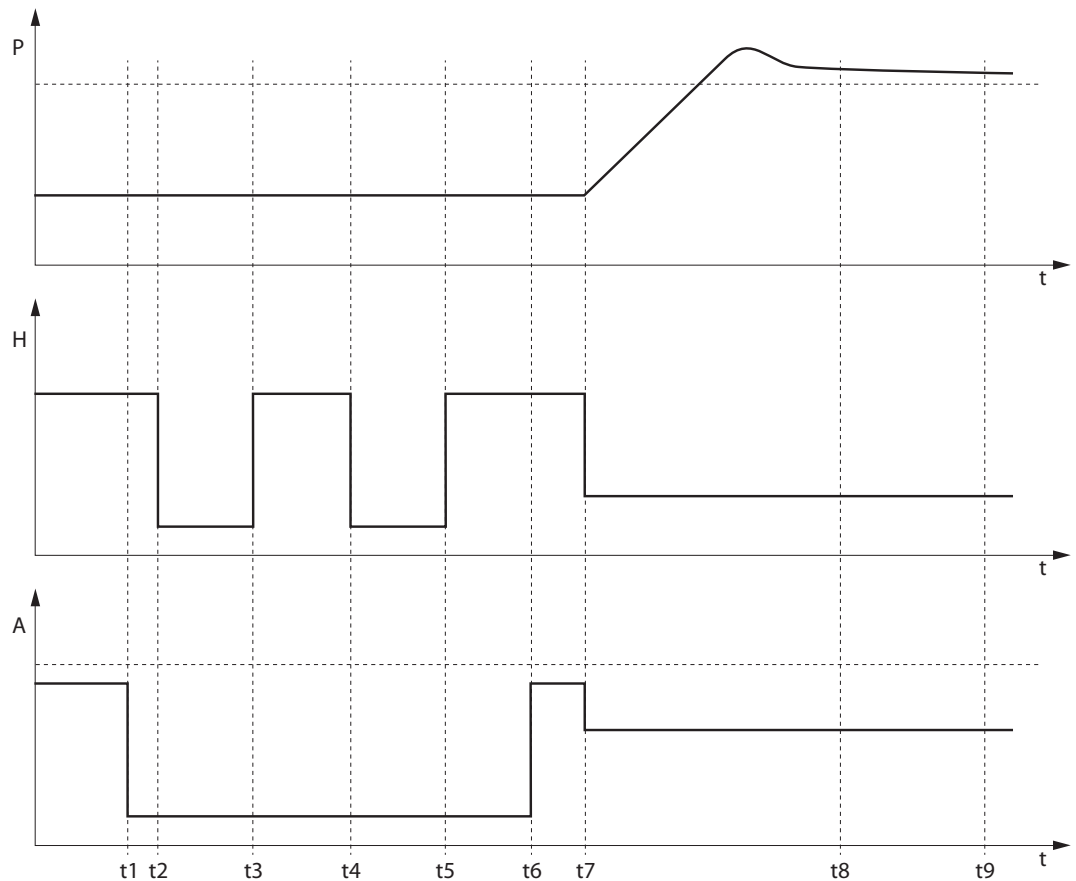


Fig. 8: Teach-in function and tuning phase
 (P: changing process variable such as temperature or humidity, H: brightness, A: door gap value for door detection)

The parameters for temperature, humidity and brightness in the control cabinet must be within the set values during the tuning phase. The values are defined in the device as follows:

Parameter	Value
Humidity	Max. humidity change: 1 %
Temperature	Max. temperature difference: 2 %
Door gap	Max. change: 0.2 cm

The teach-in operation is automatically aborted and must be repeated if the values listed in the table are not reached during the tuning phase. An error confirmation is not necessary.

If faults occur during the teach-in operation, the red LED is lit for 1 s and the green LED switches from flashing to constant. The teach-in operation is aborted and the device switches to Normal mode.


NOTE

The set limit values are written to the internal EEPROM if they are within the values specified in the data sheet. If the set limit values are outside the specifications in the data sheet, the values specified in the data sheet are stored in the EEPROM.

9.2 Preset range parameters

Parameter	Value
Temperature hysteresis	6 %
Humidity hysteresis	10 %
Door gap hysteresis	4 mm
Addition for temperature limit value calculation	20 %
Addition for humidity limit value calculation	20 %
Addition for door gap limit value calculation	1 %
Time interval for storing the measured values	30 min
Measurement interval	120 s
Max. tuning time for automatic calibration	240 min
Max. number of limit value overshoots before notification (temperature)	2
Max. number of limit value overshoots before notification (humidity)	2
Max. number of limit value overshoots before notification (door gap)	3
Type of switching outputs	NO contact
Hysteresis for temperature/humidity/door gap	On
Early warning system	Off
Automatic limit value calculation	On
Manual calibration process	Possible
Sensors used	Only internally

9.3 Setting limit values with the HART interface

The devices can be configured and parameterized with the HART interface. The measured sensor values can also be read via the HART interface. This requires the following components:

- FDT/DTM for IMX12-CCM... (free download at www.turck.com)
- HART modem

10 Troubleshooting



NOTICE

Reflective surfaces

Malfunction when monitoring the control cabinet door

- ▶ Cover glass and highly reflective surfaces on the control cabinet door with matt adhesive foil (supplied with the device).
-

If the device does not function as expected, first check whether ambient interference is present. If there is no ambient interference present, check the connections of the device for faults.

If there are no faults, there is a device malfunction. In this case, decommission the device and replace it with a new device of the same type.

11 Maintenance

Ensure that the plug connections and cables are always in good condition.

The devices are maintenance-free, clean dry if required.

12 Repair

The device must not be repaired by the user. The device must be decommissioned if it is faulty. Observe our return acceptance conditions when returning the device to Turck.

12.1 Returning devices

Returns to Turck can only be accepted if the device has been equipped with a Decontamination declaration enclosed. The decontamination declaration can be downloaded from <https://www.turck.de/en/retoure-service-6079.php> and must be completely filled in, and affixed securely and weather-proof to the outside of the packaging.

13 Decommissioning

- ▶ Separate connections and the power supply.
- ▶ Undo the terminal connections on the device.
- ▶ Remove the device from its rail fixing as shown in the figures.

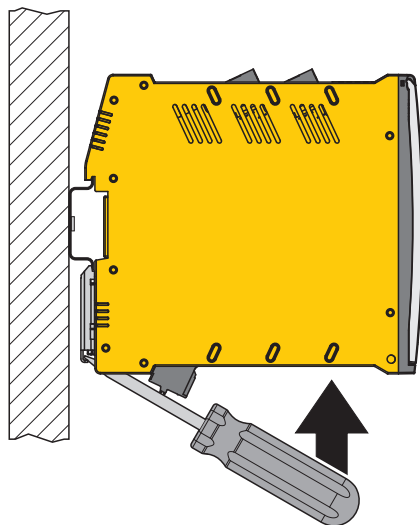


Fig. 9: Decommissioning

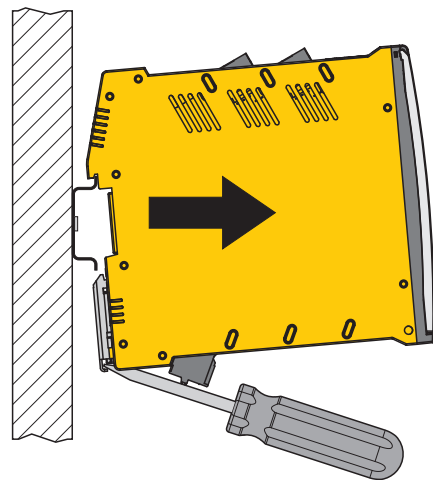


Fig. 10: Decommissioning

14 Disposal





The devices must be disposed of correctly and must not be included in general household garbage.

15 Technical Data

Technical data	IMX12-CCM02-MTI-1I2T-HC/L	IMX12-CCM02-MTI-1I2T-HC/L/CC
ID	7570092	7570093
Rated voltage	24 VDC	
Operating voltage	10...28 VDC	
Sensors	Triangulation sensor 4...20 cm Humidity sensor 0...80 % rel. hum. Brightness sensor Temperature sensor -25...+60 °C	
Output current	Impressed 20 mA	
Semiconductor output circuit(s)		
Output circuits (digital)	2 × transistor (potential-free) NO/NC	
Switch voltage	≤ 30 VDC	
Switching current per output	≤ 0.085 A at < 45 °C (T4) 0.100 A	
Voltage drop	≤ 3.5 V	
Ex approval acc. to conformity certificate	IBExU 16 ATEX 1005	
Application area	II 2G	
Ignition protection category	Ex ib op is IIC T4 Gb	
Max. values	X4 terminal strip (terminals 15,16)	
LEDs		
Operational readiness	Green	
Switching status	Yellow	
Error message	Red	
Housing material	Polycarbonate/ABS	
Fixing type	Mounting on DIN rail (NS25)	
Protection type	IP20	
Ambient temperature	-25...+60 °C	
Relative air humidity	≤ 95 %	
Vibration test	Acc. to EN 60068-2-6	
Shock testing	Acc. to EN 60068-2-27	
EMC	Acc. to EN 61000-4-2/-3/-4/-5/-6/-8, acc. to NAMUR NE21	
Dimensions (W × H × D)	120 × 12.5 × 117 mm	120 × 12.5 × 128 mm
Approvals	ATEX IECEx	

16 Appendix: Conformity Declarations and Approvals

16.1 Approvals and markings

Approvals	Marking in accordance with the ATEX Directive	
ATEX approval no.: IBExU16ATEX1005	 II 2G	EN 60079-0/-11/-28 Ex ib op is IIC T4 Gb
		
IECEX approval no.: IECEX IBE 16.0007	Ex ib op is IIC T4 Gb	

Ambient temperature T_{amb} : -25...+60 °C

16.2 Conformity Certificates

EU-Konformitätserklärung Nr.: 5119-2M
 EU Declaration of Conformity No.:

TURCK

Wir/ We: **HANS TURCK GMBH & CO KG**
WITZLEBENSTR. 7, 45472 MÜLHEIM A.D. RUHR

erklären in alleiniger Verantwortung, dass die Produkte
 declare under our sole responsibility that the products

Schaltschrankwächter (CCM): **IMX12-CCM***
 Cabinet Control Monitoring:

auf die sich die Erklärung bezieht, den Anforderungen der folgenden EU-Richtlinien durch Einhaltung der
 folgenden Normen genügen:
 to which this declaration relates are in conformity with the requirements of the following EU-directives by compliance with the following
 standards:

EMV - Richtlinie /EMC Directive EN 61000-6-2:2005	2014 / 30 / EU	26.02.2014
ATEX - Richtlinie /Directive ATEX EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-28:2015	2014 / 34 / EU	26.02.2014
RoHS – Richtlinie /RoHS Directive EN IEC 63000:2018	2011 / 65 / EU	08.06.2011

Weitere Normen, Bemerkungen:
 additional standards, remarks:

Zusätzliche Informationen:
 Supplementary information:

Angewandtes ATEX-Konformitätsbewertungsverfahren:
 ATEX - conformity assessment procedure applied:

Modul B /module B
 Modul D /module D
 Modul E /module E

EU-Baumusterprüfbescheinigung
 EC-type examination certificate

IBExU16ATEX1005

ausgestellt:
 issued by:


IBExU Institut für Sicherheitstechnik GmbH,
 Fuchsmühlenweg 7, 09599 Freiberg
 Kenn-Nr. /number: 0637

Zertifizierung des QS-Systems gemäß Modul D durch:
 certification of the QS-system in accordance with module D by :

Physikalisch Technische Bundesanstalt,
 Bundesallee 100, 38116 Braunschweig
 Kenn-Nr. /number: 0102

Mülheim a. d. Ruhr, den 17.02.2021

Ort und Datum der Ausstellung /
 Place and date of issue


 i.V. Dr. M. Linde, Bereichsleiter Zulassungen /Head of Approvals
 Name, Funktion und Unterschrift des Befugten /
 Name, function and signature of authorized person

16.3 Approvals

16.3.1 EU type examination certificate

IBExU Institut für Sicherheitstechnik GmbH
 An-Institut der TU Bergakademie Freiberg

[1] **EU-TYPE EXAMINATION CERTIFICATE - Translation**

[2] Equipment or protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU16ATEX1005** | Issue 1

[4] Product: **Cabinet Condition Monitoring (CCM)**
Type: IMX12 CCM

[5] Manufacturer: **Hans Turck GmbH & Co. KG**

[6] Address: **Witzlebenstr. 7**
45472 Mühlheim an der Ruhr
GERMANY

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with Article 17 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.


The examination and test results are recorded in the confidential test report IB-20-3-0060.

[9] Compliance with the essential health and safety requirements has been assured by compliance with: EN IEC 60079-0:2018, EN 60079-11:2012 and EN 60079-28:2015 except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

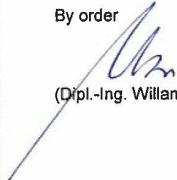
[11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:



Ex II 2G Ex ib op is IIC T4 Gb
 $-25 \leq T_a \leq +60 \text{ °C}$


IBExU Institut für Sicherheitstechnik GmbH
 Fuchsmühlenweg 7
 09599 Freiberg, GERMANY

By order 
 (Dipl.-Ing. Willamowski)

Tel: + 49 (0) 37 31 / 38 05 0
 Fax: + 49 (0) 37 31 / 38 05 10

Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2020-09-01



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IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[13] **Schedule**

[14] **Certificate number IBExU16ATEX1005 | Issue 1**

[15] **Description of product**

The Cabinet Condition Monitoring (CCM) type IMX12 CCM serves for the control cabinet supervision for compliance with specified limit parameters. In over / underflow an error condition on the display / switching output or via the communication interface to the higher field level is delivered. The aim is to supply 20 mA loop powered up from the HART interface. All connections are intrinsically safe.

Technical Data

Ambient temperature range: from -25 °C to +60 °C

Electrical Data

Output circuit in type of protection intrinsic safety Ex ib IIC

Terminals 11,12 + 13,14	U_i	30 V DC
	I_i	85 mA
	P_i	253 mW
	R_i	35 Ω
effective internal capacitance	C_i	negligible
effective internal inductance	L_i	negligible

Supply circuit in type of protection intrinsic safety Ex ib IIC

Terminals 15,16	U_i	28 V DC
	I_i	98 mA
	P_i	700 mW
effective internal capacitance	C_i	28.2 nF
effective internal inductance	L_i	negligible

Terminals for optional sensors with max. 3 m cable length.

Signal circuit in type of protection intrinsic safety Ex ib IIC

Terminals 1,2 + 5...10	U_o	5.2 V DC
	I_o	98 mA
	P_o	510 mW
connectable capacitance	C_o	13.4 μ F (applies to the sum of all outputs used)
connectable inductance	L_o	0

Variations compared to EU-Type Examination Certificate:

Variation 1

The intrinsically safe values were changed. Use of alternative components.

Variation 2

The product meets the requirements of EN IEC 60079-0: 2018.

[16] **Test report**

The test results are recorded in the confidential test report IB-20-3-0060 of 2020-08-31. The test documents are part of the test report and they are listed there.

Summary of the test results

The Cabinet Condition Monitoring (CCM) type IMX12 CCM fulfils the requirements for type of protection intrinsic safety 'ib' on a device of the Equipment Group II and Category 2G, Explosion Group IIC and Temperature Class T4.

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[17] **Specific conditions of use**
none

[18] **Essential health and safety requirements**

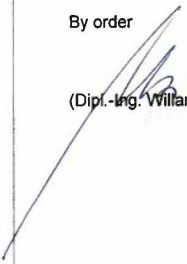
In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report: not applicable

[19] **Drawings and Documents**

The documents are listed in the test report.

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Fuchsmühlenweg 7
09599 Freiberg, GERMANY


By order



(Dipl.-Ing. Willamowski)

Freiberg, 2020-09-01

16.3.2 IECEx Certificate of Conformity

		<h2 style="margin: 0;">IECEx Certificate of Conformity</h2>	
<p>INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres <small>for rules and details of the IECEx Scheme visit www.iecex.com</small></p>			
Certificate No.:	IECEx IBE 16.0007	Page 1 of 4	Certificate history: Issue 0 (2016-04-28)
Status:	Current	Issue No: 1	
Date of Issue:	2020-09-02		
Applicant:	Hans Turck GmbH & Co.KG Witzlebenstr. 7 45472 Mülheim an der Ruhr Germany		
Equipment:	Cabinet Condition Monitoring (CCM)		
Optional accessory:	IMX12 CCM		
Type of Protection:	Intrinsic safety "i"		
Marking:	Ex ib op is IIC T4 Gb		
Approved for issue on behalf of the IECEx: Certification Body:		Kai Willamowski  Head of department Certification Body	
Position:			
Signature: (for printed version)			
Date:	09.09.2020		
1. This certificate and schedule may only be reproduced in full. 2. This certificate is not transferable and remains the property of the issuing body. 3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.			
Certificate issued by: IBEXU Institut für Sicherheitstechnik GmbH Fuchsmühlenweg 7 09599 Freiberg Germany			

		<h2>IECEX Certificate of Conformity</h2>
Certificate No.:	IECEX IBE 16.0007	Page 2 of 4
Date of issue:	2020-09-02	Issue No: 1
Manufacturer:	Hans Turck GmbH & Co.KG Witzlebenstr. 7 45472 Mülheim an der Ruhr Germany	
Additional manufacturing locations:		
<p>This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended</p>		
<p>STANDARDS : The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards</p>		
IEC 60079-0:2017	Explosive atmospheres - Part 0: Equipment - General requirements	
Edition:7.0		
IEC 60079-11:2011	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	
Edition:6.0		
IEC 60079-28:2015	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation	
Edition:2		
<p style="text-align: center;">This Certificate does not indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.</p>		
<p>TEST & ASSESSMENT REPORTS: A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:</p>		
Test Reports:		
DE/IBE/ExTR16.0006/00	DE/IBE/ExTR16.0006/01	
Quality Assessment Report:		
DE/PTB/QAR06.0013/05		



IECEX Certificate of Conformity

Certificate No.: **IECEX IBE 16.0007**

Date of issue: 2020-09-02

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The Cabinet Condition Monitoring (CCM) type IMX12 CCM serves for the control cabinet supervision for compliance with specified limit parameters. In over / underflow an error condition on the display / switching output or via the communication interface to the higher field level is delivered. The aim is to supply 20mA loop powered up from the HART interface. All connections are intrinsically safe.

Technical data

Ambient temperature range: -25 °C to +60 °C

Electrical data

Output circuit in type of protection intrinsic safety Ex ib IIC

Terminals 11,12 + 13,14		Ui	30 V DC
		li	85 mA
		Pi	253 mW
		Ri	35 Ω
effective internal capacitance		Ci	negligible
effective internal inductance		Li	negligible

Supply circuit in type of protection intrinsic safety Ex ib IIC

Terminals 15,16		Ui	28 V DC
		li	98 mA
		Pi	700 mW
effective internal capacitance		Ci	28.2 nF
effective internal inductance		Li	negligible

Terminals for optional sensors with max. 3 m cable length. Signal circuit in type of protection intrinsic safety Ex ib IIC

Terminals 1,2 + 5...10		Uo	5.2 V DC
		Io	98 mA
		Po	510 mW
connectable capacitance		Co	13.4 μF (applies to the sum of all outputs used)
connectable inductance		Lo	0

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Issue No: 1

SPECIFIC CONDITIONS OF USE: NO



IECEX Certificate of Conformity

Certificate No.: **IECEX IBE 16.0007**

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Date of issue: 2020-09-02

Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- The intrinsically safe values were changed. Use of alternative components.
- The product meets the requirements of IEC 60079-0, Edition 7

17 Turck Subsidiaries - Contact Information

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