



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx TUN 18.0027X**

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Certificate history:

Status: **Current**

Issue No: 2

[Issue 1 \(2019-12-17\)](#)

[Issue 0 \(2019-01-10\)](#)

Date of Issue: 2025-04-03

Applicant: **HB Products A/S**
Bøgekildevej 21
DK 8361 Hasselager
Denmark

Equipment: **Capacity liquid sensor type HBCS-EX01-X resp. HBCS-EX01-X-PT1000**

Optional accessory:

Type of Protection: **Intrinsic Safety "ia"**

Marking: **Ex ia IIC T6...T1 Ga**
See thermal data for details.

Approved for issue on behalf of the IECEx
Certification Body:

Christian Roder

Position:

Head of the IECEx Certification Body

Signature:
(for printed version)

Date:
(for printed version)

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2. This certificate is not transferable and remains the property of the issuing body.
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Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1, 30519 Hannover
Germany





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Date of issue: 2025-04-03

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Manufacturer: **HB Products A/S**
Bøgekildevej 21
DK 8361 Hasselager
Denmark

Manufacturing
locations:

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

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

[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

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DE/TUN/ExTR18.0037/01](#)

Quality Assessment Report:

[GB/ITS/QAR25.0001/00](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Subject and Type:

Capacity liquid sensor type HBCS-EX01-X resp. HBCS-EX01-X-PT1000

See attachment for details

Description:

The capacity liquid sensor type HBCS-EX01-X resp. HBCS-EX01-X-PT1000 is suited for use in areas requiring EPL Ga and designed for level measurement of refrigerants in refrigeration systems.

The electronic part HBCS-EX01 consists of an enclosure from plastic containing printed circuit boards, fitted with electronic components and embedded in casting compound according to type of protection intrinsic safety 'ia'

Electrical data:

Power supply and signal circuit (0...20 mA)

In type of protection intrinsic safety Ex ia IIC

(M12 Plug; PIN 1 and 4)

Only for connection to certified intrinsically safe circuits

Maximum values:

$U_i = 28 \text{ V}$

$I_i = 116 \text{ mA}$

$P_i = 585 \text{ mW}$

Effective internal capacitances $C_i = 20 \text{ nF}$

Effective internal inductances $L_i = 150 \text{ }\mu\text{H}$

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. By end-installation all metallic part have to be included in the local potential equalization.
2. The devices have to be installed and used in such a way that electrostatic charging from operation, maintenance or cleaning is excluded.
3. The capacity liquid sensor type HBCS-EX01-X resp. HBCS-EX01-X-PT1000 may be operated in hazardous areas in which equipment of EPL Ga is required only if atmospheric pressure exists (8 bar to 1.1 bar).
4. A reverse heat flow from the process exceeding the permissible ambient temperature of the electronic part HBCS-EX01 is not allowed and shall be avoided by a suitable thermal insulation or a suitable temperature decoupler.
5. The ambient temperature range depending on temperature class is to be taken from the operating instructions.



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Equipment (continued):

Thermal data:

For the capacity liquid sensor type HBCS-EX01-X-PT1000 the following values apply

Marking	Ambient temperature range on the electronic part HBCS-EX01	Temperature at the tip of PT1000 (measuring cable, rod)
Ex ia IIC T6 Ga	-40 °C...+50 °C	-60 °C...+70 °C
Ex ia IIC T5 Ga	-40 °C...+65 °C	-60 °C...+85 °C
Ex ia IIC T4 Ga	-40 °C...+70 °C	-60 °C...+90 °C
Ex ia IIC T3...T1 Ga	-40 °C...+70 °C	-60 °C...+90 °C

For the capacity liquid sensor type HBCS-EX01-X the following values apply

Marking	Ambient temperature range at the electronic part HBCS-EX01	Temperature on mechanical parts
Ex ia IIC T6 Ga	-40 °C...+50 °C	-60 °C...+80 °C
Ex ia IIC T5 Ga	-40 °C...+65 °C	-60 °C...+90 °C
Ex ia IIC T4 Ga	-40 °C...+70 °C	-60 °C...+90 °C
Ex ia IIC T3...T1 Ga	-40 °C...+70 °C	-60 °C...+90 °C



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 02:

Associated QAR updated. No other changes.

Annex:

[Attachment to IECEx TUN 18.0027X_01.pdf](#)

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Attachment to IECEx TUN 18.0027X_issue No.: 1

Product:

Subject and Type:

Capacity liquid sensor type

HBCS-EX01-X

HBX-01: Mechanical part B016-HBX_01 (HBx-co2-3_4-Komp-Mek-R1)
HBX-02: Mechanical part B017-HBX_02 (HBCP-MEK-SAM-R6)
HBX-03: Mechanical part B018-HBX_03 (HBDX-SAM-MEK1-1_2-R5)
HBX-04: Mechanical part B031-HBX_04 (DN65-Komp-R1)
HBLT-01: Mechanical part B019-BLT_01 (HBSC2-SAM-MEKM5-R7)
HBLT-02: Mechanical part B020-BLT_02 (HBAC-SAM-MEK-R2)
HBLT-03: Mechanical part B021-BLT_03 (HBLC-W-SAM-MEK-R10)
HBLT-04: Mechanical part B022-BLT_04 (HBLT-A1-MEK-SAM-R2)
HBLT-05: Mechanical part B023-BLT_05 (HBLC-Fgas-SAM-MEK-R1)
HBLT-06: Mechanical part B029-BLT_06 (HBLC-CO2-10-Split-MEK-R1)
HBLS-01: Mechanical part B024-BLS_01 (HBLC-R-IP-SAM-MEK-R4)
HBLS-02: Mechanical part B025-BLS_02 (HBLC-OIL-SAM-MEK-R1)
HBLS-03: Mechanical part B026-BLS_03 (HBSO1-HBOC-SAM-MEK-ENG-R2)
HBLS-04: Mechanical part B027-BLS_04 (HBSO1-HT-SAM-MEK-R1)
HBLS-05: Mechanical part B028-BLS_05 (HBSO-SF-SAM-MEK-R5)
HBLS-06: Mechanical part B032-BLS_06 (HBSR-SAM_MEK_ENG-R2)
HBLS-07: Mechanical part B033-BLS_07 (HBLS-KOMP-R2)

Electronic part **without** PT1000

HBCS-EX01-X-PT1000

Mechanical part B030-HBX_01 (PT1000)
HBX-01: Mechanical part B016-HBX_01 (HBx-co2-3_4-Komp-Mek-R1)
HBX-02: Mechanical part B017-HBX_02 (HBCP-MEK-SAM-R6)
HBX-03: Mechanical part B018-HBX_03 (HBDX-SAM-MEK1-1_2-R5)
HBX-04: Mechanical part B031-HBX_04 (DN65-Komp-R1)
HBLT-01: Mechanical part B019-BLT_01 (HBSC2-SAM-MEKM5-R7)
HBLT-02: Mechanical part B020-BLT_02 (HBAC-SAM-MEK-R2)
HBLT-03: Mechanical part B021-BLT_03 (HBLC-W-SAM-MEK-R10)
HBLT-04: Mechanical part B022-BLT_04 (HBLT-A1-MEK-SAM-R2)
HBLT-05: Mechanical part B023-BLT_05 (HBLC-Fgas-SAM-MEK-R1)
HBLT-06: Mechanical part B029-BLT_06 (HBLC-CO2-10-Split-MEK-R1)
HBLS-01: Mechanical part B024-BLS_01 (HBLC-R-IP-SAM-MEK-R4)
HBLS-02: Mechanical part B025-BLS_02 (HBLC-OIL-SAM-MEK-R1)
HBLS-03: Mechanical part B026-BLS_03 (HBSO1-HBOC-SAM-MEK-ENG-R2)
HBLS-04: Mechanical part B027-BLS_04 (HBSO1-HT-SAM-MEK-R1)
HBLS-05: Mechanical part B028-BLS_05 (HBSO-SF-SAM-MEK-R5)
HBLS-06: Mechanical part B032-BLS_06 (HBSR-SAM_MEK_ENG-R2)
HBLS-07: Mechanical part B033-BLS_07 (HBLS-KOMP-R2)

Electronic part **with** PT1000

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Description:

The capacity liquid sensor type HBCS-EX01-X resp. HBCS-EX01-X-PT1000 is suited for use in areas requiring EPL Ga and designed for level measurement of refrigerants in refrigeration systems.

The electronic part HBCS-EX01 consists of an enclosure from plastic containing printed circuit boards, fitted with electronic components and embedded in casting compound according to type of protection intrinsic safety 'ia'

Details of change:

Extension of the use of the capacity liquid sensor type HBCS-EX01-X resp. HBCS-EX01-X-PT1000 to areas that require EPL Ga

Electrical data:

Power supply and signal circuit (0...20 mA) In type of protection intrinsic safety Ex ia IIC
(M12 Plug; PIN 1 and 4) Only for connection to certified intrinsically safe circuit
Maximum values:

$U_i = 28 \text{ V}$
 $I_i = 116 \text{ mA}$
 $P_i = 585 \text{ mW}$
Effective internal capacitances $C_i = 20 \text{ nF}$
Effective internal inductances $L_i = 150 \text{ }\mu\text{H}$

Thermal data:

For the capacity liquid sensor type HBCS-EX01-X-PT1000 the following values apply:

Marking	Ambient temperature range on the electronic part HBCS-EX01	Temperature at the tip of PT1000 (measuring cable, rod)
Ex ia IIC T6 Ga	-40 °C...+50 °C	-60 °C...+70 °C
Ex ia IIC T5 Ga	-40 °C...+65 °C	-60 °C...+85 °C
Ex ia IIC T4 Ga	-40 °C...+70 °C	-60 °C...+90 °C
Ex ia IIC T3...T1 Ga	-40 °C...+70 °C	-60 °C...+90 °C

For the capacity liquid sensor type HBCS-EX01-X the following values apply:

Marking	Ambient temperature range at the electronic part HBCS-EX01	Temperature on mechanical parts
Ex ia IIC T6 Ga	-40 °C...+50 °C	-60 °C...+80 °C
Ex ia IIC T5 Ga	-40 °C...+65 °C	-60 °C...+90 °C
Ex ia IIC T4 Ga	-40 °C...+70 °C	-60 °C...+90 °C
Ex ia IIC T3...T1 Ga	-40 °C...+70 °C	-60 °C...+90 °C

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Attachment to IECEx TUN 18.0027X_issue No.: 1

Special Conditions for Safe Use:

1. By end-installation all metallic part have to be included in the local potential equalization.
2. The devices have to be installed and used in such a way that electrostatic charging from operation, maintenance or cleaning is excluded.
3. The capacity liquid sensor type HBCS-EX01-X resp. HBCS-EX01-X-PT1000 may be operated in hazardous areas in which equipment of EPL Ga is required only if atmospheric pressure exists (0.8 bar to 1.1 bar).
4. A reverse heat flow from the process exceeding the permissible ambient temperature of the electronic part HBCS-EX01 is not allowed and shall be avoided by a suitable thermal insulation or a suitable temperature decoupler.
5. The ambient temperature range depending on temperature class is to be taken from the operating instructions.