



EU-TYPE EXAMINATION CERTIFICATE

Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

Certificate Number: **CSANe 22ATEX1006X** Issue: **1**

Equipment: **5674-100 Channel Card (Ex i)**

Applicant: **BARTEC Benke GmbH**

Address: **Borsigstr. 10
D-21465 Reinbek
Germany**

This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-28:2015

If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

The marking of the equipment shall include the following:



II (1)G

[Ex ia op is IIC Ga]

Ta = -20°C ≤ Tamb ≤ +70°C

Signed:

Michelle Halliwell

Title: Senior Director of Operations



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SCHEDULE

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13 DESCRIPTION OF EQUIPMENT

The 5674-100 Channel Card (Ex i) will be used in the HYGROPHIL F 5674 Moisture Analyzer as an Analog to Digital converter. The Moisture Analyzer is intended for measuring the humidity of gases in pipes, vessels or tanks with the associated humidity sensor. A maximum of three sensors can be connected to the Moisture Analyzer, three Channel Card are required for this.

The Channel Card transforms the Ex i-signals of the temperature and pressure (PT100 and 0/4... 20mA) from a Moisture Sensor to a digital signal. This signal is transmitted to the HYGROPHIL F 5674 Moisture Analyzer via an I²C interface.

The humidity is measured optically with the sensor. A fiber optic cable supplies the sensor with intrinsically safe light. The LED for the light supply of the sensor is also installed on the card.

The channel card has the following connections:

- Digital data bus with 24V DC supply
- intrinsically safe connector for PT100
- intrinsically safe connector for 4-20 mA (active or passive input)
- intrinsically safe fiber optic cable connector

Safety-related maximum voltage: 28V.

| Detail | | | |
|--------------------------|--|--------|--|
| Ex ia Entity Parameters: | U _m = 28V | | |
| | Electrical data | | |
| | Auxiliary power | | DC 24 V ± 10 %, max. 150 mA, fuse 500 mA |
| | Data connection voltage (COM) | | DC 3.3 V, fuse 63 mA |
| | Safety data – Port "RTD" (PT100 input) [Ex ia IIC Ga] | | |
| | Terminals | | 4 (I+), 3 (IN+), 2 (IN-), 1 (GND) |
| | Max. voltage U _o | | 6.7V |
| | Max. current I _o | | 30mA |
| | Max. power P _o | | 50mW |
| | Max. resistance R | | 230Ω |
| | Internal capacitance C _i | | 2.5μF |
| | Internal inductance L _i | | 0.3mH |
| | Max. connectable capacitance C _o | | 15.4μF |
| | Max. connectable inductance L _o | | 38 mH |
| | if capacitance and inductance are present at the same time: | | |
| | C _o | 0.3μF | 0.2μF |
| | L _o | 0.01mH | 0.1mH |

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| Safety data – Port "0-20mA" (Analog Input) [Ex ia IIC Ga] | |
|--|---------------------------------------|
| Case: Passive 0..20mA sensor connected | |
| Terminals | 4 (+24V), 2 (IN+), 1 (IN-) |
| Max. voltage U_o | 28V |
| Max. current I_o | 93mA |
| Max. power P_o | 0.65W |
| Max. resistance R | 300 Ω |
| Internal capacitance C_i | negligible small (between I.S. wires) |
| Internal inductance L_i | negligible small |
| Max. connectable capacitance C_o | 83 nF |
| Max. connectable inductance L_o | 3 mH |
| if capacitance and inductance are present at the same time: | |
| Max. connectable capacitance C_o | 83nF |
| Max. connectable inductance L_o | 0.2mH |
| Case: Active 0..20mA sensor connected (external I.S. circuit) | |
| Terminals | 2 (IN+), 1 (IN-) |
| Max voltage U_o | 28 V |
| Max current I_o | 0 mA |
| External I.S. voltage U_i | 30 V |
| External I.S. current I_i | 120mA |
| External I.S. capacitance C_i | 0nF |
| External I.S. inductance L_i | 0 μ H |

Variation 1 – The following changes were introduced:

- Addition of the capacitors C64, C65, C70, C71, C72 and C73.
- Reducing the maximum voltage U_m .
- Minor change to the nameplate drawing.
- Changed the voltage/time from 2.5kV@60s to 1.5kV@60s or 1.8kV@1s for the routine test of the transformers TR1 and TR2.
- Changes on critical components:
 - Added package limits to the diodes D10 to D15, D29 and D30.
 - Changing the diodes D18, D19 and D20 from type BAS86 to LL4150 (both manufacturer Vishay) and recalculation of the limiting parameters.
 - Decrease of the nominal current of the fuses F4, F5 and F13 to 40 mA and recalculation of the limiting parameters of the diodes D10 to D15, D29 and D30.
- Changing non-critical components and corrections to previously noted errors and inaccuracies

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

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Issue 1

14.2 Associated Reports and Certificate History

| Issue | Date | Report number | Comment |
|-------|---------------|---------------|---------------------------------------|
| 0 | 21 March 2022 | R80088682A | The release of the prime certificate. |
| 1 | 11 June 2025 | R80241391A | The introduction of Variation 1 |

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

- 15.1 Equipment is intended to be permanently installed in a non-hazardous area only within a Hy-F 5674 enclosure.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 CONDITIONS OF MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. certificates.
- 17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.
- 17.3 Intrinsic safe relevant transformers shall withstand for one min without breakdown, the application of an ac potential of 1500Vrms between primary and secondary circuits in accordance with IEC 60079-11:2011, 6th Edition, clause 11.2, Table 10. Alternatively, a voltage of 1800 Vrms can be applied for 1 sec. as described in clause 11.2.

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Certificate Annexe



Certificate Number: CSANe 22ATEX1006X
Equipment: 5674-100 Channel Card (Ex i)
Applicant: BARTEC Benke GmbH

Issue 0

| Drawing | Sheets | Rev. | Date (Stamp) | Title |
|-----------------|---------|------|--------------|---|
| 449469 | 1 to 8 | | 15 Feb 22 | D-01 Circuit diagram Channel Card 5674-100 |
| 449469 | 1 to 1 | A | 15 Feb 22 | P-01 Part list Channel Card 5674-100 |
| 5674-100 | 1 to 7 | A | 15 Feb 22 | L-01 PCB Layout Channel Card 5674-100 |
| Hy-F 5674-100EN | 1 to 26 | 2.0 | 17 Feb 22 | Manual - Hy-F 5674-100 Channel Card (Ex i) |
| HY0001AES01 | 1 to 1 | - | 17 Feb 22 | Nameplate Channel Card (Ex-i) Type 5674-100 |

Issue 1

| Drawing | Sheets | Rev. | Date (Stamp) | Title |
|-------------------------|---------|------|--------------|---|
| 449469 | 1 to 8 | A | 21 May 25 | D-01 Circuit diagram Channel Card 5674-100 |
| 449469 | 1 of 1 | A | 28 Apr 25 | P-01 Part list Channel Card 5674-100 |
| 5674-100 | 1 to 7 | A | 21 May 25 | L-01 PCB Layout Channel Card 5674-100 |
| 468876MDHEN 5674-100 | 1 to 31 | V5.0 | 28 Apr 25 | Safety and Installation – HYGROPHIL F 5674-100 Channel Card (Ex i) |
| HY0001AES01A | 1 of 1 | -- | 28 Apr 25 | L-04 Nameplate Channel Card (Ex i) Type 5674-100 |

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