[1] UNITED KINGDOM CONFORMITY ASSESSMENT

UK TYPE EXAMINATION CERTIFICATE

[2] Component Intended for use on/in a Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

[3] UK Type Examination Certificate Number: **DNV 22 UKEX 68889U** **Issue 0**

[4] Component: **Resistance Temperature Detector for Stator Windings & Bearing**

[5] Manufacturer: **Techno Controls**

[6] Address: **54/1, Meladi Estate Gota Railway Crossing, Gota Ahmedabad – 382481, Gujarat, India**

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

[8] DNV Business Assurance UK Ltd, Approved Body number 8501 in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

The examination and test results are recorded in confidential reports listed in item 16.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: **EN IEC 60079-0:2018, EN IEC 60079-7:2015/A1:2018 & EN 60079-11:2012**

Except in respect of those requirements listed at section 18 of the schedule to this certificate.

[10] The sign “U” is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as the basis for certification of an equipment or protective system. “Schedule of limitations” is listed under item 17 of this certificate.

[11] This UK TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified component. Further requirements of the Regulations apply to the manufacturing process and supply of this component. These are not covered by this certificate.

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

II 2 G Ex eb IIC Gb
II 1 G Ex ia IIC Ga

Date of issue:
2022-11-03

UKAS PRODUCT CERTIFICATION
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Asle Kaastad
For DNV Business Assurance UK Ltd
The Certificate has been digitally signed.
See www.dnv.com/digitalsignatures for info

[13] **Schedule**

[14] **Type Examination Certificate No:** DNV 22 UKEX 68889U Issue 0

[15] **Description of Component**

Stator Winding Temperature Detectors: TSRA, TSRB, TSRC, TSRD, TSRK / TSRB -ET, TSRC-ET, TSRD -ET
Stator Winding Temperature Detectors - are used to measure winding temperature of motors/generators. The sensors are sandwiched between the windings of motors/generators. Unlike on-off device, it allows continues measurement of temperature. Sensing Portion extends throughout the body and average temperature is measured. Thermal and high dielectric strength is basic requirement of this product. This component is a passive device and do not generate any heat out due to the very low energy levels. These RTD's are categorised as a component, hence only required clauses has been addressed. The type of protection is by method 'e'.

Bearing Temperature Detectors:
TBTD-H, TBTD-I, TBTD-J, TBTD-K, TBTD-L, TBTD-N, TBTD-O, TBTD-Q, TBTD-U
TBTD-HET, TBTD-IET, TBTD-JET, TBTD-KET, TBTD-LET, TBTD-NET, TBTD-OET, TBTD-QET, TBTD-UET:
Bearing temperature detectors are used to measure the bearing temperature, through the measuring slot provided for the sensors.

Type designation

Stator Winding Temperature Detectors
TSRA, TSRB, TSRC, TSRD, TSRK
TSRB-ET, TSRC-ET, TSRD-ET

Bearing Temperature Detectors
TBTD-H, TBTD-I, TBTD-J, TBTD-K, TBTD-L, TBTD-N, TBTD-O, TBTD-Q, TBTD-U
TBTD-HET, TBTD-IET, TBTD-JET, TBTD-KET, TBTD-LET, TBTD-NET, TBTD-OET, TBTD-QET, TBTD-UET

Electrical Data

For Ex e applications:
1.6V- AC/DC, 10mA- AC/DC 16mW
Ex ia applications: (TBTD-Q , TBTD-K, TBTD-L, TBTD-O , TBTD-U& TBTD-QET , TBTD-KET, TBTD-LET, TBTD-OET, TBTD-UET,
TSRB, TSRC, TSRD, TSRK / TSRB-ET, TSRC-ET, TSRD-ET, TSRK-ET
Ui=12V, Ii=35mA, Pi=105mW Ci=5.9nF , Li=2.5mH

For TBTD-*:
Temperature measuring range/Service temperature: -50°C to +180°C

-ET version:
Temperature measuring range/Service temperature: -40°C to +180°C

For TSR*:
Temperature measuring range/Service temperature: -50°C to +180°C

-ET version: -40°C to +180°C

Degrees of protection (IP Code)
Not Applicable

Routine tests

Dielectric strength test according to clause 6.1 EN IEC 60079-7,
Stator winding temperature detectors:

- For TSRA - 3 KV/50-60Hz for 1 minute
- For TSRB/-ET - 3 KV/50-60Hz for 1 minute
- For TSRC/-ET - 5 KV/50-60Hz for 1 minute
- For TSRD /-ET - 3 KV/50-60Hz for 1 minute
- For TSRK - 5 KV/50-60Hz for 1 minute

Bearing temperature detectors:
TBTD-H, TBTD-I, TBTD-J, TBTD-K, TBTD-L, TBTD-N, TBTD-O, TBTD-Q, TBTD-U
TBTD-H-ET, TBTD-I-ET, TBTD-J-ET, TBTD-K-ET, TBTD-L-ET, TBTD-N-ET, TBTD-O-ET, TBTD-Q-ET, TBTD-U-ET - 1500 VAC for 1 minute.

[16] **Report No**.: PRJN-448081
Project No.: 2022-9712

[17] **Schedule of Limitations**

- For Ex eb, The terminations need to protected by suitable protection method according EN IEC 60079-0: 2018
- The electrical connection should be connected to approved unit according to application or to terminal box according to requirements at the connecting site. The sensors can only be connected to measuring equipment prepared for PT100/PT1000 sensors.
- For TBTD-*:
  - Service Temperature range on the termination part: -50°C to +100°C
  - -ET version:
    - Service Temperature range on the termination part: -40°C to +100°C
- The high voltage test needs to be performed when completely assembled with the final assembly.
- TSR-* series only: where the insulated wiring has no overall sheath, the conductor insulation has a minimum thickness of only 0.09 mm (code Z) or 0.12 mm (codes Q, R, W, X, Y), so precautions shall be taken to prevent contact with other current-carrying conductors, for example by the use of additional insulation or routing away from other conductors
- Bearing temperature detector when used in the final application, proper protection shall be provided to the cable and cable gland shall be provided for the cable assembly.

[18] **Essential Health and Safety Requirements (Regulations Schedule 1)**

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

[19] **Drawings and documents**

Number	Title	Rev.	Date
UKEX31082022	List of Technical Documents for UKEX	01	2022-10-08

[20] **Certificate History**

Issue	Description	Issue date	Report no.
0	Original issue	2022-11-03	2022-9712

END OF CERTIFICATE