




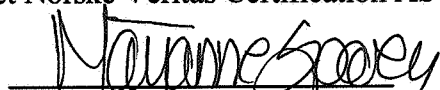
# DET NORSKE VERITAS

## EC-TYPE EXAMINATION CERTIFICATE

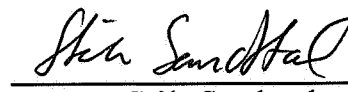
- [2] **COMPONENT INTENDED FOR USE IN EQUIPMENT OR PROTECTED SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC**
- [3] EC-Type Examination Certificate Number: **DNV-2008-OSL-ATEX-40059U**
- [4] Component: **Stator Winding Temperature Detectors**
- [5] Applicant – Manufacturer or Authorized representative: **Techno Controls**
- [6] Address: **54/1, Meladi Estate, Near 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, notified body number 0575 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this component has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The examination and test results are recorded in confidential report no.: **2008-3507**
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN 60079-0: 2006 and EN 60079-7:2007**
- [10] The sign 'U' placed after the certificate number 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 a basis for certification of an equipment or protective system.
- [11] This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified component. If applicable, further requirements of this Directive apply to the manufacturer and supply of this component.
- [12] The marking of the equipment or protective system shall include the following:

 II 2 G Ex e II

Høvik, 2008-11-12  
for Det Norske Veritas Certification AS

  
Marianne Spæreh  
Certification Manager



  
Ståle Sandstad  
Technical Reviewer

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



[13]

**Schedule**

[14] **EC-TYPE EXAMINATION CERTIFICATE No.:** DNV-2008-OSL-ATEX-40059U

**Certificate History**

Revision	Description	Issue date
	Original certificate	2008-11-12

[15] **Description of component**

Stator Winding Temperature Detectors/ Resistance Temperature Detector (RTD) – slot type: Slot type RTD's are used to measure winding temperature of Motors/Generators. Basically, these sensors are sandwiched between the windings of motor/generators. Unlike on-off device, it allows continuous measurement of temperature. Normally, these kinds of RTDs are wire wound. Sensing portion extends throughout the body and average temperature is measured. They are generally flat type in construction and are available in various sizes. 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. The device is categorised as a component, hence only required clauses has been addressed. The type of protection is by method "e". The Operating temperature range:-30 degC to +180 °C

**Type Identification**

Resistance Temperature Detector (RTD) – Slot type  
 TSRA-Series (TSRA-ACC-L-T-W-NW-CL-WG-CC)  
 TSRB-series(TSRB-ACC-L-T-W-NW-CL-WG-CC)  
 TSRC-Series(TSRC-ACC-L-T-W-NW-CL-WG-CC)  
 TSRD-Series(TSRD-ACC-L-T-W-NW-CL-WG-CC)

TSR*	ACC	L	T	W	NW	CL	WG	CC	
									Cable Construction
									Wire Gauge AWG 22 - 28
									Lead length in mm
									No. Of wires (2, 3 or 4)
									Width in mm
									Thickness in mm
									Length in mm
									Accuracy of RTD element (A/B/2B)
									Type designation (A/B/C/D)

**Electrical Data**

Power: < 1.5W  
 Measuring current: < 10 mA(AC/DC)  
 Voltage Input < 10 V(AC/DC)  
 Test voltage dielectric strength test: 3 KV/50Hz, 1–5 seconds, for TSRA series  
 3 KV/50Hz, 1 minute, TSRB and TSRD series  
 5 KV /50Hz, 1minute TSRC series

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**Routine Tests**

Each RTD Shall be tested with the following:

Test voltage dielectric strength test: 3 KV/50Hz, 1–5 seconds and 1500V/50Hz for 1 minute. for TSRA series 3000V/50Hz, 1 minute, TSRB and TSRD series 5000V /50Hz, 1minute TSRC series

After assembly in the motor windings the Sensor shall satisfy the high voltage test relevant to the final assembly.

- [16] **Report No.:** 2008-3507  
**Project No.:** PRJC-56702-2008-PRC-IND

**Descriptive Documents**

Number	Title	Rev.	Date
Ex-110620078/R	Stator winding temperature Detector, Model ; TSRA	01	11/06/2007
Ex-110620078/S	Stator winding temperature Detector, Model ; TSRA	01	11/06/2007
Ex-110620079/S	Stator winding temperature Detector, Model ; TSRB	01	11/06/2007
Ex-110620079/R	Stator winding temperature Detector, Model ; TSRB	01	11/06/2007
Ex-110620080/R	Stator winding temperature Detector, Model ; TSRC	01	11/06/2007
Ex-110620080/S	Stator winding temperature Detector, Model ; TSRC	01	11/06/2007
Ex-110620081/S	Stator winding temperature Detector, Model ; TSRD	01	11/06/2007
Ex-110620081/R	Stator winding temperature Detector, Model ; TSRD	01	11/06/2007

- [17] **Schedule of Limitations**

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- [18] **Essential Health and Safety Requirements**  
See part 9 of this certificate

END OF CERTIFICATE