


EU-TYPE EXAMINATION CERTIFICATE

- [2] COMPONENT INTENDED FOR USE ON/IN AN EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 2014/34/EU
- [3] EU-Type Examination Certificate Number: **Presafe 20 ATEX 56561U** **Issue 0**
- [4] Product: **Overhang Type Sensor (Simplex/Duplex)**
- [5] Manufacturer: **Raviraj Process Controls**
- [6] Address: **RAVIRAJ HOUSE, Plot No. A-677, Khairne MIDC, Koparkhairne, Navi Mumbai – 400 709, India**
- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] DNV GL Presafe AS, notified body number 2460, 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 confidential reports listed in section 16.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN IEC 60079-0:2018, EN 60079-7: 2015, EN 60079-11: 2012
- [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 a basis for certification of an equipment or protective system
- [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:

 **II 2 GD Ex eb IIC Gb, Ex ia IIC Gb, Ex ia IIIC Db**

Date of issue:
2020-09-03



Bjørn Spongsveen
For DNV GL Presafe AS
The Certificate has been digitally signed.
See www.dnvgl.com/digitalsignatures for info



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DNV GL Presafe AS, Veritasveien 3, 1363 Høvik, Norway, Tel +47 67 57 88 00, www.dnvgl.com

[13]

Schedule[14] **EU-Type Examination Certificate No:**

Presafe 20 ATEX 56561U

Issue 0

[15] **Description of Product**

Overhang Type Sensor, Model: ROHCT1, ROHCT2, ROHCT3 and ROHCT4 are used to measure winding temperature of the motor/generator. The sensor is sandwich between the winding coils of motor/generator to continues measurement of the temperature.

The chip type elements are used in the sensors. The connecting cables are connected to the sensors by mean of brazing/soldering/welding and terminals are insulated by PTFE heat shrink sleeve and resin. The elements are overall insulated with PTFE heat shrink sleeve. The diameter of the bulb varies from 2.5 mm to 6mm depend on application.

Based on the element (chip) type used ROHC sensors have four variants.

1. ROHCT1: Platinum (Pt) chip. Available in either Simplex or Duplex type with 2,3 or 4 wire circuit.
2. ROHCT2: Nickel (Ni) chip. Available in either Simplex or Duplex type with 2,3 or 4 wire circuit.
3. ROHCT3: PTC chip. Available in either Simplex or Triple type with 2 wire circuit.
4. ROHCT4: Thermocouple. Available in either Simplex or Duplex type with 2 wire circuit.

Electrical Data:**For Type of protection Ex eb:**

ROHCT1

RTD Pt-100 and Pt-1000

The electrical rating is maximum 10 V d.c., 25 mA d.c. and 25 mW.

ROHCT2

RTD Ni-120

The electrical rating is maximum 10 V d.c., 25 mA d.c. and 25 mW.

ROHCT3

Thermistor PTC

The electrical rating is maximum 10 V d.c., 2 mA d.c. and 4.7 mW

ROHCT4

Thermocouple

The electrical rating is maximum 1.5 V d.c., 100 mA d.c. and 25 mW

For Type of protection Ex ia

ROHCT1

RTD Pt-100 and Pt-1000

Ui: 10 V, Ii: 25 mA, Pi: 25 mW

Ci: Only Cable capacitance, Li: Only Cable Inductance

ROHCT2

RTD Ni-120

Ui: 10 V Ii: 25 mA, Pi: 25 mW

Ci: Only Cable capacitance, Li: Only Cable Inductance

ROHCT3

Thermistor PTC

Ui: 10 V, Ii: 2 mA, Pi: 4.7 mW

Ci: Only Cable capacitance, Li: Only Cable Inductance

ROHCT4
 Thermocouple
 Ui: 1.5 V, Ii: 100 mA, Pi: 25 mW
 Ci: Only Cable capacitance, Li: Only Cable Inductance

Degrees of protection (IP Code)

N/ A

Temperature range:

-30°C to +180°C

Routine tests

Manufacturer shall carry out the dielectric strength test at 2500 Vac for duration of 60 seconds. No electrical breakdown shall occur.

Type designation

ROHCT 1, ROHCT 2, ROHCT3 and ROHCT 4

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|----|---|--|--|--|--|--|--|--|--|--|--|
| Model | X | T | Y | N | S | J | L | D | G | CC | LL | | | | | | | | | | |
| | | | | | | | | | | | 100 to 20000 | | | | | | | | | | |
| | | | | | | | | | | | Cable Type | | | | | | | | | | |
| | | | | | | | | | | | C1 - PTFE single/Twisted leads | | | | | | | | | | |
| | | | | | | | | | | | C2 - PTFE flat leads with jacket leads | | | | | | | | | | |
| | | | | | | | | | | | C3 - PTFE Twisted Leads with PTFE jacketed | | | | | | | | | | |
| | | | | | | | | | | | C4 - PTFE twisted Leads with PTFE /Shielded/ PTFE | | | | | | | | | | |
| | | | | | | | | | | | Cable Size : 20 / 22 / 24 / 26 | | | | | | | | | | |
| | | | | | | | | | | | Diameter | | | | | | | | | | |
| | | | | | | | | | | | Simplex - 2.5 to 6 | | | | | | | | | | |
| Duplex - 3.5 to 8 | | | | | | | | | | | | | | | | | | | | | |
| Triple - 2.5 to 5 (only for PTC thermistor) | | | | | | | | | | | | | | | | | | | | | |
| ROHCT1,2,4 : 30 to 50 | | | | | | | | | | | | | | | | | | | | | |
| ROHCT3 : 15 to 50 | | | | | | | | | | | | | | | | | | | | | |
| : PTFE Heat Shrink | | | | | | | | | | | | | | | | | | | | | |
| Sheath Material : M - Heat Shrink | | | | | | | | | | | | | | | | | | | | | |
| F - PTFE Rigid | | | | | | | | | | | | | | | | | | | | | |
| No of wires | | | | | | | | | | | | | | | | | | | | | |
| Platinum | | | | | | | | | | | | | | | | | | | | | |
| Nickel | | | | | | | | | | | | | | | | | | | | | |
| PTC | | | | | | | | | | | | | | | | | | | | | |
| TC | | | | | | | | | | | | | | | | | | | | | |
| Simplex | | | | | | | | | | | | | | | | | | | | | |
| 2/3/4 | | | | | | | | | | | | | | | | | | | | | |
| 2/3/4 | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| Triple | | | | | | | | | | | | | | | | | | | | | |
| -- | | | | | | | | | | | | | | | | | | | | | |
| -- | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | |
| Accuracy | | | | | | | | | | | | | | | | | | | | | |
| Platinum | | | | | | | | | | | | | | | | | | | | | |
| Nickel | | | | | | | | | | | | | | | | | | | | | |
| PTC | | | | | | | | | | | | | | | | | | | | | |
| TC | | | | | | | | | | | | | | | | | | | | | |
| Class A | | | | | | | | | | | | | | | | | | | | | |
| -- | | | | | | | | | | | | | | | | | | | | | |
| -- | | | | | | | | | | | | | | | | | | | | | |
| Class 1 | | | | | | | | | | | | | | | | | | | | | |
| Class B | | | | | | | | | | | | | | | | | | | | | |
| -- | | | | | | | | | | | | | | | | | | | | | |
| -- | | | | | | | | | | | | | | | | | | | | | |
| Class 2 | | | | | | | | | | | | | | | | | | | | | |
| Type | | | | | | | | | | | | | | | | | | | | | |
| Platinum | | | | | | | | | | | | | | | | | | | | | |
| Nickel | | | | | | | | | | | | | | | | | | | | | |
| PTC | | | | | | | | | | | | | | | | | | | | | |
| TC | | | | | | | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | | | | | | | |
| Simplex | | | | | | | | | | | | | | | | | | | | | |
| Simplex | | | | | | | | | | | | | | | | | | | | | |
| Single | | | | | | | | | | | | | | | | | | | | | |
| Simplex | | | | | | | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | | | | | | | |
| Duplex | | | | | | | | | | | | | | | | | | | | | |
| Duplex | | | | | | | | | | | | | | | | | | | | | |
| Triple | | | | | | | | | | | | | | | | | | | | | |
| Duplex | | | | | | | | | | | | | | | | | | | | | |
| Element type (Model No) | | | | | | | | | | | | | | | | | | | | | |
| Platinum | | | | | | | | | | | | | | | | | | | | | |
| Nickel | | | | | | | | | | | | | | | | | | | | | |
| PTC | | | | | | | | | | | | | | | | | | | | | |
| TC | | | | | | | | | | | | | | | | | | | | | |
| Pt100 | | | | | | | | | | | | | | | | | | | | | |
| Ni120 | | | | | | | | | | | | | | | | | | | | | |
| PTC80 | | | | | | | | | | | | | | | | | | | | | |
| TC J | | | | | | | | | | | | | | | | | | | | | |
| Pt1000 | | | | | | | | | | | | | | | | | | | | | |
| -- | | | | | | | | | | | | | | | | | | | | | |
| PTC100 | | | | | | | | | | | | | | | | | | | | | |
| TC K | | | | | | | | | | | | | | | | | | | | | |
| -- | | | | | | | | | | | | | | | | | | | | | |
| PTC110 | | | | | | | | | | | | | | | | | | | | | |
| TC T | | | | | | | | | | | | | | | | | | | | | |
| -- | | | | | | | | | | | | | | | | | | | | | |
| PTC120 | | | | | | | | | | | | | | | | | | | | | |
| TC E | | | | | | | | | | | | | | | | | | | | | |

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| | | | | |
|------------|--------|--------------|--------|------|
| | -- | -- | PTC130 | TC N |
| | -- | -- | PTC140 | -- |
| | -- | -- | PTC145 | -- |
| | -- | -- | PTC150 | -- |
| | -- | -- | PTC155 | -- |
| | -- | -- | PTC160 | -- |
| | -- | -- | PTC170 | -- |
| | -- | -- | PTC180 | -- |
| Model No.: | ROHCT1 | Platinum | | |
| | ROHCT2 | Nickel | | |
| | ROHCT3 | PTC | | |
| | ROHCT4 | Thermocouple | | |

[16] **Report No.:** 2020-9344
Project No.: PRJC-579708-2018-PRC-IND

[17] **Schedule of Limitations**

- The mounting of the Overhang Type Sensor has to be assessed in the context of the certification of the equipment.
- The Overhang Type Sensor has to be installed protected against mechanical load, Sharp bending as well as mechanical stress.
- The flying lead of the Overhang Type Sensor shall be connected to appropriate Ex certified terminal box as a fixed installation.
- Overhang Type Sensor shall be impregnated or sealed with the winding by the motor/generator manufacturer.
- The dielectric strength test with the motor winding according to IEC 60079-7 has to be carried out by the motor/generator manufacturer.
- The Overhang type sensor shall be installed in appropriately certified Ex eb / Ex ec /Ex nA / Ex db certified Ex motor/generator enclosure.
- The Slot ship type sensor shall be connected through appropriately certified Ex ia barrier as per IEC 60079-11

[18] **Essential Health and Safety Requirements**

Essential Health and Safety Requirements (EHSRs) are covered by the standards listed at item 9

[19] **Drawings and documents**

| Number | Title | Rev. | Date |
|-----------------|--|------|------------|
| RPC-GA-ATEX-004 | Technical Drawings of Overhang Type Sensor (2 Sheets) | 00 | 30.10.2018 |

[20] **Certificate History**

| Issue | Description | Issue date | Report no. |
|-------|----------------|------------|------------|
| 0 | Original issue | 2020-09-03 | 2020-9344 |

END OF CERTIFICATE