



# 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](http://www.iecex.com)

### Ex COMPONENT CERTIFICATE

Certificate No.: **IECEX PRE 20.0024U** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2020-09-03

Applicant: **Raviraj Process Controls**  
RAVIRAJ HOUSE,  
Plot No. A-677, Khairne MIDC,  
Koparkhairne,  
Navi Mumbai 400 709  
**India**

Ex Component: Overhang Type Sensor (Simplex/Duplex)

*This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 60079-0).*

Type of Protection: **Ex eb, Ex ia**

Marking: **Ex eb IIC Gb, Ex ia IIC Gb, Ex ia IIIC Db**  
Operating temperature range: -30 °C to +180 °C

Approved for issue on behalf of the IECEx  
Certification Body:

**Bjørn Spongsveen**

Position:

**Certification Manager**

Signature:  
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting [www.iecex.com](http://www.iecex.com) or use of this QR Code.



Certificate issued by:

**DNV GL Presafe AS**  
Veritasveien 3  
1363 Høvik  
Norway





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**India**

Additional  
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

**IEC 60079-7:2017** Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:5.1

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:

[NO/PRE/ExTR20.0032/00](#)

Quality Assessment Report:

[NO/PRE/QAR19.0022/00](#)



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## Ex Component(s) covered by this certificate is described below:

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 continue measurement of the temperature.

The chip type elements are used in the sensors. The connecting cables are connected to the sensors by means 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.

## 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

## Annex:

[Annex to certificate IECEx PRE 20.0024U\\_1.pdf](#)

**Annex to certificate: IECEx PRE 20.0024U**

**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					
											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		2	2										
	Duplex	4/6/8	4/6/8		-	4										
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													
--	--	PTC130	TC N													
--	--	PTC140	--													
--	--	PTC145	--													
--	--	PTC150	--													
--	--	PTC155	--													
--	--	PTC160	--													
--	--	PTC170	--													
--	--	PTC180	--													
Model No.:	ROHCT1	Platinum														
	ROHCT2	Nickel														
	ROHCT3	PTC														
	ROHCT4	Thermocouple														

**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 V for duration of 60 seconds. No electrical breakdown shall occur.

**Electrical data:**

**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