



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

Ex COMPONENT CERTIFICATE

Certificate No.: **IECEX PRE 20.0023U** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2020-09-24

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

Ex Component: Slot Chip 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:

Asle Kaastad

Position:

Certification Manager

Signature:
(for printed version)

Date:

2020-09-24

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 or use of this QR Code.



Certificate issued by:

DNV GL Presafe AS
Veritasveien 3
1363 Høvik
Norway





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Manufacturer: **Raviraj Process Controls**
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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/ExTR20.0031/00](#)

Quality Assessment Report:

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



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

Slot Chip Type Sensor Simplex/Duplex, Model: RSCT1, RSCT2, RSCT3 and RSCT4 are used to measure winding temperature of the motor/generator. The sensor are sandwich between the winding coils of motor/generator to continues measurement of the temperature.

The sensors are embedded in woven fibre glass and stick to top strip with the help of high temperature resin under pressure to ensure homogeneous slot. The overall insulation is either kapton, heat shrink PTFE or PTFE over Kapton. The connection terminals are connected to the lead of chip type sensors by mean of brazing/soldered/weld and both the leads are isolated with resin. Based on the element (chip) type sensors have four variant.

1. RSCT1: Platinum (Pt) chip. Available in either Simplex or Duplex type with 2,3 or 4 wire circuit.
2. RSCT2: Nickel (Ni) chip. Available in either Simplex or Duplex type with 2,3 or 4 wire circuit.
3. RSCT3: PTC chip. Available in either Simplex or Triple type with 2 wire circuit
4. RSCT4: Thermocouple. Available in either Simplex or Duplex type with 2 wire circuit.

SCHEDULE OF LIMITATIONS:

- The mounting of the Slot Chip Type Sensor has to be assessed in the context of the certification of the equipment.
- The Slot Chip Type Sensor has to be installed protected against mechanical load, Sharp bending as well as mechanical stress.
- The flying lead of the Slot Chip Type Sensor shall be connected to appropriate Ex certified terminal box as a fixed installation.
- Slot Chip 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 Slot chip 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 20.0023U.pdf](#)

Annex to certificate: IECEx PRE 20.0023U

Type designation

RSCT 1, RSCT 2, RSCT3 AND RSCT 4

RSCT1-X-T-Y-N-L-W-H-G-CC-LL						
Model		RSCT1 -	Platinum			
		RSCT2 -	Nickel			
		RSCT3 -	PTC			
		RSCT4 -	Thermocouple			
X	Element Type		Platinum	Nickel	PTC	TC
		1	Pt100	Ni120	80	J
		2	Pt1000		100	K
		3			110	T
		4			120	E
		5			130	N
		6			135	
		7			140	
		8			145	
		9			150	
		10			155	
		11			160	
		12			170	
		13			180	
T	Sensor construction		Platinum	Nickel	PTC	TC
		S	Simplex	Simplex	Single	Simplex
		D	Duplex	Duplex		Duplex
Y	Accuracy		Platinum	Nickel	PTC	TC
		A	Class A	--	--	Class 1
		B	Class B	--	--	Class 2
N	No of leads		Platinum	Nickel	PTC	TC
		Simplex	2/3/4	2/3/4	2	2
		Duplex	4/6/8	4/6/8	--	4
L	Slot Length		20 to 500	--	--	--
W	Slot Width	SIMPLEX : 6,8,10,11,12,15,18,20 DUPLEX : 10,12,15,18,20 Note : For Wire Gauge AWG 22 and AWG 20 min width should be 8 & 12 for simplex & duplex resp.				
H	Slot Height	2 to 5				
G	Cable Size	For Thermocouple : SWG24 For other sensors : AWG 20 to AWG 26				
CC	Cable Construction	C1	PTFE single/Twisted leads			
		C2	PTFE Flat Leads with PTFE jacketed			
		C3	PTFE Twisted Leads with PTFE jacketed			
		C4	PTFE twisted Leads with PTFE/Shielded/ PTFE			
LL	Cable Length	100 to 20000				

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:

For Type of protection Ex eb

RSCT1
RTD Pt-100 and Pt-1000
The electrical rating is maximum 10 V d.c., 25 mA d.c. and 25 mW.

RSCT2
RTD Ni-120
The electrical rating is maximum 10 V d.c., 25 mA d.c. and 25 mW.

RSCT3
Thermistor PTC
The electrical rating is maximum 10 V d.c., 2 mA d.c. and 4.7 mW.

RSCT4
Thermocouple
The electrical rating is maximum 1.5 V d.c., 100 mA d.c. and 25 mW

For Type of protection Ex ia

RSCT1
RTD Pt-100 and Pt-1000
Ui: 10 V, Ii: 25 mA, Pi: 25 mW
Ci: Only Cable capacitance, Li: Only Cable Inductance

RSCT2
RTD Ni-120
Ui: 10 V, Ii: 25 mA, Pi: 25 mW
Ci: Only Cable capacitance, Li: Only Cable Inductance

RSCT3
Thermistor PTC
Ui: 10 V, Ii: 2 mA, Pi: 4.7 mW
Ci: Only Cable capacitance, Li: Only Cable Inductance

RSCT4
Thermocouple
Ui: 1.5 V, Ii: 100 mA, Pi: 25 mW
Ci: Only Cable capacitance, Li: Only Cable Inductance