



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 NCC 22.0001U** Page 1 of 5 [Certificate history:](#)
Issue 0 (2022-03-07)

Status: **Current** Issue No: 1

Date of Issue: 2022-09-20

Applicant: **Consistec Controles e Sistemas de Automação Ltda.**
Rua Jurupari, 434, Jabaquara
São Paulo, SP 04348-070
Brazil

Ex Component: Temperature sensor elements RCTT, RCTF, RCTF-PM, RCTT-FT, TCTT, TCTF, TCTF-PM and TCTT-FT

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: **Increased safety "e", Intrinsic safety "i"**

Marking: Ex eb IIC Gb
Ex ib IIC Gb

Approved for issue on behalf of the IECEx
Certification Body:

Wilson Bonato

Position:

Technical Manager

Signature:
(for printed version)

Date:
(for printed version)

September, 20/2022

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:

NCC Certificações do Brasil
Avenida Orosimbo Maia, 360, 1st floor
Campinas, SP 13010-211
Brazil





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Manufacturer: **Consistec Controles e Sistemas de Automação Ltda.**
Rua Jurupari, 434, Jabaquara
São Paulo, SP 04348-070
Brazil

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 component 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 component listed has successfully met the examination and test requirements as recorded in:

Test Report:

[BR/NCC/ExTR22.0001/00](#)

Quality Assessment Report:

[BR/NCC/QAR22.0001/00](#)



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

The sensor element is a simple component formed by a Resistance Thermometer or Thermocouple of 2, 3, 4, 6 or 8 wires.

Models can be as described below:

With insulation on the tip with shrink tube of fluoropolymer, model: RCTT/TCTT

With insulation on the tip with shrink tube of fluoropolymer or kapton protection, and the sensor encapsuled in flat case model : RCTT/TCTT-FT

With tip in fluoropolymer fused, model : RCTF/TCTF

With tip in fluoropolymer fused, and sensor encapsuled in metallic sheath, model: RCTF/TCTF-PM

The RCTF/TCTF-PM model has an optional spring-loaded version. When the optional spring is used, the sensor is also supplied with a double nipple and a stainless steel tip.

The cables have a circular section with an average diameter of 2.4 mm (insulated cable in Fluoropolymer or Fluoropolymer/Fluoropolymer) or 3.2 mm (Fluoropolymer/braid/Fluoropolymer cable) and length according to application.

The installation of the component must be indicated on the certificate of the respective electrical equipment where it is installed. Installation must be carried out in such a way as to avoid damage to the cable and insulation.

The end where the sensor element is located must be installed without pressures (avoiding push-ups and mechanical stresses). The cable connection ends must be connected to appropriate terminals in fixed installations (suitable terminal boxes).

Technical specifications:

Rated resistance: 100 Ω / 0 °C

Insulation voltage: 3.0 kV / 50 and 60 Hz

Operating temperature: -40 °C to 180 °C

Considering the high isolation provided, the associated apparatus used to protect the sensor can be of the linear type.

Rating:

Maximum current and voltage (Ex eb): ≤ 60 V / 2 mA

Intrinsic safety limiting parameters:

$U_i = 11$ V; $I_i = 50$ mA; $P_i = 137$ mW; or

$U_i = 16$ V; $I_i = 15$ mA; $P_i = 60$ mW

$I_i =$ negligible;

$C_i =$ negligible

SCHEDULE OF LIMITATIONS:

The letter "U" in the Certificate Number refers that the equipment is a component and it is not intended to be used alone and requires additional consideration when incorporated into electrical equipment or systems for use in explosive atmospheres.

For the temperature evaluation, the worst temperature coefficient is provided by the PT-100, it can be assumed to be 0.2 K/mW. Therefore, in the worst case for $P_i = 137$ mW, the maximum temperature rise is 27.5 K.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Correction of marking, as the equipment was not approved for group III.



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Additional information:

Routine tests:

100% of production shall be submitted to the routine test of dielectric strength according to clause 7.1 of IEC 60079-7. All thermocouples and thermo-resistance are tested with 3 kV.