

Instructions: Intrinsic Safety, Increased Safety, and Non-Sparking Bayonet Mounted RTDs

⊕ II 1 G Ex ia IIC T6...T1 Ga
IECEEx Ex ia IIC T6...T1 Ga

⊕ II 2 G Ex eb IIC T6...T1 Gb
IECEEx Ex eb IIC T6...T1 Gb

⊕ II 3 G Ex nA IIC T6...T1 Gc
IECEEx Ex nA IIC T6...T1 Gc

SPI 00-0975 Rev C (Document 2307139)

1. Description

The Bayonet Mounted Resistance Temperature Detectors (RTDs), conforming to the requirements of Minco Design Definition B217299, are intended to be installed in various locations (typically a bearing) with a dry bore. This RTD is designed to be installed in locations with types of protection Ex ia, Ex eb, or Ex nA.

- Operating temperature range -55°C to 260°C.
- Models are available for 2-, 3-, or 4-wire measurement circuits and single or dual RTD elements.

2. EU Declaration of Conformity

This EU Declaration of Conformity is issued under the sole responsibility of the manufacturer.

Bayonet Mounted Resistance Temperature Detector (RTD) Type Designation B217299.

The product defined above is in conformity with the following relevant legislation:

ATEX Directive 2014/34/EU

EN 60079-0:2012+A11:2013* Explosive atmospheres - Part 0: Equipment - General requirements

EN IEC 60079-7:2015+A1:2018 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

EN 60079-11:2012 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

EN 60079-15:2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"

IEC 60079-0:2011* Explosive atmospheres - Part 0: Equipment - General requirements

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

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

IEC 60079-15:2010* Explosive atmospheres - Part 15: Equipment protection by type of protection "n"

***NOTE:** The harmonized standard EN IEC 60079-0:2018 has been compared to the standard used for certification purposes and no changes in the "state of the art" apply to the product. The standards IEC 60079-0:2017/COR1:2020 and IEC 60079-7:2015+AMD1:2017 CSV have been compared to the standards used for certification purposes and no changes in the "state of the art" apply to the product.

Certificate LCIE 17 ATEX 3011 X

Certificate LCIE 17 ATEX 1026 X

Certificate IECEEx LCIE 17.0023 X

Q.A. N.B.: DEKRA Certification B.V. (0344)

LCIE Bureau Veritas (0081)

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92260 Fontenay-aux-Roses, FRANCE

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3. Installation Instructions

The RTD probe is designed to be installed by threading the bayonet adapter into the process (typically a bearing). The RTD probe must be installed in a dry bore.

The bayonet lockcap is intended to be adjusted on the spring by threading it up or down the spring. Set the lockcap location to the desired hole's depth, insert the RTD probe tip into bayonet adapter, and lock the lockcap onto the adapter.

Care should be taken to prevent the RTD probe tip end from being immersed in conductive liquids. The tip of the probe must be protected against mechanical danger. Installation within a bearing or other rigid bore completes the enclosure and provides sufficient protection from mechanical impact.

The equipment is certified according to several protection modes for being used in different zones. Because of the different protection modes available, the user must check the appropriate box on the marking label (See §9. Marking examples).

4. Electrical Data

Maximum Input Voltage U_i : 30V
Maximum Input Power P_i : 0.40W
Cable: $C_i = 0.028$ nF/m $L_i = 1.33$ μ H/m $R_i = 0.16$ Ω /m

5. Special Conditions for Safe Use

For all types of protection:

The ambient temperature range should be from -55°C to +260°C for leadwires with nickel plated copper conductors, and -55°C to +200°C for leadwires with silver plated copper conductors.

The mounting of the equipment into an installation must be carried out in such a way that metallic body of the sensor is reliably connected to the earth.

For models equipped with a polymer jacket, care should be taken to avoid potential electrostatic charging hazard. Clean only with a wet cloth.

Intrinsic Safety installations only “i”:

The equipment must be only connected to a certified associated intrinsically safe equipment and this combination shall comply with the requirements of the standards IEC/EN 60079-25.

Increased safety installations only “eb”:

The equipment must be only connected to an external source with $U \leq 30$ VDC and $P \leq 0.4$ W.

The equipment shall be installed in an enclosure complying with the requirements of IEC 60079-0:2011 / EN 60079-0:2012+A11:2013, and with ingress protection at least IP54.

The electrical connection of the equipment into an installation must be carried out in accordance with IEC/EN 60079-7:2015.

Non-Sparking installations only “n”:

The equipment must be only connected to an external source with $U \leq 30$ VDC and $P \leq 0.4$ W.

The equipment shall be installed in an enclosure complying with the requirements of IEC 60079-0:2017 / EN IEC 60079-0:2018, and with ingress protection at least IP54.

The electrical connection of the equipment into an installation must be carried out in accordance with IEC 60079-7:2015.

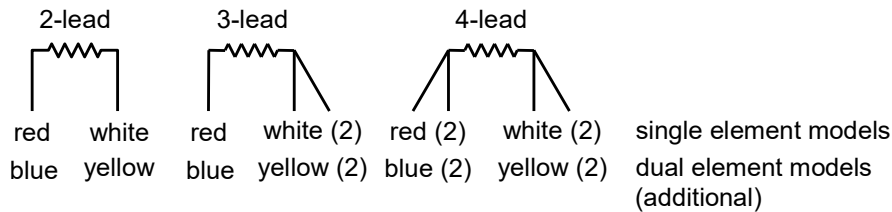
Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the equipment.

6. Temperature Class Tables

The temperature class rating of the equipment is determined according to the ambient temperature (process side) and the dissipated power in the sensor.

Temperature class	Dissipated power		
	100 mW	200 mW	400 mW
T6	Ta ≤ 76°C	Ta ≤ 72°C	Ta ≤ 65°C
T5	Ta ≤ 91°C	Ta ≤ 87°C	Ta ≤ 80°C
T4	Ta ≤ 126°C	Ta ≤ 122°C	Ta ≤ 115°C
T3	Ta ≤ 191°C	Ta ≤ 187°C	Ta ≤ 180°C
T2	Ta ≤ 205°C	Ta ≤ 201°C	Ta ≤ 194°C
T1	Ta ≤ 260°C	Ta ≤ 260°C	Ta ≤ 260°C

7. Electrical Connections



The above color code is Minco's standard, but alternative can be used. Refer to the model specification drawing for the actual color code.

8. Marking Example

Temperature detectors may be manufactured in our facilities in the United States or France. Below are examples of identification of manufacturing facility location.

Important: On the marking label, the user must check the box (☐) corresponding to the selected protection mode.

MINCO S.A.S. Z.I. - 09310 ASTON-FRANCE Mfg site: <u>xxxxxxxxxxxxxxxxxxxx</u> Type: B217299 Model: Sxxxxxx Batch number: 123456-*-*-001	<input type="checkbox"/> II 1G Ex ia IIC T6...T1 Ga
XXXX	<input type="checkbox"/> II 2G Ex eb IIC T6...T1 Gb
	<input type="checkbox"/> II 3G Ex nA IIC T6...T1 Gc
	LCIE 17 ATEX 3011 X
	LCIE 17 ATEX 1026 X
	IECEX LCIE 17.0023 X
	See SPI 00-0975 for more details

With XXXX (Notified Body Identification Number) and Mfg site:

0081 and **Aston - France** for parts manufactured in France

0344 and **Minneapolis, MN USA** for parts manufactured in USA