



Italia

CERTIFICATE

[1] **TYPE EXAMINATION CERTIFICATE**

[2] **Equipment or Protective System intended for use
in potentially explosive atmospheres
Directive 2014/34/EU**

[3] Type Examination Certificate number:

TÜV IT 23 ATEX 0149 X

[4] Equipment or Protective System: "Smart boxes" models RTP, TCD, SMB

[5] Manufacturer: I.N.T. S.r.l. - Instrumentation New Technologies

[6] Address: Via S. Predengo, 29 - Loc. Costa S. Abramo 26022 Castelverde (CR) – Italy

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] TÜV Italia certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. R 23 EX 070.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0 : 2018 ; EN IEC 60079-7 : 2015 / A1: 2018

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

[12] The marking of the equipment or protective system shall include the following:

 **II 3G Ex ec IIC T4 Gc**

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Issue date: 28th November 2023



TÜV Italia S.r.l.


Alberto Carelli

**Industry Service - Real Estate & Infrastructure
Managing Director**

This document is not valid without official signature and logo. The internal reference code is 722329967.

page 1 of 4

PEX-01-M034_r05 del 23/11/2022

[13]

SCHEDULE

[14]

TYPE EXAMINATION CERTIFICATE**No. TÜV IT 23 ATEX 0149 X**

Italia

Certificate History

Revision:	Description:	Report no:	Issue Date:
-	First issue	-	28/11/2023

[15] **Description of equipment**

RTP is a “smart box” for cold junction compensation for thermocouples type “J”, “K”, “T”, “E”, “N”, “R”, “S”, “U” and “B” called also reference junction or cold junction. This cold junction is used as a point of reference for measuring the surface temperature, the exhaust gas temperature, the combustion chamber temperature and the stator blades temperature, in turbines and/or compressors using one of the thermocouples above mentioned.

The junction box is made out of :

1. a housing EIQ series JB made in AISI316 separately certified according to cat. 2G Ex-eb;
2. n. 48 cable glands for cables entering the junction with connection M12x1,5 separately certified according to cat. 2G Ex-e;
3. a 3 poles connector for 24 V dc supply with connection M16x1.5 separately certified according to cat. 2G Ex de;
4. a RJ45 connector for Ethernet communication separately certified according to cat. 2G Ex de;
5. cables having 0.22mm² cross section sheathed;
6. an aluminium equalizer block having n. 2 through holes Ø 17mm, with connections M25x1.5, required for letting the cables mentioned at point 2 pass through, plus a hole Ø 6.5mm for the insertion of a 4 wire double Pt100, separately certified according to 3G Ex-ec;
7. terminal blocks type “barrier strip” not certified separately, but assessed and tested as per EN 60079-7; as an option it is possible to have TC multicables wired on barrier strips and connected on customer side to Amphenol TC, individually certificated, passing through above mentioned Hummel cable glands;
8. a National Instrument data logger model NI9147 and related modules TC NI9214 and RTD NI9217, separately certified according to cat. 3G Ex-ec

TCD is a “smart box” for temperature acquisition system for thermocouples type “J”, “K”, “T”, “E”, “N”, “R”, “S”, “U” and “B” This system is used as a point of reference for measuring the surface temperature, the exhaust gas temperature, the combustion chamber temperature and the stator blades temperature, in turbines and/or compressors using one of the thermocouples above mentioned.

The system is made out of:

1. a housing EIQ series JB made in AISI316 separately certified according to cat. 2G Ex-eb;
2. n. 1 cable gland for grounding entering the junction with connection M12x1,5 separately certified according to cat. 2G Ex-eb;
3. a 3 pole connector for 24 V dc supply with connection M16x1.5 separately certified according to cat. 2G Ex de;
4. n. 1 RJ45 connectors for Ethernet communication separately certified according to cat. 2G Ex de;
5. cables with conductors having 0.22mm² cross section, screened;
6. n. 8 thermocouple connectors, with 35 pins, to connect 16 thermocouples, separately certified according to cat. 2G Ex de;
7. Copper bar for screens;

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[13]

SCHEDULE

[14]

**TYPE EXAMINATION CERTIFICATE
No. TÜV IT 23 ATEX 0149 X**

Italia

8. a National Instrument data logger model NI9149 and related modules TC NI9214, separately certified according to standards to cat. 3G Ex-ec.

SMB is a “smart box” dedicated to acquiring analogic signals from field (voltage, current and RTD) and elaborate them in National Instruments modules.

The junction is made out of:

1. a housing EIQ series JB made in AISI316 separately certified according to cat. 2G Ex-eb;
2. n. 65 cable glands for cables entering the junction with connection M12x1,5 separately certified according to cat. 2G Ex-eb;
3. a 3 poles connector for 24 V dc supply with connection M16x1.5 separately certified according to cat. 2G Ex de;
4. n. 1 RJ45 connectors for Ethernet communication separately certified according to cat. 2G Ex de;
5. n. 8 terminal boards for signal inlet, installed on electronic circuit board, IDEA AUTOMAZIONE model INT-VIRTD.
6. N. 8 terminals WDU 2.5 by Weidmuller separately certified according to cat. 2G Ex-eb .
7. a National Instrument data logger model CRIO NI9149 and related modules NI9207, NI9208, NI9217 and NI9923, separately certified according to cat. 3G Ex-ec.
8. a power feeder PULS model CD5.241 separately certified according to cat. 3G Ex-ec

Rated characteristics

Smart box type	RTP	TCD	SMB
Operating ambient temperature range	-20°C to +70°C		
Enclosure	Metallic material AISI 316. Degree of protection IP54		
Power supply	Un=24Vdc Pmax=15W	Un=24Vdc Pmax=20W	Un=24Vdc Pmax=51W
Max number of terminals	48	128	64

Warning label

None.

[16] **Report no.** R 23 EX 070

Routine tests

- A routine dielectric test is foreseen at 500 Vac for one minute as per EN 60079-7:2015 §6.1.

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page 3 of 4

PEX-01-M034_r05 del 23/11/2022

[13]

SCHEDULE

[14]

**TYPE EXAMINATION CERTIFICATE
No. TÜV IT 23 ATEX 0149 X**

Italia

[17] Special conditions for safe use

- The ambient temperature range is -20°C to + 70°C.
- Special conditions for safe use required by the EU type certificates of the separately certified parts must be respected. For details, see the list of special condition of use in the safety instructions of the specific smart box.
- The device should be installed and used only in a controlled environment that ensures a pollution degree 2 (or better) in accordance with IEC/EN 60664-1. If used in areas with a higher pollution degree, the device must be adequately protected. The device should be installed and used only in an environment that ensures overvoltage grade II (or better) in accordance with IEC/EN 60664-1.
- The cable glands series Hummel HSK-Ex are testes for low risk of mechanical danger (drop height 0.4m with 1Kg mass) and shall be protected against higher impact energy levels.
- Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 119V (see EN 60079-7 §H.5).
- The installation must be conducted following the applicable requirements of EN 60079-14. Particular attention must be paid to the earthing of the metal enclosure following safety instruction of the specific smart box.

[18] Essential Health and Safety Requirements

Assured by compliance with the standards set out in the [9].

[19] Drawings and Documents

Listed documents (prot. 722329967)

Title:	Description:	Pag:	Rev:	Date:
FT-INT.JKE_EC_04	Technical file and risk analysis smart box type RTP	16	04	31/08/2023
FT-INT.TCD_EC_03	Technical file and risk analysis smart box type TCD	14	03	31/08/2023
FT-INT.SMB_EC_05	Technical file and risk analysis smart box type SMB	13	05	31/08/2023
IS_RTP_EN	Safety notes RTP	05	0	-
IS_TCD_EN	Safety notes TCD	05	0	-
IS_SBM_EN	Safety notes SMB	04	0	-
Targa RTP	Nameplate RTP	01	0	27/11/2023
Targa TCD	Nameplate TCD	01	0	27/11/2023
Targa SMB	Nameplate SMB	01	0	27/11/2023

One copy of all documents is kept in TÜV Italia files

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page 4 of 4

PEX-01-M034_r05 del 23/11/2022