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

Certificate No.: **IECEx LCIE 23.0012X**

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Certificate history:
Issue 0 (2023-12-17)

Status: **Current**

Issue No: 1

Date of Issue: 2026-01-30

Applicant: **Ashcroft Instruments GmbH**
Max-Planck-Straße 1-9
Alsdorf 52477
Germany

Equipment: **Temperature Probes - Type: S****

Optional accessory:

Type of Protection: **Increased safety "e"**

Marking: Ex eb IIC T6…T1 or …°C Gb

(see Annex for full marking)

Approved for issue on behalf of the IECEx Certification Body: **Jérôme REYSSON**

Position: **Certification Officer**

Signature: (for printed version)

LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
S.A.S au capital de 15.745.984 €
RCS Nanterre B 408 363 774
33 avenue du Général Leclerc
F - 92260 FONTENAY AUX ROSES

Date: (for printed version) 2026-01-30

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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:

Laboratoire Central des Industries Electriques (LCIE)
33 Avenue du General Leclerc
FR-92260 Fontenay-aux-Roses
France

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Manufacturer: **Ashcroft Instruments GmbH**
Max-Planck-Straße 1-9
Alsdorf 52477
Germany

Manufacturing locations: **Ashcroft Instruments GmbH**
Max-Planck-Straße 1-9
Alsdorf 52477
Germany

Ashcroft Querétaro, S. de R.L. de C.V.
Carretera 500 a Chichimequillas KM 5+500
Calle 1
No. 50
El Marqués Querétaro 76240
Mexico

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 60079-7:2017 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 Reports:

FR/LCIE/ExTR23.0064/00 FR/LCIE/ExTR26.0004/00

Quality Assessment Reports:

GB/CSAE/QAR24.0001/02 US/FME/QAR25.0010/00

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

Thermocouple (TC) & RTD Temperature Probes in type of protection increased safety "e" designed to measure process temperature in liquid or gaseous media.

A Temperature Probe consists of:

- A measuring inset with one or two measuring circuits: thermocouple or RTD (Resistance Temperature Detector) sensors within the inset are embedded in a compacted magnesium oxide (MgO) or aluminum oxide (Al_2O_3) powder and protected by a metallic sheath. This mineral insulated cable with a maximum of six cores inside is available in various lengths and in various diameters from 3 mm to 8 mm. The measuring inset sensor is mounted to a connection head.
- A connection head or junction box enclosure separately certified as Ex Components which houses depending on the Probe model a ceramic terminal block (for connection head) or certified terminal blocks (for junction box). The Pt100 temperature sensors are according to EN 60751 in 2-wire, 3-wire or 4-wire circuit.
- An extension if any.
- A standardized process connection.

Furthermore, the inset can also be mounted in a thermowell (protection tube) screwed onto the probe head by means of a threaded fitting.

For more details, see the Annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:
Specific Conditions of Use are in the Annex.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Issue 1:
- Change of name and address of the applicant/manufacturer.
- Update of marking drawing.
- Update of Instructions.
- Addition of a manufacturing location : Ashcroft Querétaro, S. de R.L. de C.V.
- Update of QAR.

Annex:

Annex 01 to Certificate IECEx LCIE 23.0012X issue 1.pdf

Annex 01 to Certificate of Conformity IECEx LCIE 23.0012X issue 1

FULL EQUIPMENT DESCRIPTION

Thermocouple (TC) & RTD Temperature Probes in type of protection increased safety "e" designed to measure process temperature in liquid or gaseous media.

A Temperature Probe consists of:

- A measuring inset (sensor) with one or two measuring circuits: thermocouple or RTD (Resistance Temperature Detector) sensors within the inset are embedded in a compacted magnesium oxide (MgO) or aluminium oxide (Al_2O_3) powder and protected by a metallic sheath. This mineral insulated cable with a maximum of six cores inside is available in various lengths and in various diameters from 3 mm to 8 mm. The measuring inset sensor is mounted to a connection head.
- A connection head or junction box enclosure separately certified as Ex Components which houses depending on the Probe model a ceramic terminal block (for connection head) or certified terminal blocks (for junction box). The Pt100 temperature sensors are according to EN 60751 in 2-wire, 3-wire or 4-wire circuit.
- An extension if any.
- A standardized process connection.

Furthermore, the inset can also be mounted in a thermowell (protection tube) screwed onto the probe head by means of a threaded fitting.

The main construction characteristics of each type of Temperature Probe are provided in the Range Details section below.

Table of integrated Ex Components and Ex Equipment:

Designation	Manufacturer	Type(s)	Marking & $T_{service}$	IECEx CoC	Reference standards
Empty enclosure (Connection head)	F.P.L. Elettroceramica Industriale S.r.l.	TTE100 *(made of aluminium alloy)* TTE160 *(made of stainless steel)*	Ex eb IIC Gb $T_{service}$:-55 °C to +100 °C	IECEx CES 14.0005U (issue 1)	IEC 60079-0 Ed. 7.0 IEC 60079-7 Ed. 5.1
Empty enclosure (Connection head)	F.P.L. Elettroceramica Industriale S.r.l.	TTE200, TTE250, TTE270, TTE280, TTE300, TTE350, TTE370, TTE380 *(made of aluminium alloy)* TTE600, TTE680, TTE700, TTE780 *(made of stainless steel)*	Ex eb IIC Gb $T_{service}$:-55 °C to +100 °C	IECEx CES 14.0006U (issue 1)	IEC 60079-0 Ed. 7.0 IEC 60079-7 Ed. 5.1
Junction box Enclosure [a]	Weidmüller Interface GmbH & Co.	Klippon TB FS… (KTB FS), Klippon TB MH… (KTB MH), Klippon TB QL… (KTB QL) *(made of coated or uncoated stainless steel or coated mild steel)*	Ex eb IIC Gb $T_{service}$: -60 °C to +135 °C	IECEx IBE 14.0004U (issue 2)	IEC 60079-0 Ed. 7.0 IEC 60079-7 Ed. 5.1

[a] Only for S96 Temperature Probe assemblies.

Table of integrated Ex Components and Ex Equipment (continued):

Designation	Manufacturer	Type(s)	Marking & $T_{service}$	IECEx CoC	Reference standards
Terminal blocks (with accessories) [a]	Weidmüller Interface GmbH & Co. KG	WDU 2.5	Ex eb IIC Gb -60 °C ≤ $T_{service}$ ≤ +110 °C	IECEx ULD 14.0005U (issue 7)	IEC 60079-0 Ed. 7.0 IEC 60079-7 Ed. 5.1
Terminal blocks (with accessories) [a]	WAGO GmbH & Co. KG	TOP JOB S 2000 series	Ex eb IIC Gb -55 °C ≤ $T_{service}$ ≤ +110 °C	IECEx PTB 11.0093U (issue 3)	IEC 60079-0 Ed. 7.0 IEC 60079-7 Ed. 5.1
Adaptor [a]	RCN s.r.l.	A...	Ex eb IIC Gb $T_{service}$: -40 °C to +100 °C for cylindrical threaded devices with EPDM or NYLON Gasket -65 °C to +220 °C for cylindrical threaded devices with Silicone Gasket -65°C to +400 °C for devices without gasket	IECEx INE 10.0014X (issue 3)	IEC 60079-0 Ed. 7.0 IEC 60079-7 Ed. 5.1

[a] Only for S96 Temperature Probe assemblies.

MARKING

Ashcroft Instruments GmbH or RÜEGER AN ASHCROFT COMPANY
Address: …
Type: S** (1)
Serial number: …
Year of construction: …

Ex eb IIC T6…T1 or …°C Gb (2)

IECEx LCIE 23.0012X

-40 °C ≤ T_{amb} ≤ +60 °C

U = ...V, I = ...A

WARNING – DO NOT OPEN WHEN ENERGIZED

(1) Completed as per the type of Temperature Probe.
(2) For the assignment of the temperature class, see the Specific Conditions of Use below.

RANGE DETAILS

S10: Mainly consists of:
- Connection head.
- Inset TC or RTD (S 01) with ceramic terminal block.
- Cylindrical thread connection on probe head. Sealing at inset is ensured by welding or with compression fitting.
- Lag extension with standardized process connection.

S20: Mainly consists of:
- Connection head.
- Inset TC or RTD (S 01) with ceramic terminal block.
- Cylindrical thread connection on probe head.
- Build-up thermowell according to standard DIN 43772 / T.2 Form 2, 2G or 2F.
- Connection to the process: thread or flange.

S21: Mainly consists of:
- Connection head.
- Inset TC or RTD (S 01) with ceramic terminal block.
- Cylindrical thread connection on probe head.
- Hammered thermowell according to standard DIN 43772 / T.2 Form 3, 3G or 3F.
- Connection to the process: thread or flange.

S22: Mainly consists of:
- Connection head.
- Inset TC or RTD (S 01) with ceramic terminal block.
- Cylindrical thread connection on probe head.
- Stepped and welded thermowell according to standard DIN 43772 / T.2 Form 2, 2G or 2F.
- Connection to the process: thread or flange

S50: Mainly consists of:
- Connection head.
- Inset TC or RTD (S 01) with ceramic terminal block.
- With or without extension as nipple-union-nipple extension.
- Conical thread process connection on probe head.
- Connection to the process as per customer request.
- Standardized process connection with or without compression fitting.

S70: Mainly consists of:
- Connection head.
- Inset TC or RTD (S01) with ceramic terminal block.
- Cylindrical or conical thread process connection on head.
- Connection in three parts:
    - Joint in 3 parts.
    - « Nipple » with compression fitting to fix the inset.

  Options:
    - Reduction in steel with internal thread from 1/2” to 1” NPT and external thread from 1” to 2” NPT.
    - To be threaded with a minimum engaged length of 5 threads.
    - With spiral to compensate the thermal expansion.
    - Different welding executions: welding point for RTD, crimped execution and welded execution.
- Sealing of the probe head: plug, nipple, extension, compression fitting, union nipple.
- Connection to the process: welded or fixed on a pipe.

S96 “Multipoint flexible”: Mainly consists of:
- Ex e Junction box separately certified.
- Inset TC or RTD (S01).
- Wires soldered on inset wires (junction insulated with heat-shrinkable tube and embedded in epoxy resin) to connect on Ex e certified terminal blocks (factory connection).
- Mounting of the inset to the junction box through a compression fitting.
- Sealing to the process inset is ensured with single or double compression fitting or welded socket.

S96 “Multipoint flexible with security chamber”: Mainly consists of:
- Ex e Junction box separately certified.
- Inset TC or RTD (S01).
- Wires soldered on inset wires (junction insulated with heat-shrinkable tube and embedded in epoxy resin) to connect on Ex e certified terminal block (factory connection).
- Mounting of the inset to the junction box through a compression fitting.
- Security chamber.
- Sealing to the process is ensured with single or double compression fitting or welded socket.

S96 "Straight multipoint": Mainly consists of:

- Ex e Junction box separately certified fitted with Ex e terminal blocks.
- Inset TC or RTD (S01).
- Wires soldered on inset wires (junction insulated with heat-shrinkable tube and embedded in epoxy resin) to connect on Ex e certified terminal block (factory connection).
- With nipple-union-thermowell assembly which is fitted with the insets.
- Mounting to the junction box is performed by means of an Ex e certified adapter.

RATINGS

U_{max} = 30 V DC
I_{max} = 20 mA

FULL SPECIFIC CONDITIONS OF USE

a. Ambient operating temperature range at connection head or junction box:
-40 °C up to +60 °C

It is the responsibility of the end user to ensure that the heating or cooling coming from the process medium does not lead to exceeding the permissible ambient temperature range at connection head or junction box.

b. The temperature class of Thermocouple (TC) & RTD Temperature Probes is determined by process temperature as stated below:

Maximum process temperature Tp (°C)	Temperature class of whole Temperature probe (or maximum surface temperature)
70	T6
85	T5
125	T4
180	T3
280	T2
430	T1
430 < Tp ≤ 700	Tp+20K °C

c. For all models except S96:
Potential Electrostatic Charging Hazard: the painted probe head shall not be exposed to high and repeated electrostatic charging processes. Furthermore, when cleaning, wipe the surface of the probe head only with a damp cloth.

d. For model S96:

- Terminals and their accessories shall be mounted in such a manner that the creepage distances and clearances between two adjacent terminals and between terminals and enclosure walls (body and lid) comply with the requirements of standard IEC 60079-7 for the rated voltage of the junction box.
- Terminals and their accessories shall be mounted and used in accordance with the terminal manufacturers' instructions.
- All unused screw terminals shall be fully tightened down by the end user.

ROUTINE TESTS

In accordance with clause 7.1 of standard IEC 60079-7, each product manufactured shall be subjected to a dielectric strength test at 500 V a.c. for 1 minute. Alternatively the test may be carried out at 600 V a.c. for 100 ms. No breakdown shall occur. The temperature sensor can be fitted with one or two measuring circuits. Therefore, the test voltage must be applied:

- Between the wires of circuit(s) connected together and the ground (inset metallic sheath/enclosure).
- Between the measuring circuits.