



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 SIR 15.0060X	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 4	Issue 3 (2025-03-28)
Date of Issue:	2026-04-27		Issue 2 (2023-03-06)
Applicant:	CTC - Connection Technology Center, Inc. 7939 Rae Blvd. Victor New York 14564 United States of America		Issue 1 (2019-11-05)
Equipment:	Transducer Sensors/ AC9**, TA9**, VE9**, LP8**, LP9**, LPH8**, LPH9** Series		
Optional accessory:			
Type of Protection:	Intrinsically Safe "ia" & "ib"		
Marking:	Ex ia IIC T3-T4 Ga Ex ib IIIC T135°C ... T*°C Db Ex ia I Ma *Temperature Class depends on the models and the ambient temperature. T3: Ta @ -40°C to +121°C T4: Ta @ -40°C to +80°C Mining Group I: Ta @ -40°C to +121°C T147°C: Ta @ -40°C to +121°C (All models besides models AC970 and AC971) T156°C: Ta @ -40°C to +121°C (For models AC970 and AC971) T135°C: Ta @ -40°C to +80°C		

Approved for issue on behalf of the IECEx
Certification Body:

Michelle Halliwell

Position:

Senior Director of Operations

Signature:
(for printed version)

Date:
(for printed version)

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Date of issue: 2026-04-27

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Manufacturer: **CTC - Connection Technology Center, Inc.**
7939 Rae Blvd.
Victor
New York 14564
United States of America

Manufacturing locations: **CTC - Connection Technology Center, Inc.**
7939 Rae Blvd.
Victor
New York 14564
United States of America

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

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:

[GB/SIR/ExTR15.0171/00](#)
[GB/SIR/ExTR25.0029/00](#)

[GB/SIR/ExTR19.0258/00](#)
[GB/SIR/ExTR26.0039/00](#)

[GB/SIR/ExTR23.0056/00](#)

Quality Assessment Report:

[CA/CSA/QAR08.0011/13](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Vibration sensors are used for acceleration measurement by means of piezo-electric device. The piezo-electric is subjected to compression pressure from a mass which produce a voltage in proportion to the acceleration. The voltage is then amplified by internal electronic circuitry. This can also be integrated within the amplifier board to product a velocity output, referred to with a VE prefix. For the Loop Power and Premium Loop Power series (LP/LPH prefix), the output is converted to a 4-20 mA. These sensors can be used in conjunction with a temperature board to provide the temperature of the environment the sensor is contained within this configuration is referred to with a TA prefix. The sensors are mounted to the surface of the desired surface via a threaded bolt or by other means to be approved of by the authority having jurisdiction.

Refer to the Annexe for additional information.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to the Annexe for the Specific Conditions of Use.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

This issue, 4, recognises the following change; refer to the certificate annex to view a comprehensive history:

1. Addition of Premium Loop Powered Sensors, models LPH8**, LPH9**.
2. Addition of a "board only epoxy" version.
3. Addition of two alternative encapsulants.
4. Removal of the following sensor models: AC90 Series, AC81 Series, AC82 Seres, AC86 Series, TA81 Series, TA82 Series, LP81 Series, LP91 Series, LP85 Series, LP86 Series, LP95 Series, LP96 Series.
5. Correction of entity parameters for some models.
6. Addition of new cable CB206.
7. Update of the T-code for dust marking.
8. Additional specific condition of use for the entity parameter conditions.

Annex:

[IECEX SIR 15.0060X Annexe Issue 4.pdf](#)

EQUIPMENT (continued)

In terms of connectors and cables, involved models overlap slightly as shown below:

A- Refer to DWG INS10210 for connections' details:

2 Pin Vibration Sensors Connected to 1 Single Channel Barrier	3 Pin Vibration Sensors - Connected to 1 Dual Channel Barrier - or 2 Single Channel barrier	4 Pin Vibration Sensors - Connected to 1 Dual Channel Barrier & 1 Single Channel barrier - or 3 Single Channel barrier
AC91 Series	TA91 Series	AC972 Series
LP8* Series	AC979 Series	AC98* Series
LP9* Series		
VE9 Series		
AC96 Series		
LPH8** Series		
LPH9** Series		
LPH84* Series		
LPH94* Series		
AC97* Series		

- Standard accelerometers and velocity sensors have 2 pins and uses 2 wire cable, 1 wire is for the sensing element and 1 common.
- The Biaxial, designated sensors have 3 pins and uses 3 wire cables. For the biaxial sensor 2 wires are for the different sensing elements and 1 common. For temperature, 1 wire is for signal, 1 for temperature, 1 shared common.
- The Triaxial designated sensors have 4 pins and a 4 wire cable. For Triaxial 1 wire for each of the 3 sensing elements and 1 for common. For low power with temperature, 1 wire is for signal, 1 for temperature, 1 for power and 1 for shared common.

B- For each model maximum allowable integral cable length as shown below:

- 1- For models utilising blocking diodes the maximum cable length would be 1600 ft (488 m)
- 2- For models not utilising blocking diodes the maximum cable length would be 200 ft (61 m)

Annexe to: IECEx SIR 15.0060X Issue 4

Applicant: CTC - Connection Technology Center, Inc.



Apparatus: Transducer Sensors/ AC9**, TA9**, VE9**, LP8**, LP9**, LPH8**, LPH9**Series

Models With Integral Cables	Maximum Integral Cable Length
AC970-XR THROUGH AC979-XR AC980-XR THROUGH AC989-XR	200 ft (61 m)
AC911-XR, AC912-XR, AC913-XR, AC914-XR, AC915-XR, AC916-XR, AC917-XR, AC918-XR	1600 ft (488 m)
AC961-XR, AC963-XR, AC964-XR, AC965-XR, AC966-XR, AC967-XR, AC968-XR	1600 ft (488 m)
TA91*-XR	1600 ft (488 m)
LP80*-XR, LPH8**-XR LP90*-XR, LPH9**-XR	1600 ft (488 m)
VE901-XR, VE902-XR	1600 ft (488 m)

C- For models specified with integral cables the following list to be utilised:

Part Number	Capacitance	Resistance	Inductance
CB102	48.0 pF/ft	10.0Ω/1000ft	0.081μH/ft
CB103*	49 pF/ft	9.7Ω/1000ft	0.047μH/ft
CB193*	49 pF/ft	9.7Ω/1000ft	0.047μH/ft
CB111	45.0 pF/ft	10.0Ω/1000ft	0.084μH/ft
CB190*	36 pF/ft	9.5Ω/1000ft	0.19μH/ft
CB206	35 pF/ft	42Ω/1000ft	0.062μH/ft
CB296	35 pF/ft	42Ω/1000ft	0.062μH/ft
CB212	41 pF/ft	13.0Ω/1000ft	0.092μH/ft
CB191*	44.13 pF/ft	11.9Ω/1000ft	0.18μH/ft
CB192*	37.15 pF/ft	16.41Ω/1000ft	0.20μH/ft
CB298	27.9 pF/ft	15.4Ω/1000ft	0.21μH/ft

*NOTE: These cables are only acceptable for use in sensors rated for a maximum ambient of +80°C.

Accelerometers' nomenclature have been adjusted to present the distinguished type of enclosure and PCB enclosed.

Item number	Model Nomenclature	Entity Parameters
AC Series with and without Integral Cables (DWG INS 10210)		
Without integral cable	AC911-1R, AC912-1R, AC913-1R, AC914-1R, AC915-1R, AC916-1R, AC917-1R, AC918-1R	Ui = 28VDC Ii = 120mA Pi = 1W Ci = 0nF Li = 0μH
With integral cable	AC911-XR, AC912-XR, AC913-XR, AC914-XR, AC915-XR, AC916-XR, AC917-XR, AC918-XR	Ui = 28VDC Ii = 120mA Pi = 1W Ci = 80.4nF Li = 336μH
Without integral cable	AC961-1R, AC963-1R, AC964-1R, AC965-1R, AC966-1R, AC967-1R, AC968-1R	Ui = 28VDC Ii = 120mA Pi = 1W Ci = 0nF Li = 0μH

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Applicant: CTC - Connection Technology Center, Inc.



Apparatus: Transducer Sensors/ AC9**, TA9**, VE9**, LP8**, LP9**, LPH8**, LPH9**Series

Item number	Model Nomenclature	Entity Parameters
With integral cable	AC961-XR, AC963-XR, AC964-XR, AC965-XR, AC966-XR, AC967-XR, AC968-XR	U _i = 28VDC I _i = 120mA P _i = 1W C _i = 80.4nF L _i = 336μH
Without integral cable	AC970-1R THROUGH AC979-1R AC980-1R THROUGH AC989-1R	U _i = 28VDC I _i = 120mA P _i = 1W C _i = 28nF L _i = 0μH
With integral cable	AC970-XR THROUGH AC979-XR AC980-XR THROUGH AC989-XR	U _i = 28VDC I _i = 120mA P _i = 1W C _i = 40nF L _i = 40.2μH
TA Series with and without Integral Cables (DWG INS 10210)		
Without integral cable	TA91*-1R	U _i = 28VDC I _i = 120mA P _i = 1W C _i = 1.5nF L _i = 0μH
With integral cable	TA91*-XR	U _i = 28VDC I _i = 120mA P _i = 1W C _i = 82nF L _i = 336μH

Item number	Model Nomenclature	Entity Parameters
LP Series with and without Integral Cables (DWG INS 10210)		
Without integral cable	LP80*-1R LP90*-1R	U _i = 28VDC I _i = 120mA P _i = 1W C _i = 0nF L _i = 0μH
With integral cable	LP80*-XR LP90*-XR	U _i = 28VDC I _i = 120mA P _i = 1W C _i = 80.4nF L _i = 336μH
Without integral cable	LPH8**-1R, LPH9**-1R	U _i = 28VDC I _i = 120mA P _i = 0.63W C _i = 0nF L _i = 0μH
With integral cable	LPH8**-XR, LPH9**-XR	U _i = 28VDC I _i = 120mA P _i = 0.63W C _i = 80.4nF L _i = 336μH

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Applicant: CTC - Connection Technology Center, Inc.



Apparatus: Transducer Sensors/ AC9**, TA9**, VE9**, LP8**, LP9**, LPH8**, LPH9**Series

Item number	Model Nomenclature	Entity Parameters
VE Series with and without Integral Cables (DWG INS 10210)		
Without integral cable	VE901-1R, VE902-1R	Ui = 28VDC Ii = 120mA Pi = 1W Ci = 0nF Li = 0μH
With integral cable	VE901-XR, VE902-XR	Ui = 28VDC Ii = 120mA Pi = 1W Ci = 80.4nF Li = 336μH

Specific Conditions of Use

- i. All models of the assessed equipment are required to be connected to a properly rated I.S. barrier as per DWG INS10210. The Ui & Ii parameters are the worst case voltage and current from the combination of these barriers, but they cannot appear at the same time. It is the end-users' responsibility to ensure that the combined voltage and current of the connected barriers does not exceed the values of Table A.1 of IEC 60079-11:2011 Ed6.
- ii. Cables of the following part numbers are restricted only for use with sensors of a maximum ambient temperature of + 80 °C, The manufacturer shall ensure that the product is marked accordingly:
 - CB103
 - CB190
 - CB191
 - CB192
 - CB193

- iii. Maximum Cable lengths are specified and these maximum values shall not be exceeded as per the following list:

Models With Integral Cables	Maximum Integral Cable Length
AC970-1R THROUGH AC979-1R AC980-1R THROUGH AC989-1R	200 ft (61 m)
AC911-XR, AC912-XR, AC913-XR, AC914-XR, AC915-XR, AC916-XR, AC917-XR, AC918-XR	1600 ft (488 m)
AC961-XR, AC963-XR, AC964-XR, AC965-XR, AC966-XR, AC967-XR, AC968-XR	1600 ft (488 m)
TA91*-XR	1600 ft (488 m)
LP80*-XR, LPH8**-XR LP90*-XR, LPH9**-XR	1600 ft (488 m)
VE901-XR, VE902-XR	1600 ft (488 m)

- iv. The entity parameters of the vibration sensors and integrated cables shall not be exceeded as per the marked nameplates. Refer to the following controlled documents for details:
 - INS10210
- v. For sensors without Integral Cables, the field wiring cable operating temperature shall be rated above the sensor T-code and follow the following conditions:

$$U_o \leq U_i \quad I_o \leq I_i \quad P_o \leq P_i \quad C_o \geq C_i + C_{cable} \quad L_o \geq L_i + L_{cable}$$

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Applicant: CTC - Connection Technology Center, Inc.

Apparatus: Transducer Sensors/ AC9**, TA9**, VE9**, LP8**, LP9**, LPH8**, LPH9**Series



Conditions of Manufacture

- i. The equipment shall be subjected to dielectric strength test using test voltage of 500 VAC applied between circuit and earth for 60 seconds. Alternatively a voltage of 20% higher may be applied for 1 second. There shall be no evidence of flashover or breakdown and the maximum current flowing during the test shall not exceed 5 m A r.m.s. at any time. . Refer to IEC 60079-11:2011 Ed. 6 clause 6.3.13.
- ii. Cables of the following part numbers are restricted only for use with sensors of a maximum ambient temperature of + 80 °C, The manufacturer shall ensure that the product is marked accordingly:

CB103

CB190

CB191

CB192

CB193

Full certificate change history

Issue 1 – this Issue introduced the following changes:

1. Assessment of new accelerometers' added models. The description was amended to recognise these new models. The Special Conditions of Use and Conditions of Manufacture were also amended.
2. Addition of the full nomenclature for all accelerometers' models to the report.
3. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, IEC 60079-0:2011 Ed. 6 was replaced by IEC 60079-0:2017 Ed.
4. Changing all accelerometers assessed models' entity parameters to match corresponding Schematics.
5. Updating Schematics to reflect applied changes, updating nameplates and instruction manual.
6. Excluding accelerometers' obsolete models and those of different marking.
7. The ambient temperature range was corrected to include the T4 marking which had previously been omitted.

Issue 2 – this Issue introduced the following change:

1. Addition of Marking, Ex ia I Ma

Issue 3 – this Issue introduced the following change:

1. Corrected Product Name/Model Number.
2. Updated Markings to include Ex ib IIIC T135°C ... T143°C Db.
3. Updated Product Description.
4. Updated Specific Conditions of Use.
5. Updated Manufacturer's Documents.

Issue 4 – this Issue introduced the following change:

1. Addition of Premium Loop Powered Sensors, models LPH8**, LPH9**.
2. Addition of a "board only epoxy" version.
3. Addition of two alternative encapsulants.
4. Removal of the following sensor models: AC90 Series, AC81 Series, AC82 Series, AC86 Series, TA81 Series, TA82 Series, LP81 Series, LP91 Series, LP85 Series, LP86 Series, LP95 Series, LP96 Series.
5. Correction of entity parameters for some models.
6. Addition of new cable CB206.
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8. Additional specific condition of use for the entity parameter conditions.

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