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 22.0005X**	Page 1 of 3	Certificate history:
Status:	**Current**	Issue No: 0	
Date of Issue:	2022-02-10		
Applicant:	**Metrix Instrument Co.** 8824 Fallbrook Drive Houston, Texas 77064 **United States of America**		
Equipment:	**ST5484E–***–****–** Vibration transmitters & SW5484E–***–****–** Vibration switches**		
Optional accessory:			
Type of Protection:	**Increased safety "ec"**		
Marking:	Ex ec IIC T4 Gc -40 °C ≤ T_{amb} ≤ +100 °C *(refer to Annex for full marking)*		

Approved for issue on behalf of the IECEx Certification Body: **Julien GAUTHIER**

Position: **Certification Officer**

Signature: (for printed version)

LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
S.A.S au capital de 15.745.984 €
RCS Nanterre B 408 363 174
33 avenue du Général Leclerc
F - 92266 FONTENAY AUX ROSES

Date: 2022-02-10

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:

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

METRIXDOC NO: 1924539
REV: A

IECEx Certificate of Conformity

Certificate No.: **IECEx LCIE 22.0005X**

Date of issue: 2022-02-10 Issue No: 0

Manufacturer: **Metrix Instrument Co.**
8824 Fallbrook Drive
Houston, Texas 77064
United States of America

Additional 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 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 Report:

FR/LCIE/ExTR22.0016/00

Quality Assessment Report:

GB/BAS/QAR10.0017/07

METRIXDOC NO: 1924539
REV: A

IECEx Certificate of Conformity

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

The ST5484E Vibration Transmitter is used to detect vibration level of machines and combines an accelerometer and a signal conditioner in a single unit. It transmits at the output a current in the range 4-20 mA, proportional to the vibration level. It can also be provided with an optional dynamic output.

The SW5484E Vibration Switch adds switching featured, when compared to the ST5484E, which can be used in auto-shutdown circuit that trips the machine under high vibration conditions.

Refer to Annex for full equipment description, range details and ratings.

SPECIFIC CONDITIONS OF USE: YES as shown below:
Refer to Annex for specific conditions of use.

Annex:

Annex 01 to certificate IECEx LCIE 22.0005X issue 0.pdf

Annex 01 to Certificate
IECEx LCIE 22.0005X issue 0

FULL EQUIPMENT DESCRIPTION

The ST5484E Vibration transmitter is used to detect vibration level of machines and combines an accelerometer and a signal conditioner in a single unit. It transmits at the output a current in the range 4-20 mA, proportional to the vibration level. It can also be provided with an optional dynamic output.

The SW5484E Vibration switch adds switching featured, when compared to the ST5484E, which can be used in auto-shutdown circuit that trips the machine under high vibration conditions.

The devices consist of a stainless steel housing in cylindrical shape. The electronics (i.e. the printed circuit boards fitted with electronic components) is mounted in the metallic housing which is filled with potting compounds. By this way, the electronics is totally encased in the potting compounds.

Depending on the model, the electrical connection of ST5484E transmitter is done via:
- 2-Pin or 4-Pin terminal block;
- Flying leads (2-wire or 4-wire);

In the versions above, the device is screwed, thanks to 1 inch NPT external thread, into a certified conduit elbow of type Y-3-EX from Killark providing a degree of protection IP66. The assembly forms the complete ST5484E transmitter. A terminal block can be mounted inside the conduit capped elbow to make the connection easier.
- A 2-Pin MIL connector: the MIL connector is assembled to the housing by laser welding.

Depending on the model, the SW5484E Vibration switch is manufactured with a 8-Pin M12 connector (assembled to the housing by laser welding), or with a permanent cable (flying leads version) and a certified cable gland. The selection of the cable shall be done in function of the ambient operating temperature range of the device and by taking into account a heating of 5 K at the entry.

Integrated IECEx Ex equipment:

Product designation	Manufacturer	Type	Certificate number	Marking & T_{amb}	Reference standards
Capped elbow	Killark	Y-3-EX	IECEx QPS 16.0012X	Ex db IIC Gb Ex tb IIIC Db IP66 T_{amb} : -50°C to +100°C	IEC 60079-0:2017 Ed. 7.0 IEC 60079-1:2014 Ed. 7.0 IEC 60079-31:2013 Ed. 2
Metallic cable gland	CMP Products Ltd	TRUSEAL TSMe M16x1.5	IECEx CML 19.0062X	Ex eb IIC Gb Ex ta IIIC Da IP66 T_{amb} : -60°C to +105°C	IEC 60079-0:2017 Ed. 7.0 IEC 60079-7:2017 Ed. 5.1 IEC 60079-31:2013 Ed. 2

MARKING

METRIX
Address : …
Type : ST5484E–***–****–** (1) or SW5484E–***–****–** (1)
Serial number : …
Year of construction : …

Ex ec IIC T4 Gb

IECEx LCIE 22.0005X

-40 °C ≤ T_{amb} ≤ +100 °C

WARNING – DO NOT SEPARATE WHEN ENERGIZED (for products with MIL or M12 connector)

(1) Completed as per the type

RANGE DETAILS

For ST5484E Vibration transmitter:

ST5484E – * * * – * * * * – * * *
(A) (B) (C) (D) (E) (F)

(A) : Range (full scale)			
* * *		Description	
Model ST5484E		A1	A2
Peak	RMS		
121	**151**	1.0 IPS	25.4 mm/s
122	**152**	0.5 IPS	12.7 mm/s
123	**153**	2.0 IPS	50.8 mm/s
124	**154**	5.0 IPS	125 mm/s
126	**156**	0.8 IPS	20.3 mm/s
132	**162**	3.0 IPS	76.2 mm/s

(B) : Housing material and stud size	
* *	Description
0-9, **20**	303 stainless steel housing, multiple stud sizes
10-19, **30**	316 stainless steel housing, multiple stud sizes

(C) : Hazardous area certification	
*	Description
C	(increased safety) ATEX, Ex ec IIC T4 Gc (includes elbow when (D) = 0, 1, 2, 3, 5, or 6)
D	(increased safety) IECEx, Ex ec IIC T4 Gc (includes elbow when (D) = 0, 1, 2, 3, 5, or 6)
I	(increased safety) ATEX/IECEx, Ex ec IIC T4 Gc (includes integrated terminal block elbow when (D) = 0, 1, 2, 3, 5, or 6)

(D) : Connection type	
*	Description
0	24” Flying leads, 2-wire; (4-20 mA output only)
1	24” Flying leads, 4-wire; (4-20 mA output only and dynamic raw acceleration signal)
2	Terminal block, 2-wire; (4-20 mA output only)
3	Terminal block, 4-wire; (4-20 mA output only and dynamic raw acceleration signal)
4	2-Pin MIL-Style (MIL-C-5015); (4-20 mA output only)
5	72” Flying leads, 2-wire; (4-20 mA output only)
6	72” Flying leads, 4-wire; (4-20 mA output only and dynamic raw acceleration signal)

(E) : High pass (-3 dB)	
*	Description
0	2 Hz
1	5 Hz
2	10 Hz
3	20 Hz
4	50 Hz
5	100 Hz
6	200 Hz
X	Custom

(F) : Low pass (- 3 dB)	
*	Description
0	1500 Hz
1	500 Hz
2	1000 Hz
3	2000 Hz
4	250 Hz
5	230 Hz
X	Custom

For SW5484E Vibration switch:

SW5484E – * * * – * * * * * – * *
(A) (B) (C) (D) (E) (F)

(A) : Range (full scale)			
* * *		Description	
Model SW5484E		A1	A2
Peak	RMS		
121	**151**	1.0 IPS	25.4 mm/s
122	**152**	0.5 IPS	12.7 mm/s
123	**153**	2.0 IPS	50.8 mm/s
124	**154**	5.0 IPS	125 mm/s
126	**156**	0.8 IPS	20.3 mm/s
132	**162**	3.0 IPS	76.2 mm/s

(B) : Housing material and stud size	
* *	Description
10-19, **30**	316 stainless steel housing, multiple stud sizes

(C) : Hazardous area certification	
*	Description
C	(increased safety) ATEX, Ex ec IIC T4 Gc
D	(increased safety) IECEx, Ex ec IIC T4 Gc

(D) : Connection type	
*	Description
8	8-Pin M12
7	5 meter (16.5 feet) Flying leads, 8-wire
6	10 meter (33 feet) Flying leads, 8-wire

(E) : High pass (-3 dB)	
*	Description
0	2 Hz
1	5 Hz
2	10 Hz
3	20 Hz
4	50 Hz
5	100 Hz
6	200 Hz
X	Custom

(F) : Low pass (- 3 dB)	
*	Description
0	1500 Hz
1	500 Hz
2	1000 Hz
3	2000 Hz
4	250 Hz
5	230 Hz
X	Custom

RATINGS

Supply voltage: 11-30 V DC

For SW5484E, the maximum current which can pass through each solid-state switch is 100 mA DC only.

FULL SPECIFIC CONDITIONS OF USE

a. 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 device.

b. The device does not incorporate an external earth facility. It is the responsibility of the user to ensure adequate earth continuity.

c. For ST5484E transmitters with certified capped elbow:
   - The user shall use an Ex eb certified entry device at the capped elbow's entry while respecting the installation requirements of IEC 60079-14.
   - Disconnect the device from supply circuit before opening the capped conduit elbow.
   - The disassembling of the transmitter from its capped elbow is not allowed.

d. For ST5484E transmitters with 2-Pin MIL connector: the mating female connector provided by the end user shall be in accordance with all applicable clauses of IEC 60079-0 and IEC 60079-7. A minimum degree of protection IP54 according to IEC 60529 shall be ensured.
   The mating connector shall not be connected or disconnected when energized.

e. For ST5484E transmitters with flying leads: the flying leads shall be suitably protected from impact and shall be terminated within a suitably certified enclosure or in safe area. The installation shall guarantee that no pulling force will be applied to the leads.

f. For SW5484E with 8-Pin M12 connector: the mating female connector provided by the end user shall be in accordance with all applicable clauses of IEC 60079-0 and IEC 60079-7. A minimum degree of protection IP54 according to IEC 60529 shall be ensured.
The mating connector shall not be connected or disconnected when energized.

g. For SW5484E with permanent cable and separately certified cable gland: according to specific conditions of use of certificate No. IECEx CML 19.0062X of TRUSEAL TSMe M16x1.5 cable gland, the end user shall provide suitable additional clamping of the cable to ensure that pulling is not transmitted to the terminations.

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.