



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 CML 23.0096X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2023-09-06

Applicant: **METRIX INSTRUMENT CO.**
8824 Fallbrook
Houston
TEXAS 77064
USA
United States of America

Equipment: **Vibration transmitter type ST5484E-***_****_** and Vibration switches type SW5484E-***_****_****

Optional accessory:

Type of Protection: **Intrinsic Safety Ex "i", Flameproof Ex "d", Increased Safety Ex "e"**

Marking: Ex ia IIC T4 Ga Ta = -40 °C to +100 °C
Ex db IIC T* Gb where T4: Ta = -40°C to +100°C
T6: Ta = -40°C to +73°C
Ex ec IIC T* Gc where T4: -40°C ≤ Tamb ≤ +100°C
T6: -40°C ≤ Tamb ≤ +73°C

Approved for issue on behalf of the IECEx
Certification Body:

Ben Trafford

Position:

Certification Officer

Signature:
(for printed version)

Date:
(for printed version)

2023-09-06

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Certificate issued by:

Eurofins E&E CML Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom



METRIX DOC NO: 1185351
REV: E



IECEX Certificate of Conformity

Certificate No.: **IECEX CML 23.0096X**

Page 2 of 3

Date of issue: 2023-09-06

Issue No: 0

Manufacturer: **METRIX INSTRUMENT CO.**
8824 Fallbrook
Houston
TEXAS 77064
USA
United States of America

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 60079-1:2014](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[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:

[GB/CML/ExTR23.0131/00](#)

Quality Assessment Report:

[GB/BAS/QAR10.0017/08](#)



IECEX Certificate of Conformity

Certificate No.: **IECEX CML 23.0096X**

Page 3 of 3

Date of issue: 2023-09-06

Issue No: 0

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Vibration transmitter type ST5484E-*-****-** (Ex ia IIC T4 Ga)**

The **ST5484E Vibration Transmitter** is used to detect vibration level of machine. It provides an output current in the range 4-20 mA proportional to the vibration level.

Vibration transmitters type ST5484E-*-****-** & Vibration switches type SW5484E-***-****-** (Ex db IIC T* Gb)**

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 provides an output a current in the range 4-20 mA, proportional to the vibration level. Additionally, it can also be provided with an optional dynamic output.

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

Vibration transmitters type ST5484E-*-****-** & Vibration switches type SW5484E-***-****-** (Ex ec IIC T* Gc)**

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 provides an output a current in the range 4-20 mA, proportional to the vibration level. Additionally, it can also be provided with an optional dynamic output.

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

SEE ANNEX for DETAILS

SPECIFIC CONDITIONS OF USE: YES as shown below:

SEE ANNEX for DETAILS

Annex:

[Certificate Annex IECEX CML 23.0096X Issue 0.pdf](#)

Annexe to: IECEx CML 23.0096X Issue 00
Applicant: Metrix Instrument Co.
Apparatus: Vibration transmitter type ST5484E-***-****-** and Vibration switches type SW5484E-***-****-**

Description

Vibration transmitter type ST5484E-***-****-** (Ex ia IIC T4 Ga)

The **ST5484E Vibration Transmitter** is used to detect vibration level of machine. It provides an output current in the range 4-20 mA proportional to the vibration level.

The sensor printed circuit boards are installed inside a stainless-steel enclosure which may be optionally mounted on an 8200 series Killark metallic enclosure. The entire sensor unit is encapsulated.

The equipment provides different connection types: 2 or 4-wire flying leads, 2 or 4-pin terminal block, 2-pin MIL terminal.

The equipment must be installed per drawing 9278.

Ratings

Vibration transmitter - Type : ST5484E-AAA-BBCD-EF

Intrinsic safety electrical parameters:

Ui:	29.6 V
Ii:	100 mA
Pi:	0.75 W
Ci:	70 nF
Li:	0.6 uH



Certificate Annex IECEx
 Version: 8.0 Approval: Approved

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Vibration transmitters type **ST5484E-***-****-**** & Vibration switches type **SW5484E-***-****-**** (Ex db IIC T* Gb)

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 provides an output a current in the range 4-20 mA, proportional to the vibration level. Additionally, it can also be provided with an optional dynamic output.

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

Each device consists of a stainless-steel cylindrical housing, with 1 inch NPT external thread.

Printed circuit boards are mounted in the metallic housing and filled with potting compound to totally encase the electronics. The device is secured into a certified conduit capped elbow of type Y-3-EX from Killark that provides the flameproof protection.

The electrical connections to the ST5484E Vibration Transmitter are either:

- 2-Pin or 4-Pin terminal block, or
- Flying leads (2-wire or 4-wire),

A terminal block may also be mounted inside the conduit capped elbow to facilitate electrical connections.

The **SW5484E Vibration Switch** has a permanent cable (flying leads). The cable entry has a 5 K thermal rise above the ambient operating temperature of the device.

Ratings

ST5484E-***-****-** Vibration transmitters & SW5484E-***-****-** Vibration switches, with conduit capped elbow	
Supply voltage: 11-30 V DC	For SW5484E, the maximum current which can pass through each solid-state switch is 100 mA DC only.



Vibration transmitters type **ST5484E-***-****-**** & Vibration switches type **SW5484E-***-****-**** (Ex ec IIC T* Gc)

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 provides an output a current in the range 4-20 mA, proportional to the vibration level. Additionally, it can also be provided with an optional dynamic output.

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

Each device consists of a stainless-steel cylindrical housing, with 1 inch NPT external thread.

Printed circuit boards are mounted in the metallic housing and filled with potting compound to totally encase the electronics. The device is secured into a certified conduit capped elbow of type Y-3-EX from Killark that provides a degree of Ingress Protection IP66. The assembly forms the complete ST5484E transmitter.

The electrical connections to the ST5484E Vibration Transmitter are either:

With certified conduit elbow of type Y-3-EX

- 2-Pin or 4-Pin terminal block, or
- Flying leads (2-wire or 4-wire), or

Without certified conduit elbow of type Y-3-EX

- 2-Pin MIL terminal

A terminal block may also be mounted inside the conduit capped elbow to facilitate electrical connections.

The **SW5484E Vibration Switch** is provided with either an 8-Pin M12 connector (laser welded to housing), or with a permanently connected cable (flying leads and a certified cable gland. The cable entry has a 5 K thermal rise above the ambient operating temperature of the device.

Ratings

ST5484E-***-****-** Vibration transmitters & SW5484E-***-****-** Vibration switches	
Supply voltage: 11-30 V DC	For SW5484E, the maximum current which can pass through each solid-state switch is 100 mA DC only.

Nomenclature

ST5484E Vibration Transmitter (ST5484E-AAA-BBCD-EF, with AAA, BBCD and EF)			
AAA (3 digits): Range			
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
BB (2 digits): housing material and stud size			
10-19, 30	316 SST housing, multiple stud sizes		
C (1 digit): hazardous area certification			
7	ATEX/IECEX, Ex ia IIC T4 Ga		
8	ATEX/IECEX, Ex db IIC T4 Gb (includes elbow)		
C	ATEX, Ex ec IIC T4 Gc (includes elbow when (D) = 0, 1, 2, 3, 5, or 6)		
D	IECEX, Ex ec IIC T4 Gc (includes elbow when (D) = 0, 1, 2, 3, 5, or 6)		
D: Connection type			
0	24" Flying Leads, 2-wire (4-20 mA output only)		
1	24" Flying Leads, 4-wire (4-20 mA output and dynamic raw acceleration signal)		
2	Terminal Block, 2-wire (4-20 mA output only)		
3	Terminal Block, 4-wire (4-20 mA output and dynamic raw acceleration signal)		
4	2-Pin MIL-style (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 and dynamic raw acceleration signal)		
6	10 meter (33 feet) Flying leads, 8-wire (when option C = C or D)		
7	5 meter (16.5 feet) Flying leads, 8-wire (when option C = C or D)		

ST5484E Vibration Transmitter (ST5484E-AAA-BBCD-EF, with AAA, BBCD and EF)	
8	88-Pin M12 (when option C = C or D)
E : high pass (-3db)	
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 (-3db)	
0	1500 Hz
1	500 Hz
2	1000 Hz
3	2000 Hz
4	250 Hz
5	230 Hz
X	CUSTOM



SW5484E Vibration Switch (SW5484E-AAA-BBCD-EF, with AAA, BBCD and EF)			
AAA (3 digits): range			
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
BB (2 digits): housing material and stud size			
10-19, 30	316 SST housing, multiple stud sizes		
C (1 digit): hazardous area certification			
8	ATEX/IECEX Ex db IIC T4 Gb (explosion proof, includes Y-3-EX capped elbow)		
C	ATEX, Ex ec IIC T4 Gc		
D	IECEX, Ex ec IIC T4 Gc		
D: Connection type			
0	24" Flying Leads, 2-wire (4-20 mA output only)		
1	24" Flying Leads, 4-wire (4-20 mA output and dynamic raw acceleration signal)		
2	Terminal Block, 2-wire (4-20 mA output only)		
3	Terminal Block, 4-wire (4-20 mA output and dynamic raw acceleration signal)		
4	2-Pin MIL-style (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 and dynamic raw acceleration signal)		
6	10 meter (33 feet) Flying leads, 8-wire (when option C = C or D)		
7	5 meter (16.5 feet) Flying leads, 8-wire (when option C = C or D)		
8	88-Pin M12 (when option C = C or D)		
E : high pass (-3db)			

SW5484E Vibration Switch (SW5484E-AAA-BBCD-EF, with AAA, BBCD and EF)	
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 (-3db)	
0	1500 Hz
1	500 Hz
2	1000 Hz
3	2000 Hz
4	250 Hz
5	230 Hz
X	CUSTOM

Ratings

ST5484E Vibration Transmitter: Ex ia IIC T4 Ga

Intrinsic safety electrical parameters:	Ui:	29.6 V
	Ii:	100 mA
	Pi:	0.75 W
	Ci:	70 nF
	Li:	0.6 μH

ST5484E Vibration Transmitter and SW5484E Vibration Switch: Ex dB IIC T4 Gb

Supply voltage:	11-30 VDC
For SW5484E, the maximum current which can pass through each solid-state switch is 100 mA DC only.	

ST5484E Vibration Transmitter and SW5484E Vibration Switch: Ex ec IIC T4 Gc

Supply voltage:	11-30 VDC
For SW5484E, the maximum current which can pass through each solid-state switch is 100 mA DC only.	

Conditions of Manufacture

All versions

- i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

Vibration transmitters type ST5484E-***-****-** & Vibration switches type SW5484E-***-****-** (Ex ec IIC T4 Gc):

- ii. 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.



Specific Conditions of Use

Vibration transmitter type ST5484E-***-****-** (Ex ia IIC T4 Ga)

- i. The intrinsically safe apparatus shall only be connected to associated intrinsically safe apparatus certified for the intended use. This association shall comply with the requirements of EN/IEC 60079-25 standard.
- ii. Ambient temperature range: -40 °C to +100 °C
- iii. When the optional aluminum elbow enclosure is used, the equipment must be installed in such a way that, even in the event of rare incidents, the aluminum enclosure cannot be an ignition source due to impacts or frictions.
- iv. The models equipped with terminals or flying leads shall be mounted on an additional enclosure having a protection degree of at least IP20 and conform to EN/IEC 60079-0.
- v. For the models equipped with additional dynamic output, this output cannot be used when the equipment is situated in hazardous area.
- vi. The equipment must be installed in accordance with drawing 9278.

Vibration transmitters type ST5484E-***-****-** & Vibration switches type SW5484E-***-****-** (Ex db IIC T4 Gb)

- i. The final user shall use an Ex d certified entry device at the elbow's entry while respecting the installation requirements of EN/IEC 60079-14. For ST5484E transmitters with flying leads, a flameproof entry device with sealing compound (barrier seal) shall be used.
- ii. The equipment does not incorporate an external earth facility. It is the responsibility of the user to ensure adequate earth continuity.
- iii. The disassembling of the device from its conduit capped elbow is not allowed.
- iv. Ambient temperature range for T4 Temperature Code: -40 °C to +100 °C
Ambient temperature range for T6 Temperature Code: -40 °C to +73 °C

Vibration transmitters type ST5484E-***-****-** & Vibration switches type SW5484E-***-****-** (Ex ec IIC T4 Gc)

- i. 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.
- ii. The device does not incorporate an external earth facility. It is the responsibility of the user to ensure adequate earth continuity.
- iii. 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 EN/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.



- iv. 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 EN/IEC 60529 shall be ensured.
The mating connector shall not be connected or disconnected when energized.
- v. 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.
- vi. 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 EN/IEC 60079-0 and EN/IEC 60079-7. A minimum degree of protection IP54 according to EN/IEC 60529 shall be ensured.
The mating connector shall not be connected or disconnected when energized.
- vii. For SW5484E with permanent cable and separately certified cable gland: according to specific conditions of use of certificates 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.
- viii. Ambient temperature range for T4 Temperature Code: -40 °C to +100 °C
Ambient temperature range for T6 Temperature Code: -40 °C to +73 °C



The following pages are the prior revisions of this certificate.



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 LCI 11.0025X** Page 1 of 4 Certificate history:
Status: **Current** Issue No: 4 Issue 3 (2020-06-26)
Date of Issue: 2022-02-24 Issue 2 (2013-11-29)
Applicant: **Metrix Instrument Co.** Issue 1 (2012-01-16)
8824 Fallbrook Drive Issue 0 (2011-04-08)
Houston, Texas 77064
United States of America
Equipment: **ST5484E-***-****-** Vibration transmitters & SW5484E-***-**g*-** Vibration switches, with conduit capped elbow**
Optional accessory:
Type of Protection: **Flameproof "db"**
Marking: Ex db IIC T4 Gb
(refer to Annex for full marking)

Approved for issue on behalf of the IECEx
Certification Body:

Jérôme REYSSON

Position:

Certification Officer

Signature:
(for printed version)



Date:
(for printed version)

2022-02-24

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Certificate issued by:

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



LCIE

METRIX DOC NO: 1185351
REV: D



IECEX Certificate of Conformity

Certificate No.: **IECEX LCI 11.0025X**

Page 2 of 4

Date of issue: 2022-02-24

Issue No: 4

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

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 60079-1:2014-06](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

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:

[FR/LCI/ExTR11.0026/00](#)
[FR/LCIE/ExTR20.0043/00](#)

[FR/LCI/ExTR11.0026/01](#)
[FR/LCIE/ExTR22.0018/00](#)

[FR/LCI/ExTR11.0026/02](#)

Quality Assessment Report:

[GB/BAS/QAR10.0017/07](#)



IECEX Certificate of Conformity

Certificate No.: **IECEX LCI 11.0025X**

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Date of issue: 2022-02-24

Issue No: 4

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:

- The final user shall use an Ex d certified entry device at the elbow's entry while respecting the installation requirements of IEC 60079-14. For ST5484E transmitters with flying leads, a flameproof entry device with sealing compound (barrier seal) shall be used.
- The equipment does not incorporate an external earth facility. It is the responsibility of the user to ensure adequate earth continuity.
- The disassembling of the device from its conduit capped elbow is not allowed.



IECEX Certificate of Conformity

Certificate No.: **IECEX LCI 11.0025X**

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Date of issue: 2022-02-24

Issue No: 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1:

- Normative update according to IEC 60079-0 Ed. 5.
- Modification of ST5484E vibration transmitter : change of EMI filters, modification of one printed circuit board, addition of a new casting compound.

Issue 2 :

- Normative update according to IEC 60079-0 Ed 6.0.
- Change of the Metrix reference for the conduit elbow: 8200-001 become 8200-001-IEC.
- Modification of the model reference: ST5484E-XXX-Y3Z-WW becomes ST5484E-XXX-Y6Z-WW or ST5484E-XXX-Y8Z-WW.

Issue 3 :

- Normative updates according to IEC 60079-0 Ed. 7.0 and IEC 60079-1 Ed. 7.0.
- Update of technical documents.
- Update of the type designation (range details).
- Adding of a version elbow Y-3-EX with integrated terminal block.
- Change of the Metrix reference for the conduit elbow: 8200-001-IEC to 8200-XXX-IEC (Y-3-EX elbow with or without integrated terminal block plus a certified Ex db reducer).
- Update of special conditions for a safe use.

Issue 4:

- Addition of the SW5484E Vibration switch.
- Update of technical documents (includes a minor modification to DC power board).
- Update of specific conditions of use.

Annex:

[Annex 01 to certificate IECEx LCI 11.0025X issue 4.pdf](#)



Annex 01 to Certificate IECEX LCI 11.0025X issue 4



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.

Each device consists of a stainless steel housing in cylindrical shape, having a 1 inch NPT external thread. 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.

The device is screwed into a certified conduit capped elbow of type Y-3-EX from Killark providing the flameproof type of protection "db". This assembly forms the complete product and it is secured with thread lock to prevent unscrewing the device from the capped elbow.

Depending on the model, the electrical connection of ST5484E is done via:

- 2-Pin or 4-Pin terminal block;
- Flying leads (2-wire or 4-wire);

A terminal block can also be mounted inside the conduit capped elbow to make the connection easier.

The SW5484E Vibration Switch is manufactured with a permanent cable (flying leads version). 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

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.

MARKING

METRIX

Address : ...

Type : ST5484E-***-****-** (1) or SW5484E-***-**8*-** (1)

Serial number : ...

Year of construction : ...

Ex db IIC T4 Gb

IECEX LCI 11.0025X

-40 °C ≤ T_{amb} ≤ +100 °C

(1) Completed as per the type

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

(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

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

(C) : Hazardous area certification	
*	Description
8	ATEX/IECEX Ex db IIC T4 Gb (explosion proof, includes Y-3-EX capped elbow)

(D) : Connection type	
*	Description
7	5 meter (16.5 feet) Flying leads, 8-wire
9	10 meter (33 feet) Flying leads, 8-wire

(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

ROUTINE TESTS

None.



The following pages are the prior revisions of this certificate.



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 LCI 11.0025X** Page 1 of 4 [Certificate history:](#)
Status: **Current** Issue No: 3 [Issue 2 \(2013-11-29\)](#)
[Issue 1 \(2012-01-16\)](#)
[Issue 0 \(2011-04-08\)](#)
Date of Issue: 2020-06-26
Applicant: **Metrix Instrument Co.**
8824 Fallbrook Drive
Houston, Texas 77064
United States of America
Equipment: **Vibration transmitters with conduit elbow - ST5484E series**
Optional accessory:
Type of Protection: **Flameproof "db"**
Marking: Ex db IIC T4 Gb
(see attachment for full marking)

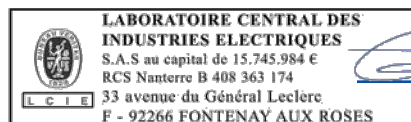
Approved for issue on behalf of the IECEx
Certification Body:

Julien GAUTHIER

Position:

Certification Officer

Signature:
(for printed version)



Julien Gauthier
2020-06-26

Date:

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
Fontenay-aux-Roses FR-92260
France



METRIX DOC NO: 1185351
REV: C



IECEX Certificate of Conformity

Certificate No.: **IECEX LCI 11.0025X**

Page 2 of 4

Date of issue: 2020-06-26

Issue No: 3

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 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

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:

[FR/LCI/ExTR11.0026/00](#)
[FR/LCIE/ExTR20.0043/00](#)

[FR/LCI/ExTR11.0026/01](#)

[FR/LCI/ExTR11.0026/02](#)

Quality Assessment Report:

[GB/BAS/QAR10.0017/06](#)



IECEx Certificate of Conformity

Certificate No.: **IECEx LCI 11.0025X**

Page 3 of 4

Date of issue: 2020-06-26

Issue No: 3

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The 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 full equipment description is given in the attachment.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- Ambient operating temperature range: $-40\text{ °C} \leq T_{\text{amb}} \leq +100\text{ °C}$.
- The user shall use an Ex d certified entry device at the elbow's entry while respecting the installation requirements of IEC/EN 60079-14. Furthermore for flying leads version without terminals, the final user shall use a flameproof entry device with sealing compound (barrier seal) at the elbow's entry.
- The device does not incorporate an external earth facility. It is the responsibility of the user to ensure adequate earth continuity.
- The disassembling of the vibration transmitter from its conduit elbow is not allowed.



IECEx Certificate of Conformity

Certificate No.: **IECEx LCI 11.0025X**

Page 4 of 4

Date of issue: 2020-06-26

Issue No: 3

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1:

- Normative update according to IEC 60079-0 Ed. 5.
- Modification of ST5484E vibration transmitter : change of EMI filters, modification of one printed circuit board, addition of a new casting compound.

Issue 2 :

- Normative update according to IEC 60079-0 Ed 6.0.
- Change of the Metrix reference for the conduit elbow: 8200-001 become 8200-001-IEC.
- Modification of the model reference: ST5484E-XXX-Y3Z-WW becomes ST5484E-XXX-Y6Z-WW or ST5484E-XXX-Y8Z-WW.

Issue 3 :

- Normative updates according to IEC 60079-0 Ed. 7.0 and IEC 60079-1 Ed. 7.0.
- Update of technical documents.
- Update of the type designation (range details).
- Adding of a version elbow Y-3-EX with integrated terminal block.
- Change of the Metrix reference for the conduit elbow: 8200-001-IEC to 8200-XXX-IEC (Y-3-EX elbow with or without integrated terminal block plus a certified Ex db reducer).
- Update of special conditions for a safe use.

Annex:

[Annex 01 to Certificate IECEx LCI 11.0025X issue 3.pdf](#)



Annex 01 to Certificate IECEX LCI 11.0025X issue 3



FULL EQUIPMENT DESCRIPTION

The 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 vibration transmitter has a stainless steel housing, in cylindrical shape, having a 1 inch NPT external thread. It is screwed into a certified conduit elbow of type Y-3-EX from Killark providing the flameproof type of protection "db". The assembly is secured with thread lock to prevent unscrewing the sensor from the conduit elbow.

The electrical connection is done via a two or four pin terminal block OR via flying leads (2-wire or 4-wire). A terminal block also may be mounted inside the conduit elbow to make the connection easier.

The complete references of the conduit elbow are:

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

MARKING

Metrix

Type: ST5484E-***-****-** (1)

Serial number: ...

Year of construction: ...

Ex db IIC T4 Gb

IECEX LCI 11.0025X

-40 °C ≤ T_{amb} ≤ +100 °C

(1) Completed as per the range details

METRIX DOC NO: 1185351
REV: C



The following pages are the prior revisions of this certificate.



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX LCI 11.0025X** issue No.:2
Status: **Current**
Date of Issue: **2013-11-29** Page 1 of 4

Certificate history:
Issue No. 2 (2013-11-29)
Issue No. 1 (2012-1-16)
Issue No. 0 (2011-4-8)

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

Electrical Apparatus: **Vibration Transmitter with conduit elbow type ST5484E...**
Optional accessory:

Type of Protection: **Flameproof "d"**

Marking: **METRIX** Address :
Type : ST5484E... (1)
Serial number :
Year of construction :
Ex d IIC T4 Gb
IECEX LCI 11.0025 X
(1)see attachment

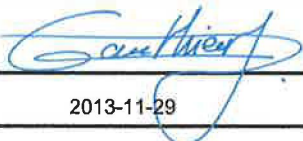
*Approved for issue on behalf of the IECEx
Certification Body:*

Julien GAUTHIER

Position:

Certification Officer

*Signature:
(for printed version)*



Date:

2013-11-29

1. This certificate and schedule may only be reproduced in full.
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3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

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

Documents relative to LCIE certification activities (Certificates, QARs, ExTRs) can be registered under the references "LCI" or "LCIE".



METRIX DOC NO: 1185351
REV: B



IECEX Certificate of Conformity

Certificate No.: IECEX LCI 11.0025X

Date of Issue: 2013-11-29

Issue No.: 2

Page 2 of 4

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

Additional Manufacturing location
(s):

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 electrical apparatus 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 : 2011 Explosive atmospheres - Part 0: General requirements
Edition: 6.0

IEC 60079-1 : 2007-04 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition: 6

*This Certificate **does not** indicate compliance with electrical 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/LCI/ExTR11.0026/00

FR/LCI/ExTR11.0026/01

FR/LCI/ExTR11.0026/02

Quality Assessment Report:

GB/BAS/QAR10.0017/00

GB/BAS/QAR10.0017/01

GB/BAS/QAR10.0017/02



IECEX Certificate of Conformity

Certificate No.: IECEx LCI 11.0025X

Date of Issue: 2013-11-29

Issue No.: 2

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The vibration transmitter is used to detect vibration level of machine, it provides at the output a current, in the range 4-20 mA, function of the vibration level.

The vibration transmitter can be used associated with a conduit elbow from Killark reference Y-3-EX providing a flameproof protection type "d".

The Killark elbow sub-assembly is an already certified product for flameproof protection concept, Metrix reference is 8200-001-IEC, marking is: Ex d IIC IP56

CONDITIONS OF CERTIFICATION: YES as shown below:

- Temperature range: $-40^{\circ}\text{C} \leq T_{amb} \leq +100^{\circ}\text{C}$.

- Use of conduit elbow, Metrix reference: 8200-001-IEC, which is a Killark product with reference: Y-3-EX.



IECEx Certificate of Conformity

Certificate No.: IECEx LCI 11.0025X

Date of Issue: 2013-11-29

Issue No.: 2

Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1:

- update of IEC 60079-0 Ed 5 standard.
- modification of ST5484E vibration transmitter : change of EMI filters, modification of one printed circuit board, addition of a new casting compound.

Issue 2 :

- normative update according to IEC 60079-0 Ed 6.0 standard
- change of reference for the conduit elbow : 8200-001 become 8200-001-IEC
- modification of the model reference : ST5484E-XXX-Y3Z-WW become ST5484E-XXX-Y6Z-WW or ST5484E-XXX-Y8Z-WW.

Annex: [LCIE 11.0025X-attachment 1.pdf](#)

METRIX DOC NO: 1185351
REV: B

Designation of the model : ST5484-aaa-bcd-ef :

aaa : range

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

0-9, 20	303 SST housing, multiple stud sizes
10-19, 30	316 SST housing, multiple stud sizes

c : hazardous area certification

3	ATEX, Ex ia IIC T4 Ga
5	INMETRO, Ex ia IIC T4 Ga
6	INMETRO, Ex d IIC T4 Gb
7	IECEX, Ex ia IIC TA Ga
8	ATEX/IECEX, Ex d IIC T4 Gb

d : dynamic output

0, 2, 4, 5	4-20mA output only
1, 3, 6	Dynamic output = 100mV/g

e : high pass (-3db)

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 (-3db)

0	1500 Hz
1	500 Hz
2	1000 Hz
3	2000 Hz
4	250 Hz
5	230 Hz
X	CUSTOM



The following pages are the prior revisions of this certificate.



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx LCI 11.0025 X issue No.:1

Certificate history:
Issue No. 1 (2012-1-16)
Issue No. 0 (2011-4-8)

Status: **Current**

Date of Issue: **2012-01-16** Page 1 of 4

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

Electrical Apparatus: **Vibration Transmitter with conduit elbow**
Optional accessory:

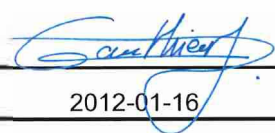
Type of Protection: **Flameproof "d"**

Marking: METRIX Address :
Type : ST5484E Serial number :
Year of construction :
Ex d IIC T4 Gb
IECEx LCI 11.0025 X

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

Position: Certification Officer

Signature:
(for printed version)


2012-01-16

Date:

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 the Official IECEx Website.

Certificate issued by:

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





IECEx Certificate of Conformity

Certificate No.: IECEx LCI 11.0025X

Date of Issue: 2012-01-16

Issue No.: 1

Page 2 of 4

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

Manufacturing location(s):

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 electrical apparatus 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 : 2007-10 Explosive atmospheres - Part 0: Equipment - General requirements
Edition: 5

IEC 60079-1 : 2007-04 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition: 6

*This Certificate **does not** indicate compliance with electrical 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/LCI/ExTR11.0026/01

Quality Assessment Report:

GB/BAS/QAR10.0017/00





IECEx Certificate of Conformity

Certificate No.: IECEx LCI 11.0025X

Date of Issue: 2012-01-16

Issue No.: 1

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The vibration transmitter is used to detect vibration level of machine, it provides at the output a current, in the range 4-20 mA, function of the vibration level.
The vibration transmitter can be used associated with a conduit elbow from Killark reference Y-3-EX providing a flameproof protection type "d".
The Killark elbow sub-assembly is an already certified product for flameproof protection concept, Metrix reference is 8200-001, marking is: Ex d IIC IP56

CONDITIONS OF CERTIFICATION: YES as shown below:

- Temperature range: $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +100^{\circ}\text{C}$.
- Use of conduit elbow, Metrix reference: 8200-001, which is a Killark product with reference: Y-3-EX.





IECEx Certificate of Conformity

Certificate No.: IECEx LCI 11.0025X

Date of Issue: **2012-01-16**

Issue No.: 1

Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Update of standard editions IEC 60079-0 (2009).

Modification of ST5484E vibration transmitter:

- Change of EMI filters.
- Modification of one printed circuit board.
- Addition of a new casting compound.



The following pages are the prior revisions of this certificate.



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: issue No.:

Status:

Date of Issue: **2011-04-08** Page 1 of 3

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

Electrical Apparatus: **Vibration Transmitter with conduit elbow**
Optional accessory:

Type of Protection: **Flameproof "d"**

Marking: **METRIX**
Address :
Type : **ST5484E**
Serial number :
Year of construction :
Ex d IIC T4
IECEx LCI 11.0025 X

Approved for issue on behalf of the IECEx
Certification Body:

Marc Gillaux
Certification Manager

Position:

Signature:
(for printed version)


08 AVR. 2011

Date:

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Certificate issued by:

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





IECEX Certificate of Conformity

Certificate No.: IECEX LCI 11.0025X

Date of Issue: 2011-04-08

Issue No.: 0

Page 2 of 3

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

Manufacturing location(s):

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 electrical apparatus 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 : 2004 Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
Edition: 4.0

IEC 60079-1 : 2007-04 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition: 6

*This Certificate **does not** indicate compliance with electrical 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/LCI/ExTR11.0026/00

Quality Assessment Report:

GB/BAS/QAR10.0017/00





IECEx Certificate of Conformity

Certificate No.: IECEx LCI 11.0025X

Date of Issue: 2011-04-08

Issue No.: 0

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The vibration transmitter is used to detect vibration level of machine, it provides at the output a current, in the range 4-20 mA, function of the vibration level. The vibration transmitter can be used with a conduit elbow from Killark reference Y-3-EX providing a flameproof protection type "d".

The vibration transmitter ST5484E sub-assembly is an already certified product for intrinsic protection concept, marking is: Ex ia IIC T4

The Killark elbow sub-assembly is an already certified product for flameproof protection concept, Metrix reference is 8200-001, marking is: Ex d IIC IP56

CONDITIONS OF CERTIFICATION: YES as shown below:

- Temperature range: $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +100^{\circ}\text{C}$.
- Use of conduit elbow, Metrix reference: 8200-001, which is a Killark product with reference: Y-3-EX.

