

UK Type Examination Certificate CML 23UKEX1250X Issue 0

United Kingdom Conformity Assessment

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **Vibration transmitter - Type : ST5484E-AAA-BBCD-EF and, ST5484E-***-****-** Vibration transmitters & SW5484E-***-**8*-** Vibration switches, with conduit capped elbow**
- 3 Manufacturer **Metrix Instrument Co.**
- 4 Address **8824 Fallbrook, Houston, Texas 77064, United States of America**

- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential reports listed in Section 12.

- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

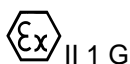
EN IEC 60079-0:2018

EN 60079-11:2012

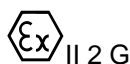
EN 60079-1:2014

- 10 The equipment shall be marked with the following:

Vibration transmitter - Type : ST5484E-*-****-** Vibration transmitters & ST5484E-AAA-BBCD-EF SW5484E-***-**8*-** Vibration switches, with conduit capped elbow**



Ex ia IIC T4 Ga
Ta = -40 °C to +100 °C



Ex db IIC T* Gb

T4	T6
Ta = -40 °C to +100 °C	Ta = -40 °C to +73 °C




Ben Trafford
Certification Officer



CML 23UKEX1250X
Issue 0

11 Description

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 connection types are either :

- 2 or 4-wire flying leads, or
- 2 or 4-pin terminal block, or
- 2-pin MIL terminal

The equipment must be installed per drawing 9278.

Ratings

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

Intrinsic safety electrical parameters:

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

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),



CML 23UKEX1250X
Issue 0

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-***-***8*-*** 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.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	06 Sept 2023	R16550A/00	Initial Issue

Note: Drawings that describe the equipment are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- 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.



CML 23UKEX1250X
Issue 0

14 Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

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

- 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 60079-25 standard.
- ii. Ambient temperature range (T4): -40 °C to +100 °C
- iii. When the optional aluminium elbow enclosure is used, the equipment must be installed in such a way that, even in the event of rare incidents, the aluminium 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.

ST5484E-***-****-** Vibration transmitters & SW5484E-***-**8*-** Vibration switches, with conduit capped elbow:

- i. The final user shall use an Ex d certified entry device at the elbow's entry while respecting the installation requirements of EN 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:

T4 Temperature Code	T6 Temperature Code
-40 °C to +100 °C;	-40 °C to +73 °C

Certificate Annex

Certificate Number CML 23UKEX1250X
Equipment Vibration transmitter - Type : ST5484E-AAA-BBCD-EF and, ST5484E-***-****-** Vibration transmitters & SW5484E-***-**8*-** Vibration switches, with conduit capped elbow
Manufacturer Metrix Instrument Co.



The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
Vibration transmitter - Type : ST5484E-AAA-BBCD-EF				
1891766	2	A	06 Sept 2023	Technical file (cover page and list of documents)
FORM-399-Ex ia-AGENCY	1	A	06 Sept 2023	Descriptive Notice
9163-EX-IA-AGENCY	1	C	06 Sept 2023	Model ST5484E Ex ia Specification Drawing
ST5484E-121-080-00-EX-IA-AGENCY	1	C	06 Sept 2023	Part Lists, Assembly
ST5484E-121-081-00-EX-IA-AGENCY	1	C	06 Sept 2023	Parts List, Assembly
ST5484E-XXX-AGENCY	1	D	06 Sept 2023	Parts List, Assembly
ST5484E-XXX-DWG-AGENCY	2	D	06 Sept 2023	Assembly, Vibration Transmitter
9277-LCIE-AGENCY	12	C	06 Sept 2023	Marking drawing, Housing, ST5484E, LCIE (Etching, Stencil)
9166-AGENCY	1	D	06 Sept 2023	Etching, Stencil
9161-XXX-AGENCY	1	B	06 Sept 2023	Case, Transmitter
9275-121-002-00-AGENCY	1	B	06 Sept 2023	Parts List, Assembly
9275-121-003-00-AGENCY	1	B	06 Sept 2023	Parts List, Assembly
9275-XXX-AGENCY	1	C	06 Sept 2023	Assembly, Module to Accelerometer
9237-121-000-00-AGENCY	1	B	06 Sept 2023	Parts List, Assembly
9237-XXX-AGENCY	1	C	06 Sept 2023	Parts List, Assembly
9237-XXX-AGENCY	1	B	06 Sept 2023	Assembly, Circuit Module

Certificate Annex

Certificate Number CML 23UKEX1250X

Equipment Vibration transmitter - Type : ST5484E-AAA-BBCD-EF and, ST5484E-***-****-** Vibration transmitters & SW5484E-***-**8*-** Vibration switches, with conduit capped elbow

Manufacturer Metrix Instrument Co.



9238-AGENCY	1	B	06 Sept 2023	Parts List, Assembly
9238-AGENCY	1	B	06 Sept 2023	Assembly, Accelerometer
9185-AGENCY	1	B	06 Sept 2023	Schematic, RMS Board
9187-AGENCY	1	B	06 Sept 2023	Assembly, RMS Board
9187-AGENCY	1	C	06 Sept 2023	Parts List, Assembly
9074-AGENCY	1	H	06 Sept 2023	Schematic, DC Board
9076-AGENCY-XXX	1	E	06 Sept 2023	Assembly, DC Board
9076-000-AGENCY	1	B	06 Sept 2023	Parts List, DC Board
9076-XXX-AGENCY	2	E	06 Sept 2023	Parts List, DC Board
9063-AGENCY	1	F	06 Sept 2023	Schematic, AC Board
9065-XXX-AGENCY	1	C	06 Sept 2023	Assembly, AC Board
9065-121-00-AGENCY	1	C	06 Sept 2023	Parts List, AC Board
9065-XXX-AGENCY	1	C	06 Sept 2023	Parts List, AC Board
9188-AGENCY	1	F	06 Sept 2023	Schematic, Accelerometer Board
9190-AGENCY	1	D	06 Sept 2023	Assembly, Accelerometer Board
9190-AGENCY	1	D	06 Sept 2023	Parts List, Accelerometer Board
9278-AGENCY	1	B	06 Sept 2023	Installation ST5484E-XXX Transmitter
8200-XXX	1	H	06 Sept 2023	Assembly, elbow terminal block
9075-AGENCY-DWG	7	H	06 Sept 2023	Drilling Detail, DC PCB, ST5484E

Certificate Annex



Certificate Number CML 23UKEX1250X
Equipment Vibration transmitter - Type : ST5484E-AAA-BBCD-EF and, ST5484E-***-****-** Vibration transmitters & SW5484E-***-**8*-** Vibration switches, with conduit capped elbow
Manufacturer Metrix Instrument Co.

9186-AGENCY-DWG	8	B	06 Sept 2023	Drilling Detail, RMS Board, ST5484E
9064-AGENCY-DWG	7	C	06 Sept 2023	Drilling Detail, AC Conditioning Board, ST5484E
9189-AGENCY-DWG	5	C	06 Sept 2023	Drilling Detail, Accelerometer Board, ST5484E
ST5484E-***-****-** Vibration transmitters & SW5484E-***-**8*-** Vibration switches, with conduit capped elbow				
1891708	2	B	06 Sept 2023	Technical file (cover page and list of documents)
1891538	1	A	06 Sept 2023	Killark Letter 10 Dec 2018 - Y-x-EX Series Cert Update
1869969	9	B	06 Sept 2023	Killark CML 16ATEX1325X
1891539	9	B	06 Sept 2023	Killark IECEX QPS 16-0012X
9163-Ex-d-AGENCY	1	C	06 Sept 2023	Model ST5484E Ex d Specification Drawing
1894562-EX-D-AGENCY	1	A	06 Sept 2023	SPECIFICATIONS, MODEL SW5484E,VIBRATION SWITCH (Ex d)
ST5484E-121-080-00-EX-D-AGENCY	1	B	06 Sept 2023	Part Lists, Assembly
SW5484E-121-0087-00-EX-D-AGENCY	1	A	06 Sept 2023	PARTS LIST, ASSY, VIBRATION SWITCH, 1.0 IPS PK. F.S., 2Hz-15000Hz, -3dB, 8 WIRE LEADS, AGENCY
ST5484E-121-081-00-EX-D-AGENCY	1	B	06 Sept 2023	Parts List, Assembly
ST5484E-XXX-AGENCY	1	D	06 Sept 2023	Parts List, Assembly
ST5484E-XXX-Ex d-AGENCY	1	A	06 Sept 2023	Assembly, Vibration Switch
SW5484E-XXX-AGENCY	1	A	06 Sept 2023	PARTS LIST, ASSY, VIB. SWITCH, COMMON PARTS, AGENCY
SW5484E-XXX-AGENCY-DWG	2	A	06 Sept 2023	ASSY, VIBRATION SWITCH, SW5484E-XXX
9277-LCIE-AGENCY	12	C	06 Sept 2023	Marking drawing, Housing, ST5484E, LCIE (Etching, Stencil)
9166-DWG-AGENCY	1	E	06 Sept 2023	Etching, Stencil

This certificate shall only be copied in its entirety and without change
www.CMLEx.com

Certificate Annex



Certificate Number CML 23UKEX1250X
Equipment Vibration transmitter - Type : ST5484E-AAA-BBCD-EF and, ST5484E-***-****-** Vibration transmitters & SW5484E-***-**8*-** Vibration switches, with conduit capped elbow
Manufacturer Metrix Instrument Co.

1895475-AGENCY	6	A	06 Sept 2023	SW5484E, VIBRATION SWITCH, MARKING DWG
9161-XXX-DWG-AGENCY	1	B	06 Sept 2023	CASE, THREADED UNITS
100991-XXX-AGENCY-DWG	1	A	06 Sept 2023	CASE, SWITCH, TREADED UNITS, SW5484E, RoHS, AGENCY
9275-121-002-00-AGENCY	1	B	06 Sept 2023	Parts List, Assembly
9275-121-003-00-AGENCY	1	B	06 Sept 2023	Parts List, Assembly
9275-121-007-00-AGENCY	1	A	06 Sept 2023	PARTS LIST, ASSY, MODULE, 1 IPS PK, FS TO ACCEL., 2Hz01500Hz, 8 WIRE LEADS,
9275-XXX-AGENCY	1	C	06 Sept 2023	Assembly, ST Module to Accelerometer
9275-XX8-AGENCY-DWG	1	A	06 Sept 2023	Assembly, SW Module to Accelerometer
9237-121-000-00-AGENCY	1	B	06 Sept 2023	Parts List, Assembly
9237-121-008-00-AGENCY	1	A	06 Sept 2023	PARTS LIST, ASSY, MODULE, SW5484E, 1 IPS PK F.S., AGENCY
9237-XXX-AGENCY	1	C	06 Sept 2023	Parts List, Assembly
9237-XXX-DWG-AGENCY	1	B	06 Sept 2023	Assembly, Circuit Module
9237-XX8-AGENCY-DWG	1	A	06 Sept 2023	ASSY, CIRCUIT MODULE, SW5484E, RoHS, AGENCY
9238-AGENCY	1	B	06 Sept 2023	Parts List, Assembly
9238-AGENCY	1	B	06 Sept 2023	Assembly, Accelerometer
9185-AGENCY	1	B	06 Sept 2023	Schematic, RMS Board
9187-AGENCY	1	C	06 Sept 2023	Assembly, RMS Board
9187-AGENCY	1	B	06 Sept 2023	Parts List, RMS Assembly

Certificate Annex



Certificate Number CML 23UKEX1250X
Equipment Vibration transmitter - Type : ST5484E-AAA-BBCD-EF and, ST5484E-***-****-** Vibration transmitters & SW5484E-***-**8*-** Vibration switches, with conduit capped elbow
Manufacturer Metrix Instrument Co.

101040-AGENCY-DWG	1	A	06 Sept 2023	Schematic, DC Board
101042-AGENCY-DWG	1	B	06 Sept 2023	Assembly, DC Board
101042-AGENCY	1	C	06 Sept 2023	Parts List, DC Board
9063-AGENCY	1	F	06 Sept 2023	Schematic, AC Board
9065-XXX-AGENCY	1	C	06 Sept 2023	Assembly, AC Board
9065-121-00-AGENCY	1	C	06 Sept 2023	Parts List, AC Board
9065-XXX-AGENCY	1	C	06 Sept 2023	Parts List, AC Board
9188-AGENCY	1	F	06 Sept 2023	Schematic, Accelerometer Board
9190-AGENCY	1	D	06 Sept 2023	Assembly Accelerometer Board
9190-AGENCY	1	D	06 Sept 2023	Parts List, Accelerometer Board
8200-XXX-DWG	1	H	06 Sept 2023	Assembly, elbow terminal block
100964-AGENCY-DWG	1	C	06 Sept 2023	Schematic, Switch Board
100966-AGENCY	1	B	06 Sept 2023	Parts List, Switch Board
100966-AGENCY-DWG	1	B	06 Sept 2023	Assembly, Switch Board