

Type Examination Certificate **CML 23UKEX3329X Issue 0**

United Kingdom Conformity Assessment

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended)
- 2 Equipment **ST5484E-***-****-** Vibration transmitters & SW5484E-***-****-**
Vibration switches**
- 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, 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.

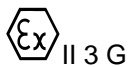
The examination and test results are recorded in the confidential reports listed in Section 12.

- 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 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 IEC 60079-7:2015+A1:2018

- 10 The equipment shall be marked with the following:

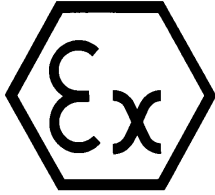


Ex ec IIC T* Gc

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




Ben Trafford
Certification Officer



CML 23UKEX3329X
Issue 0

11 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 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 end 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.

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.



CML 23UKEX3329X
Issue 0

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.
- ii. In accordance with clause 7.1 of standard EN 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.

14 Specific Conditions of Use (Special Conditions)

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

- 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 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 EN 60079-0 and EN 60079-7. A minimum degree of protection IP54 according to EN 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 60079-0 and EN 60079-7. A minimum degree of protection IP54 according to EN/ 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 No.

CMP	TRUSEAL TSMc M16x1.5 cable gland	II 2G Ex eb IIC Gb	CML 19ATEX3185X
-----	-------------------------------------	--------------------	-----------------

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:

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

Certificate Annex

Certificate Number CML 23UKEX3329X
Equipment ST5484E-***-****-** Vibration transmitters &
SW5484E-***-****-** Vibration switches
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
1898052	2	A	06 Sept 2023	Technical file (cover page and list of documents)
FORM-399-Ex ec-AGENCY	1	A	06 Sept 2023	Descriptive Notice
9163-EX-EC-AGENCY-DWG	1	A	06 Sept 2023	Model ST5484E Ex IEC Specification Drawing
1894562-EX-EC-AGENCY-DWG	1	A	06 Sept 2023	Model SW5484E Ex IEC Specification Drawing
ST5484E-121-080-00-EX-EC-AGENCY	1	A	06 Sept 2023	Part Lists, Assembly
ST5484E-121-081-00-EX-EC-AGENCY	1	A	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-DWG-AGENCY	1	E	06 Sept 2023	ST5484E Etching, Stencil
1895475-AGENCY	6	A	06 Sept 2023	SW5484E Etching, Stencil
9161-XXX-DWG-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-DWG-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-DWG-AGENCY	1	B	06 Sept 2023	Assembly, Circuit Module
9238-AGENCY	1	B	06 Sept 2023	Parts List, Assembly

Certificate Annex

Certificate Number CML 23UKEX3329X
Equipment ST5484E-***-****-** Vibration transmitters &
 SW5484E-***-****-** Vibration switches
Manufacturer Metrix Instrument Co.



9238-DWG-AGENCY	1	B	06 Sept 2023	Assembly, Accelerometer
9185-DWG-AGENCY	1	B	06 Sept 2023	Schematic, RMS Board
9187-DWG-AGENCY	1	B	06 Sept 2023	Assembly, RMS Board
9187-AGENCY	1	C	06 Sept 2023	Parts List, Assembly
9074-DWG-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-DWG-AGENCY	1	F	06 Sept 2023	Schematic, AC Board
9065-XXX-DWG-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-DWG-AGENCY	1	F	06 Sept 2023	Schematic, Accelerometer Board
9190-DWG-AGENCY	1	D	06 Sept 2023	Assembly, Accelerometer Board
9190-AGENCY	1	D	06 Sept 2023	Parts List, Accelerometer Board
1871697-DWG-AGENCY	1	A	06 Sept 2023	Installation ST5484E/SW5484E
8200-XXX-DWG	1	H	06 Sept 2023	Assembly, elbow terminal block
9075-AGENCY-DWG	7	H	06 Sept 2023	Drilling Detail, DC PCB, ST5484E
9186-DWG-AGENCY	8	B	06 Sept 2023	Drilling Detail, RMS Board, ST5484E
9064-DWG-AGENCY	7	C	06 Sept 2023	Drilling Detail, AC Conditioning Board, ST5484E
9189-DWG-AGENCY	5	C	06 Sept 2023	Drilling Detail, Accelerometer Board, ST5484E
100964-AGENCY-DWG	1	C	06 Sept 2023	Schematic, Switch Board
100965-AGENCY-DWG	7	B	06 Sept 2023	Drilling Detail, Switch Board
100966-AGENCY	1	B	06 Sept 2023	Parts List, Switch Board
100966-AGENCY-DWG	1	B	06 Sept 2023	Assembly, Switch Board
101040-AGENCY-DWG	1	A	06 Sept 2023	Schematic, DC Board
101042-AGENCY-DWG	1	B	06 Sept 2023	Assembly, DC Board

Certificate Annex

Certificate Number CML 23UKEX3329X
Equipment ST5484E-***-****-** Vibration transmitters &
 SW5484E-***-****-** Vibration switches
Manufacturer Metrix Instrument Co.



101042-AGENCY	1	C	06 Sept 2023	Parts List, DC Board
101041-AGENCY-DWG	7	B	06 Sept 2023	Drilling Detail, DC PCB, SW5484E
SW5484E-XXX-DWG	1	A	06 Sept 2023	Assembly, Vibration Switch
SW5484E-121-00C7-00-EX-EC-AGENCY	1	B	06 Sept 2023	Part Lists, Assembly
SW5484E-XXX-AGENCY	1	A	06 Sept 2023	Parts List, Assembly
9275-121-007-00-AGENCY 9275-121-008-00-AGENCY	1	A	06 Sept 2023	Parts List, Assembly
	1	A	06 Sept 2023	Parts List, Assembly
9275-XX8-AGENCY-DWG	1	A	06 Sept 2023	Assembly, Module to Accelerometer
9237-XX8-AGENCY	1	A	06 Sept 2023	Parts List, Assembly
9237-XX8-AGENCY-DWG	1	A	06 Sept 2023	Assembly, Circuit Module
100991-XXX-AGENCY-DWG	1	A	06 Sept 2023	CASE, THREADED UNITS
100992-XXX-AGENCY-DWG	1	A	06 Sept 2023	CASE WELDED UNITS