1 EU - TYPE EXAMINATION CERTIFICATE

2 **Product or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU – Annex III**

3 EU - Type Examination Certificate No.: **EMT18ATEX0014X (incorporating variation V1)**

4 Product: **Ultrasonic Transducers**
Hart dBi range, models dBi 3, dBi 6, dBi 10 and dBi 15
Profibus PA dBi range, models dBi 3, dBi 6, dBi 10 and dBi 15

5 Manufacturer: **Pulsar Process Measurement Limited,**

6 Address: **Cardinal Building, Enigma Commercial Centre, Sandy's Road, Malvern, Worcestershire, WR14 1JJ, United Kingdom**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Element Materials Technology, Notified Body number 2812, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential report **TRA-040487-33-00A**.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013 **EN 60079-11:2012**

Except in respect of those requirements listed at section 18 of the schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to specific conditions of use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of this product shall include the following:

II 1 GD

Ex ia IIC T4 Ga	**T_{amb} -40 °C to +80 °C**
Ex ia IIIC T130 °C Da	**T_{amb} -40 °C to +80 °C**

This certificate and its schedules may only be reproduced in its entirety and without change. This certificate is issued in accordance with the Element Materials Technology Ex Certification Scheme.

S P Winsor, Certification Manager

Issue date: 2020-12-14

Element Materials Technology Rotterdam B.V.
Zekeringstraat 33, 1014 BV, Amsterdam, Netherlands
Registered in the Netherlands. Registered Office: PO Box 6854, 4802 HW, Breda, Netherlands
Company Reg No. 24170257

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15 Description of Product

The Hart dBi and Profibus dBi ultrasonic transducers are a range of low power, compact acoustic measurement devices. They are intended to be powered via an ATEX / IECEx approved power supply such as a Zener barrier. Additionally, the Profibus PA model may be powered by an approved FISCO power supply, from a control unit which also processes the measurement data received.

The range of transducers consists of slightly different constructions with respect to dimensions but all have a non-metallic enclosure which houses two internal electronic PCBs and a piezo crystal. The free space internally is potted with one or two types of materials. Each unit has an integral screened cable for the power supply and some of the models use syntactic foam as a facing material.

Hart dBi and Profibus dBi models are identical in construction, but feature different internal circuitry.

Physical differences between the different model types are listed as follows;

Model	Housing Material	Mounting Connection	Overall Diameter	Overall Height	Nominal Weight
dBi 3 metre	Valox 357 PBT	Rear 1″ BSP or NPT	77 mm (3 inches)	134 mm (5.3 inches)	1.0Kg
dBi 6 metre	Valox 357 PBT	Rear 1″ BSP or NPT	86 mm (3.4 inches)	121 mm (4.8 inches)	1.2Kg
dBi 10 metre	Valox 357 PBT	Rear 1″ BSP or NPT	86 mm (3.4 inches)	121 mm (4.8 inches)	1.3Kg
dBi 15 metre	Valox 357 PBT	Rear 1″ BSP or NPT	86mm (3.4 inches)	135mm (5.3 inches)	1.4Kg
dBi 3 metre	Valox 357 PBT	Front 1½″ Thread	77mm (3 inches)	160mm (6.3 inches)	1.0Kg
dBi 6 metre	Valox 357 PBT	Front 1½″ Thread	77mm (3 inches)	160mm (6.3 inches)	1.2Kg
dBi 10 metre	Valox 357 PBT	Front 2″ Thread	77mm (3 inches)	160mm (6.3 inches)	1.3Kg
dBi 3 metre	PVDF	Rear 1″ BSP or NPT	77 mm (3 inches)	134 mm (5.3 inches)	1.0Kg
dBi 6 metre	PVDF	Rear 1″ BSP or NPT	86 mm (3.4 inches)	121 mm (4.8 inches)	1.2Kg
dBi 10 metre	PVDF	Rear 1″ BSP or NPT	86 mm (3.4 inches)	121 mm (4.8 inches)	1.3Kg
dBi 15 metre	PVDF	Rear 1″ BSP or NPT	86mm (3.4 inches)	135mm (5.3 inches)	1.4Kg
dBi 3 metre	PVDF	Front 1½″ Thread	77mm (3 inches)	160mm (6.3 inches)	1.0Kg
dBi 6 metre	PVDF	Front 1½″ Thread	77mm (3 inches)	160mm (6.3 inches)	1.2Kg
dBi 10 metre	PVDF	Front 2″ Thread	77mm (3 inches)	160mm (6.3 inches)	1.3Kg

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Table of entity parameters			
Parameter	HART dBi IS Barrier	Profibus PA dBi	
		IS Barrier	FISCO
Ui	28 V	28 V	17.5 V
Ii	162 mA	250 mA	380 mA
Pi	1.03 W	2.5 W	5.32 W
Ci	0	4.4 nF	4.4 nF
Li	0	9.89 µH	9.89 µH

16 Test Report No. (as added for this issue of the certificate): TRA-040487-33-00A.

17 Specific Conditions of Use

(1) Potential electrostatic hazard – the dBi transducers must only be wiped with a damp or antistatic cloth.

(2) The equipment must be routinely inspected to avoid the build-up of dust layers when installed in a Zone 20, 21 or 22 environment.

Attention is drawn to the operating and installation instructions which may contain useful information in relation to conditions of use.

18 Essential Health and Safety Requirements (Directive Annex II)

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

19 Drawings and Documents

The list of controlled technical documentation is given in Appendix A to this schedule.

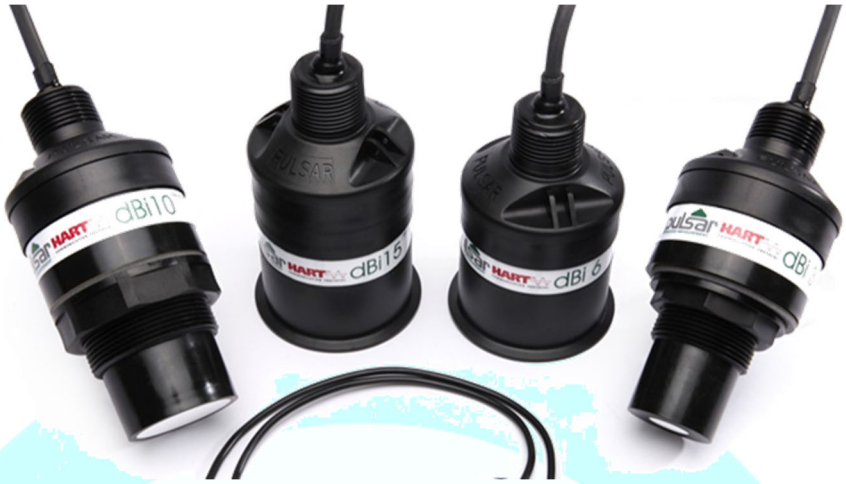
20 Routine Tests

None.

21 Specific Conditions for Manufacture

None.

22 Photographs



23 Details of Markings

* dBi 3 model labels shown, dBi 6, 10 and 15 models feature identical labels with the exception of the model type text – drawing references D-804-1023-D, D-804-0957-D.

24 Certificate History

Original certificate	2018-10-03	First issue.
Variation V1	2020-12-14	This certificate was originally issued by Notified Body number 0891 under Directive 2014/34/EU. The technical file has been transferred to Element Notified Body number 2812 without further assessment or evaluation..

This certificate is a consolidated certificate and reflects the latest status of the certification, including all variations and amendments.

25 Notes to CE marking

In respect of CE Marking, Element Materials Technology accepts no responsibility for the compliance of the product against all applicable Directives in all applications.

26 Notes to this certificate

Element Materials Technology certification reference: NR-PULQ-0002.

Throughout this certificate, the date format yyyy-mm-dd (year-month-day) is used.

Notified Body number 2812 is the designation for Element Materials Technology Rotterdam BV.

27 Conditions for the validity of this certificate

This certificate remains valid for so long as:

(i) The equipment listed in section 4 is manufactured in accordance with the documents listed in Appendix A of this certificate.

(ii) The standards listed in section 9 of this certificate continue to satisfy the Essential Health and Safety Requirements of Annex II of Directive 2014/34/EU and the generally acknowledged state of the art (e.g. as determined by the publishers of those standards).

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APPENDIX A - TECHNICAL DOCUMENTS

Title:	Drawing No.:	Rev. Level:	Date:
Intelligent Transducer General Layout	D-804-0948-B	B	2018-08-07
HIPA (Hart, imp, PA) Schematic For ATEX Certification	D-804-0949-A	A	2012-01-03
HIPA PCB (3 sheets)	D-804-0950-C	C	2018-04-05
ATEX Certified HIPA Ping BOM (2 sheets)	A-301-0103	1.1	2012-06-19
Hart CPU Schematic For ATEX Certification	D-804-0951-A	A	2012-01-03
Hart CPU PCB (4 sheets)	D-804-0952-C	C	2018-04-05
ATEX Certified Hart Transducer Processor BOM (2 sheets)	A-301-0102	1.2	2018-06-25
Generic dBi 3, 6, 10 & 15 ATEX Exia Transducer Wraparound Labels	D-804-0957-D	D	2019-10-02
dBi Transducer Potting Thickness	D-804-0969-A	A	2012-03-13
dBi Transducer Block Diagram For Exia	D-804-0979-A	A	2012-04-23
dBi Transducer Cap	D-804-0980-A	A	2012-04-23
dBi 3 Standard Housing	D-804-0981-A	A	2012-04-23
dBi 6 Standard Housing	D-804-0982-A	A	2012-04-23
dBi 10 Standard Housing	D-804-0983-A	A	2012-04-23
dBi 15 Standard Housing	D-804-0984-A	A	2012-04-23
dBi 3 Threaded Nose Housing	D-804-0985-A	A	2012-04-23
dBi 6 Threaded Nose Housing	D-804-0986-A	A	2012-04-23
dBi 10 Threaded Nose Housing	D-804-0987-A	A	2012-04-23
dBi Housing Extension Ring	D-804-0988-A	A	2012-04-23
Special Process Instruction 9.0 dBi Potting (4 sheets)	Special Process Instruction 9.0	1.0	2012-06-13
dBi Series HART Intelligent Transducer Installation Manual (2 sheets)	M-DBi-000-001-3P	3P	2018
dBi Intelligent Transducer General Layout	D-804-1022-A	A	2012-11-29
PA-CPU schematic for ATEX (3 sheets)	D-804-1020-B	B	2013-05-15
Profibus PA CPU PCB (4 sheets)	D-804-1021-B	2.1	2012-11-29
ATEX Certified PA CPU PCB (BOM)	A-301-0107	1.4	2018-06-26
Generic Profibus PA dBi 3,6,10 & 15. ATEX Exia Transducer Wraparound.	D-804-1023-D	D	2019-10-02
dBi PA Intelligent Transducer Potting Thickness	D-804-1025-A	A	2012-11-29
Profibus PA dBi Transducer Block Diagram for Exia	D-804-1024-A	A	2012-11-27
dBi Profibus PA series intelligent transducer installation manual (2 sheets)	M-DBiPA-000-001-3P	3P	2018
Specification Sheet A-500-0050 dBi HART Cable Specification	A-500-0050	1.0	2012-06-13