

1 **EC TYPE EXAMINATION CERTIFICATE**

2 Equipment or protective system intended for use in potentially explosive atmospheres –  
Directive 94/9/EC – Annex III

3 EC Type Examination Certificate No.: **TRAC12ATEX0023X (incorporating variation V1)**

4 Equipment: **Ultrasonic Transducers,  
Hart dBi range models dBi 3, dBi 6, dBi 10 and dBi 15.**

5 Manufacturer: **Pulsar Process Measurement Ltd.,**

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

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

8 TRaC Global Ltd, Notified Body number 0891 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment or protective system 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-008917-33-01A & TRA-008917-33-02A.**

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in section 18 of the schedule to this certificate, has been assured by compliance with:

**EN60079-0:2009**

**EN60079-18:2009**

10 If the sign "X" is placed after the certificate number then this indicates that the equipment or protective system is subject to special conditions of safe use specified in the schedule to this certificate.

11 This EC-Type Examination certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of this equipment or protective system shall include the following:

**Ex II 2 G Ex mb IIC T4 Gb**      **T<sub>amb</sub> = -40°C to +80°C**

**II 2 D Ex mb IIIC T130°C Db**

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

*S.P. Winsor*

S P Winsor, Certification Officer

Issue date: 2012-09-06

Copy No.: 1e

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13 **SCHEDULE TO EC TYPE EXAMINATION CERTIFICATE**

14 **TRAC12ATEX0023X (incorporating variation V1)**

15 **General description of equipment or protective system included within the scope of this certificate**

The Hart dBi ultrasonic transducers are a range of 4-20 mA loop-powered, compact acoustic measurement devices. They are intended to be powered by a control unit (not part of this certified equipment) which also processes the measurement data received. The transducers are protected by a fuse in line with the power supply.

The range of transducers consists of slightly different constructions with respect to dimensions but all have a non-metallic enclosure which houses 2 internal electronic PCBs and a piezo crystal. The free space internally is potted with 1 of 2 types of material. Each unit has an integral screened cable for the power supply and some of the models use syntactic foam as a facing material.

The equipment is marked with a maximum voltage rating of  $U_m = 28V$  and is current limited by an internal fuse.

***A list of controlled Manufacturer's Documents is given in Appendix A to this schedule.***

16 **Test report No.:**                    **TRA-008917-33-01A & TRA-008917-33-02A.**

17 **“Special Conditions of Safe Use” for Ex Equipment, if any:**

1. The dBi transducers must be routinely inspected to avoid the build up of dust layers when installed in a Zone 21 & 22.
2. The dBi transducers must only be wiped with a damp or antistatic cloth.
3. Only the fuse value listed on drawing D-0804-0978-A is permitted to be used with the Ex approved dBi transducers.

18 **Essential health and safety requirements**

Covered by application of the standards listed in section 9 of this certificate and the assessment conducted in the test report listed in section 16 of this certificate.

19 **Additional information**

**“Routine tests”, if any:**

None.

**“Special conditions for manufacture”, if any:**

1. Wiring and potting of the dBi transducers shall be manufactured in accordance with document ref. Special process instruction 9.0, dBi potting rev 1.0 dated 2012-06-13.
2. Conditions of manufacturing and production control also apply to the following related certificate: TA1 **TRAC12ATEX0031X**

**Other information, if any:**

None.

**CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0023X V1**

**Photographs**



**Details of markings**

A-800-0402-A PULSAR PROCESS MEASUREMENT LTD WORCESTERSHIRE, ENGLAND. Serial no./yr. 001002/2011 CE 0518	AREA FOR DISTRIBUTORS LOGO, NAME ETC.	HART COMMUNICATION PROTOCOL dBi 3	Electrostatic Hazard - clean only with a damp cloth T <sub>amb</sub> = -40°C to +80 °C PROSPECTIVE SHORT CIRCUIT CURRENT 1500A TRAC 12ATEX0023X Um=28V Ex II 2 G Ex mb IIC T4 Gb II 2 D Ex mb IIIC T130°C Db
A-800-0403-A PULSAR PROCESS MEASUREMENT LTD WORCESTERSHIRE, ENGLAND. Serial no./yr. 001003/2011 CE 0518	AREA FOR DISTRIBUTORS LOGO, NAME ETC.	HART COMMUNICATION PROTOCOL dBi 6	Electrostatic Hazard - clean only with a damp cloth T <sub>amb</sub> = -40°C to +80 °C PROSPECTIVE SHORT CIRCUIT CURRENT 1500A TRAC 12ATEX0023X Um=28V Ex II 2 G Ex mb IIC T4 Gb II 2 D Ex mb IIIC T130°C Db
A-800-0404-A PULSAR PROCESS MEASUREMENT LTD WORCESTERSHIRE, ENGLAND. Serial no./yr. 001005/2011 CE 0518	AREA FOR DISTRIBUTORS LOGO, NAME ETC.	HART COMMUNICATION PROTOCOL dBi 10	Electrostatic Hazard - clean only with a damp cloth T <sub>amb</sub> = -40°C to +80 °C PROSPECTIVE SHORT CIRCUIT CURRENT 1500A TRAC 12ATEX0023X Um=28V Ex II 2 G Ex mb IIC T4 Gb II 2 D Ex mb IIIC T130°C Db
A-800-0405-A PULSAR PROCESS MEASUREMENT LTD WORCESTERSHIRE, ENGLAND. Serial no./yr. 001006/2011 CE 0518	AREA FOR DISTRIBUTORS LOGO, NAME ETC.	HART COMMUNICATION PROTOCOL dBi 15	Electrostatic Hazard - clean only with a damp cloth T <sub>amb</sub> = -40°C to +80 °C PROSPECTIVE SHORT CIRCUIT CURRENT 1500A TRAC 12ATEX0023X Um=28V Ex II 2 G Ex mb IIC T4 Gb II 2 D Ex mb IIIC T130°C Db

**Details of variations to this certificate**

- Variation V1 – update following issue of Trade Agent certificate.

**Notes to CE marking**

In respect of CE Marking, TRaC Global Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

**Notes to this certificate**

TRaC certification reference: **TRA-008917-32-00**.

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

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0023X V1

**APPENDIX A - LIST OF CONTROLLED MANUFACTURER'S DOCUMENTS**

Title:	Drawing No.:	Rev. Level:	Date:
Intelligent Transducer General Layout	D-804-0948-A	A	2011-12-01
HIPA (Hart, imp, PA) Schematic For ATEX Certification	D-804-0949-A	A	2012-01-03
HIPA PCB (3 pages)	D-804-0950-B	B	2012-01-03
ATEX Certified HIPA Ping BOM (2 pages)	*	1.1	2012-06-19
Hart CPU Schematic For ATEX Certification	D-804-0951-A	A	2012-01-03
Hart CPU PCB (4 pages)	D-804-0952-B	B	2012-01-03
ATEX Certified Hart Transducer Processor BOM (3 pages)	*	1.1	2012-06-19
Generic dBi 3, 6, 10 & 15 ATEX Exm Transducer Wraparound Labels	D-804-0994-A	A	2012-05-18
dBi Transducer Block Diagram For Exm	D-804-0978-A	A	2012-04-23
dBi Transducer Potting Thickness	D-804-0969-A	A	2012-03-13
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	*	1.0	2012-06-13
dBi Series Intelligent Transducer ATEX instructions	M-dBi-H-001-0P	*	2012-06

\* no information provided.