



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.: **TRAC12ATEX0022X (incorporating variations V1 to V2)**

4 Equipment: **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 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 reports
TRA-008917-33-00A, TRA-008917-33-02A & TRA-012774-33-00A.

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

EN60079-11:2012

EN60079-26:2007

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:

See section 15 for full details.

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: 2013-08-14

Copy No.: 1e

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Form RF355 is16A

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13 **SCHEDULE TO EC TYPE EXAMINATION CERTIFICATE**

14 **TRAC12ATEX0022X (incorporating variation V2)**

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

The Hart dBi and Profibus PA dBi ultrasonic transducers are a range of low power, compact acoustic measurement devices. They are intended to be powered via, either an ATEX approved galvanic / zener barrier / specialist ATEX approved PSU, Or (for Profibus PA model only) 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 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.

Equipment ATEX Marking

Hart dBi


II 1 G Ex ia IIC T4 Ga **T_{amb} = -40°C to +80°C**
II 1 D Ex ia IIIC T130°C Da

Profibus PA dBi


II 1 G Ex ia IIC T4 Ga **T_{amb} = -40°C to +80°C**
II 1 D Ex ia IIIC T130°C Da

OR **FISCO Field device**

II 1 G Ex ia IIC T4

II 1 D Ex ia IIIC T130°C Da

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

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

16 **Test report Nos.:** **TRA-008917-33-00A, TRA-008917-33-02A & TRA-012774-33-00A.**

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0022X V2

17 “Special Conditions of Safe Use” for Ex Equipment:

1. The Hart dBi transducers must be powered by an ATEX approved barrier that meets the following parameters: $U_o \leq 28V$, $I_o \leq 162mA$, $P_o \leq 1.03W$.
2. The Profibus PA dBi transducer must be powered by either an ATEX approved barrier or FISCO that meets the following parameters:
FISCO: $U_o \leq 17.5V$, $I_o \leq 380mA$, $P_o \leq 5.32W$
I.S. barrier: $U_o \leq 28V$, $I_o \leq 250mA$, $P_o \leq 2.5W$
3. The equipment must be routinely inspected to avoid the buildup of dust layers when installed in a Zone 20, 21 & 22.
4. The power supply cable to the transducers shall meet the relevant installation requirements of clause 9 of EN60079-14:2008.
5. The equipment is considered suitable for use in a FISCO system only when it is installed in accordance with EN60079-25.

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”:

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 TRAC12ATEX0030X

Other information, if any:

None.

Photographs



Hart dBi range

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0022X V2



Profibus PA range

Details of markings

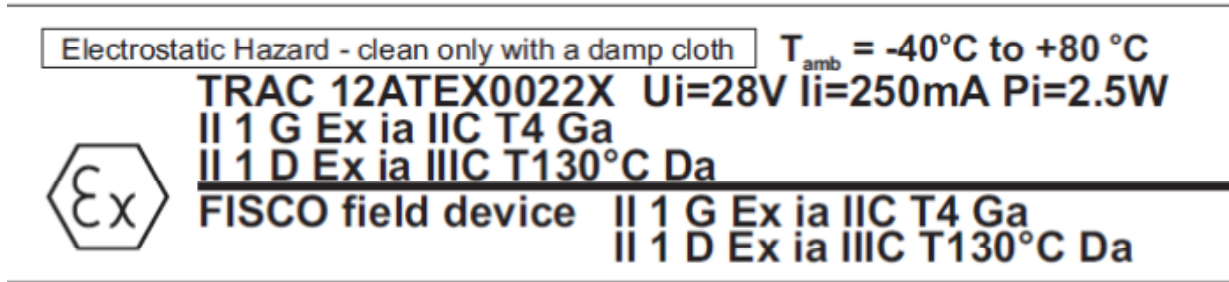
Hart dBi range:

A-800-0398-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 _{amb} = -40°C to +80 °C TRAC 12ATEX0022X Ui=28V Ii=162mA Pi=1.03W II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da
A-800-0399-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 _{amb} = -40°C to +80 °C TRAC 12ATEX0022X Ui=28V Ii=162mA Pi=1.03W II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da
A-800-0400-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 _{amb} = -40°C to +80 °C TRAC 12ATEX0022X Ui=28V Ii=162mA Pi=1.03W II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da
A-800-0401-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 _{amb} = -40°C to +80 °C TRAC 12ATEX0022X Ui=28V Ii=162mA Pi=1.03W II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da

Profibus PA dBi range:

A-800-0398-A PULSAR PROCESS MEASUREMENT LTD WORCESTERSHIRE, ENGLAND. Serial no./yr. 001002/2011	CE 0518	AREA FOR DISTRIBUTORS LOGO, NAME ETC.	PROFI BUS PA	dBi 3	Electrostatic Hazard - clean only with a damp cloth. T _{amb} = -40°C to +80 °C TRAC 12ATEX0022X Ui=28V Ii=250mA Pi=2.5W II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da FISCO field device II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da
A-800-0399-A PULSAR PROCESS MEASUREMENT LTD WORCESTERSHIRE, ENGLAND. Serial no./yr. 001003/2011	CE 0518	AREA FOR DISTRIBUTORS LOGO, NAME ETC.	PROFI BUS PA	dBi 6	Electrostatic Hazard - clean only with a damp cloth. T _{amb} = -40°C to +80 °C TRAC 12ATEX0022X Ui=28V Ii=250mA Pi=2.5W II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da FISCO field device II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da
A-800-0400-A PULSAR PROCESS MEASUREMENT LTD WORCESTERSHIRE, ENGLAND. Serial no./yr. 001005/2011	CE 0518	AREA FOR DISTRIBUTORS LOGO, NAME ETC.	PROFI BUS PA	dBi 10	Electrostatic Hazard - clean only with a damp cloth. T _{amb} = -40°C to +80 °C TRAC 12ATEX0022X Ui=28V Ii=250mA Pi=2.5W II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da FISCO field device II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da
A-800-0401-A PULSAR PROCESS MEASUREMENT LTD WORCESTERSHIRE, ENGLAND. Serial no./yr. 001006/2011	CE 0518	AREA FOR DISTRIBUTORS LOGO, NAME ETC.	PROFI BUS PA	dBi 15	Electrostatic Hazard - clean only with a damp cloth. T _{amb} = -40°C to +80 °C TRAC 12ATEX0022X Ui=28V Ii=250mA Pi=2.5W II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da FISCO field device II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIC T130°C Da

Close up of Profibus critical detail:



Details of variations to this certificate

This certificate is a consolidated certificate and reflects the latest status of the certification, including the following variations:

- Variation V1 – update following issue of Trade Agent certificate.
- Variation V2 – Addition of Profibus PA range (dBi models).

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-012774-32-00**.

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

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

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0022X V2

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	2012-04-23
ATEX Certified Hart Transducer Processor BOM (3 Pages)	*	1.1	2012-06-19
Generic dBi 3, 6, 10 & 15 ATEX Exia Transducer Wraparound Labels	D-804-0957-B	B	2012-05-18
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	*	1.0	2012-06-13
dBi Series Intelligent Transducer ATEX instructions	M-dBi-H-001-0P	*	2012-06
dBi Intelligent Transducer General Layout	D-804-1022-A	A	2012-11-29
HIPA (Hart, Imp, PA) Schematic	D-808-0949-A	*	2012-01-03
HIPA pcb (3 pages)	D-808-0950-B	*	2012-01-03
Hart certified HIPA BOM	*	1.1	2013-06-19
PA-CPU schematic for ATEX (3 pages)	D-804-1020-B	B	2013-05-15
Profibus PA CPU PCB (4 pages)	D-804-1021-B	2.1	2012-11-29
ATEX Certified PA CPU PCB (BOM)	ATEX CERTIFIED PA_CPU_01082013	1.3	2013-08-01
Generic Profibus PA dBi 3,6,10 & 15. ATEX Exia Transducer Wraparound.	D-804-1023-B	B	2013-03-20
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	M-DBiPA-000-001-1P	*	2013

* no information provided.