EU DECLARATION OF CONFORMITY

Declaration No. 001004

This declaration of conformity is issued under the sole responsibility of the manufacturer.
We, the undersigned:

Name of manufacturer/ authorised representative: Pulsar Measurement
Address: Cardinal Building
Enigma Commercial Centre
Sandys Road
Malvern
Worcestershire
WR14 1JJ
Country: UK

Declare under our sole responsibility that the following apparatus:

Apparatus:	Ultrasonic Transducers,
description:	dBi Profibus PA series
Model or Type	dBi 3, dBi 6, dBi 10 & dBi 15 Ex ia & FISCO
No.:	Field device versions
Brand name:	dBi Profibus PA series

Are in conformity with the following relevant EU legislation:

	Directives	Standards
Electricity Safety (LVD)	2014/35/EU	EN61010-1: 2010
EMC:	2014/30/EU	EN61326-1: 2013
ATEX general	2014/34/EU	EN60079-0: 2012+A11 2013
ATEX (IS)		EN60079-11: 2013
RoHS directive 2011/65/EU		

I declare that the apparatus named above has been tested and complies with the relevant sections of the above referenced standards & directives

The following Notified Body has been involved in the conformity assessment process:
Notified body: Element Materials Technology Rotterdam B.V.
Notified body No.: 2812
Role: Issue of ATEX EU Type Examination certificate.
Certificate No.: EMT18ATEX0014X
IEC EMT18.005X.
ATEX coding: II 1 G Ex ia IIC T4 Ga & II 1 D Ex ia IIIC T130°C Da Tamb -40°C to +80°C & FISCO Field Device.
Name and position of person binding the manufacturer or authorised representative:

Signed:
Name: Tim Brown
Function: Electronics Engineer
Location: Pulsar Process Measurement Ltd.
WR14 1JJ, UK.
Issue date: 23rd November 2020.

CE

MAINTENANCE & DISPOSAL

Check the cable & enclosure are intact; splits or cracks render the equipment unsafe; remove it from service.
There are no user-serviceable parts.
Remove power before installation or decommissioning.

Dispose of transducer and cable in accordance with regional environmental regulations for electronic equipment e.g. WEEE regulations apply within the EU Directive 2012/19/EU

PULSAR MEASUREMENT CONTACT DETAILS

UK Office

Cardinal Building
Enigma Commercial Centre
Sandy's Road Tel: +44 (0)1684 891371
Malvern Fax: +44 (0)1684 575985
WR14 1JJ
United Kingdom
Website www.pulsarmeasurement.com

Canada Office

16456 Sixsmith Drive
Long Sault
ON Tel: 613-938-8956
K0C 1PO Toll Free: 855-300-9151
Canada
Website www.pulsarmeasurement.com

USA Office

11451 Belcher Road South
Largo Tel: 315-788+9500
FL 33773 Toll Free: 888-473-9546
USA
Website www.pulsarmeasurement.com

pulsar MEASUREMENT

dBi PROFI BUS PA series Intelligent Transducer

INSTALLATION MANUAL

Full manual available @ www.pulsarmeasurement.com

M-DBiPA—000-001-4P

DESCRIPTION

The dBi Profibus PA transducer range has been specified and designed to meet the demanding requirements of today's process level measurement applications for liquids and solids.
All dBi Profibus PA transducers are 2 wire and draw approx. 20mA from the bus. The dBi Profibus PA transducers are set up using either a Profibus PA network or Pulsar PA modem and PA PC software package.
The dBi Profibus PA transducer is based on a PZT ceramic element. The nominal beam angle is 10 ^{0} @ -3 dB (depending on unit). When coupled with the DATEM® signal processing they provide unmatched performance in industrial process level measurement.
All dBi Profibus PA transducers are fitted with internal temperature compensation.
Optional submersion shield is available to prevent spurious signal if the transducer becomes submerged.
A range of flange mounting options (ANSI & EN1092) with or without a PTFE facing to give improved chemical resistance is available.
An aiming kit is recommended for solids level measurement, to help focus on the material surface angle of repose.
Standard cable lengths: 5, 10, 20 or 30m.
Process Connection: 1" BSP & M20 adaptor
Operating Temperature: -40 to +80°C
Ingress Protection: IP68
Enclosure Material: Valox 357

GENERAL INSTALLATION

The dBi Profibus PA transducer should be installed directly above the liquid or solid level with the transducer axis perpendicular to the surface to be measured.
The transducer can be installed using the 1" BSP thread on the top of the transducer or with the supplied 1" BSP to M20 thread adapter. See figure 1 for example.
In some applications, it may not be possible to install the transducer using either a flange or the 1" BSP thread, in these circumstances it may be possible to suspend the transducer from its cable. In these installations, it is recommended that the transducer be secured using a small chain fitted to one of the chain holes on the top of the transducer, see figure 2.
When installing the transducer avoid aiming the transducer directly at fixed obstructions as they may mask the required return echo from the liquid or solid level being monitored, see figure 3.

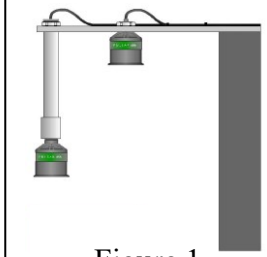


Figure 1

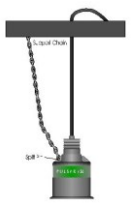


Figure 2

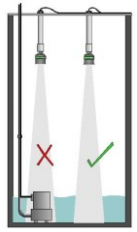
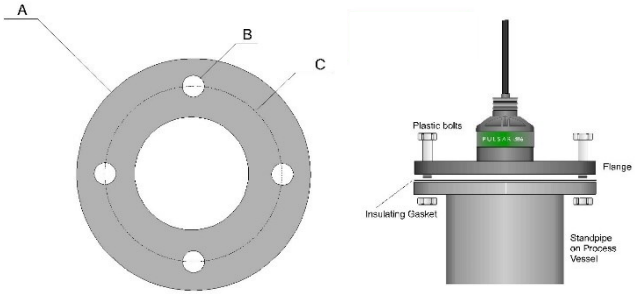


Figure 3

dBi FLANGE DIMENSIONS



EN1092 (BS 4504) All dimensions in mm

Size	A	B	C	No. holes
50	165	19	125	4 -18mm
80	200	19	160	8 -18mm
100	220	19	180	8 -18mm
150	286	19	240	8 -23mm
200	337	19	295	12 -23mm

ANSI Class 150 All dimensions in mm

Size	A	B	C	No. holes
2	165	19	121	4 -18mm
3	200	19	152	4 -18mm
4	220	19	190	8 -18mm
6	286	19	241	8 -22mm
8	343	19	298	8 -22mm

Flanged versions of the transducer should be installed using plastic bolts with an insulating gasket between the transducer flange and the process vessel flange. The bolts should not be fully tightened as this may cause acoustic resonance that results in increased ring down. A typical flange application is shown above.

HAZARDOUS AREA INSTALLATION

dBi Profibus PA transducers are ATEX certified for use in hazardous areas. The product is certified as Ex ia and for FISCO (see label for more information), they are certified for use in Zone 0,1 & 2 when used with the correct barriers.
The 'X' in the Certification No.'s indicates that certain special conditions apply. See EU Declaration of Conformity on the flip side of this document.

Wiring Detail

Colour	Description	Limits
RED	DC Power +ve	Max 28V DC
BLACK	DC 0V	
GREEN	Cable Screen	

ATEX labelling for the two versions of protection Ex ia & FISCO

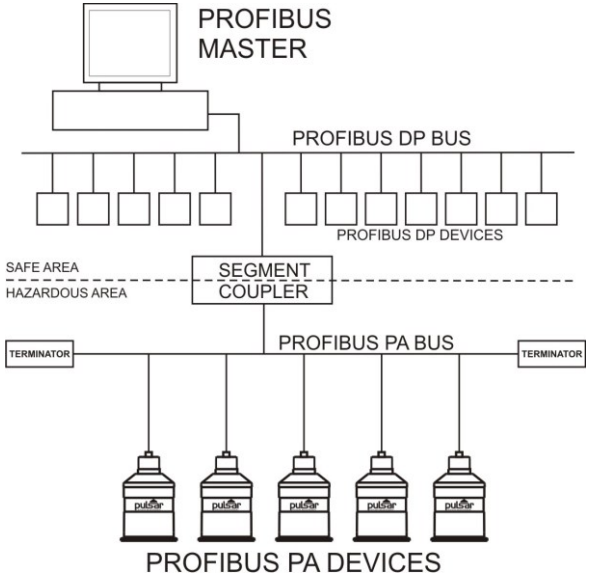
II 1 GD Ex ia IIC T4 Ga	Electrostatic Hazard - clean only with a damp cloth	**Ui=28V**
Ex ia IIIC T130°C Da		**Ii=250mA**
Ex ia IIC T4 Ga	**EMT 18ATEX0014X**	**Pi=2.5W**
Ex ia IIIC T130°C Da	**IECEx EMT 18.0005X**	**Ci=4.4nF**
FISCO field device	**T_{amb} = -40°C to +80°C**	**Li=9.9uH**

X Limitations on use:
1. Electrostatic hazard – The dBi transducers must only be wiped with a damp or anti-static cloth.
2. Special condition of safe use: The Profibus PA transducer must be powered by either an ATEX approved barrier or FISCO ATEX approved power supply that meet the following parameters:
3. The dBi transducers must be routinely inspected to avoid the build-up of dust layers when installed in Zones 20, 21 & 22.
4. The power supply cable to the transducers shall meet the relevant installation requirements of clause 9, EN60079-14.
5. The equipment is considered suitable for use in a FISCO system only when it is installed in accordance with EN60079-25.

PROFIBUS SYSTEM

The dBi Profibus PA transducer is designed to work in a Profibus system. The Profibus PA devices are normally connected to a Profibus DP system via a segment coupler.

A segment coupler translates the DP messages to PA and vice versa, it also performs a transfer rate change as Profibus PA bus normally runs at 31.25KBaud, whereas the DP bus can run up to 12 MBaud. The PA devices on the segment coupler are addressed transparently by the Profibus DP Master.



The number of devices that can be placed on the PA bus is dependent on the segment coupler used and the power requirements of the PA devices. The Pulsar dBi Profibus PA transducer draws 20mA in normal operation.

The segment coupler will be designed either Exia or FISCO. The FISCO standard allows for more current in the PA bus meaning more PA field devices can be powered from one bus.

The cable length on a PA bus should not exceed 1000m.