

EC DECLARATION OF CONFORMITY

Declaration No. 001001

We, the undersigned:

Name of Manufacturer / Authorised representative Address: Pulsar Process Measurement Ltd
Pulsar Process Measurement Ltd
Cardinal Building
Enigma Commercial Centre
Sandy's Road
Malvern
Worcestershire
WR14 1JJ

Country: England

Declare under our sole responsibility that the following apparatus:

Product description: Ultrasonic Transducers, HART dBi range
Model or Type No.: dBi 3, dBi 6, dBi 10 & dBi 15 Ex ia & Ex mb versions
Brand name: HART dBi range

Are in conformity with the following relevant EC legislation:

ATEX directive 94/9/EC
EMC directive 2004/108/EC

Based on the following harmonised standards:

EN60079-0:2009 EN60079-11:2012 (Ex ia)
EN60079-18:2009 (Exmb) EN60079-26:2007 (Ex ia)

EN61326-1:2006 EN55011 Class B radiated emissions
EN61000-4-2 Level 4 Immunity to static discharge
EN61000-4-3 Immunity to radiated fields
EN61000-4-5 Level 4 immunity to surges
EN61000-4-6 Level 4 immunity to conducted interference

And therefore complies with all of the relevant essential requirements of those other directives.

The following Notified Body has been involved in the conformity assessment process:

Notified Body No. TRaC Global Ltd
0891

Role: Issue of ATEX EC Type Examination certificate

Certificate No. TRaC12ATEX0022X (Ex ia) & TRaC12ATEX0023X (Ex mb)

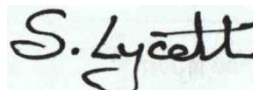
Additional information:
ATEX coding II 1 G Ex ia IIC T4 Ga & II 1 D Ex ia IIIC T130°C Da Tamb -40°C to +80°C
II 2 G Ex mb IIC T4 Gb & II 2 D Ex mb IIIC T130°C Db Tamb -40°C to +80°C

Limitations on use

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

Name and position of person binding the manufacturer or authorised representative:

Signature



Name: Steve Lycett
Function: Authorised Person
Location: Pulsar Process Measurement Ltd, WR14 1JJ
Date of issue: 2012-11-09

PULSAR Process Measurement Limited

Cardinal Building
Enigma Commercial Centre
Sandy's Road
Malvern
WR14 1JJ
United Kingdom

Tel: +44 (0)1684 891371
Fax: +44 (0)1684 575985
email: info@pulsar-pm.com
<http://www.pulsar-pm.com>

©Pulsar Process Measurement Ltd 2012



dBi series **HART** COMMUNICATION PROTOCOL
Intelligent Transducer

INSTALLATION MANUAL

Full manual available @ www.pulsar-pm.com

M-DBI—000-001-1P



DESCRIPTION

The dBi HART 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 transducers are 2 wire and can either be used in digital HART mode or as 4-20mA loop powered devices. The dBi transducers are set up using a hart modem with either proprietary HART software such as Pactware or Pulsar dBi HART PC software.

The dBi unit is based on a PZT ceramic transducer element. The nominal beam angle is 10° @ -3 dB (depending on unit). When coupled with the DATEM[®] signal processing they provide unmatched performance in industrial process level measurement.

All dBi transducers are fitted with integral temperature compensation.

Standard cable lengths 5, 10, 20 or 30m.

Optional submersion shield is available to prevent spurious signal if the transducer becomes submerged.

A range of flange mounting options (ANSI & DIN) with or without a PTFE facing to give improved chemical resistance is available. An aiming kit is recommended for solids level measurement to help coincide with the material surface and the angle of repose.

Process Connection: 1" BSP

Operating Temperature: -40 to +80°C

Ingress Protection: IP68

Hazardous Area Installation

All dBi transducers are ATEX certified for use in hazardous areas. There are two different versions:

One certified to II 1 G Ex ia IIC T4 Ga & II 1 D Ex ia IIC T130°C Da (Trac 12ATEX0022X) for use in zone 0, 1 & 2 applications (safety barrier required), and another certified to II 2 G Ex mb IIC T4 Gb & II 2 D Ex mb IIC T130°C Db (Trac 12ATEX0023X) suitable for use in zones 1 & 2 (no barriers required).

The 'X' in the certification No.'s indicates that certain special conditions apply: see EC Declaration of conformity on the flip side of this document.

Ex mb version – This version must be supplied from apparatus that provides protection from prospective short circuit currents up to 1500A. This fuse is fitted in the safe area end of the cable.



Wiring Detail

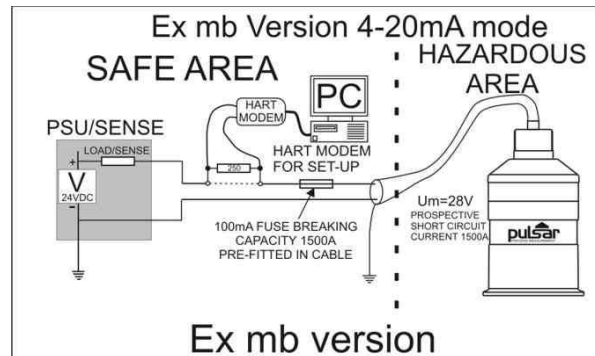
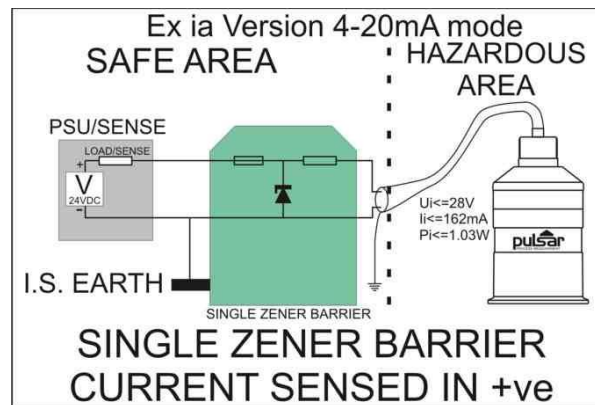
Colour	Description	Limits
RED	DC Power +ve	28V DC max.
BLACK	DC 0V	
GREEN	Cable Screen	

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

Electrostatic Hazard - clean only with a damp cloth $T_{amb} = -40^\circ\text{C to } +80^\circ\text{C}$
TRAC 12ATEX0022X $U_i=28\text{V}$ $I_i=162\text{mA}$ $P_i=1.03\text{W}$
 II 1 G Ex ia IIC T4 Ga
 II 1 D Ex ia IIC T130°C Da

Electrostatic Hazard - clean only with a damp cloth $T_{amb} = -40^\circ\text{C to } +80^\circ\text{C}$
TRAC 12ATEX0023X $U_m=28\text{V}$ PROSPECTIVE SHORT CIRCUIT CURRENT 1500A
 II 2 G Ex mb IIC T4 Gb
 II 2 D Ex mb IIC T130°C Db

NOTE: All extension cables must use 2 or 3 core screened cables not exceeding 100nF between conductor to screen and 40 ohms/conductor.



See full manual for more detail

GENERAL INSTALLATION

The dB 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 examples.

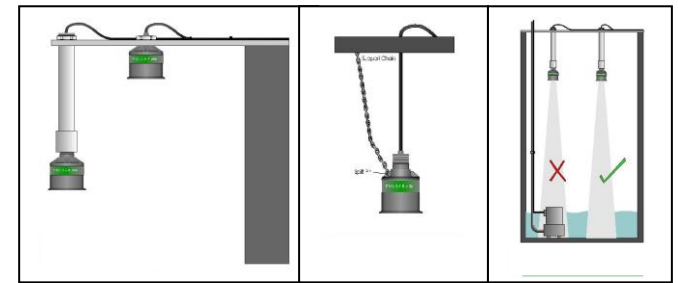


FIGURE 1

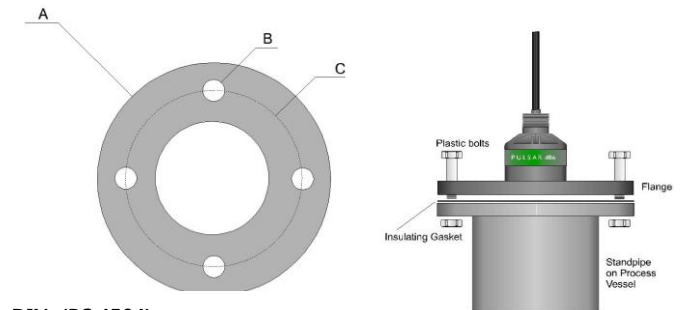
FIGURE 2

FIGURE 3

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.

dBi Flange Dimensions



DIN (BS 4504)

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

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 in figure 2.