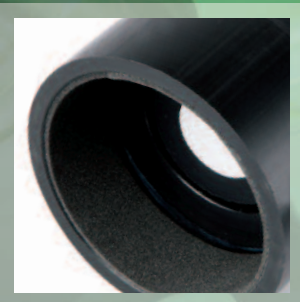
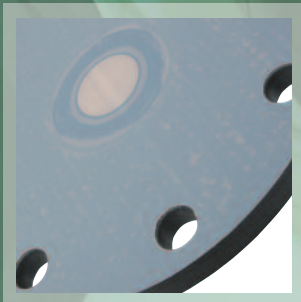


pulsar

Transducers



Transducers:

Standard Range

Features

- Encapsulated ATEX (EEx m) for zones 1 and 2 as standard
- On NPT threaded versions, FM Class I, Div 1, Group A, B, C and D. Class II, Div 1, Group E, F and G. Class III.
- I.S. ATEX (EEx ia) for zone 0 (option)
- Integral temperature compensation
- Narrow beam angles
- Robust IP 68
- PZT ceramic transducer element
- Standard 2 or 3 core screened cable extensions to 1000m
- High acoustic power output
- Patented

Pulsar's main dB series of non contact ultrasonic transducers offer compact, robust measurement and an innovative approach to transducer design. Previously, users had a choice between high-voltage, frequency dependent transducers that were susceptible to electrical noise and needed special, protected interconnecting cables, and weak, low-power transducers that had good hazardous area performance but performed poorly in any but the simplest application.

The dB range has changed all that, creating a compact, low power transducer design that can be I.S. certified and uses standard interconnecting cables, yet produces extremely high acoustic power to give exceptional results in a wide variety of challenging situations.

Team a dB transducer with any of Pulsar's Ultra, FlowCERT, Zenith, Quantum or Blackbox control

units to create the perfect solution for your application. All transducers have flammable atmosphere approval as standard.

Standard transducer bodies are made from Valox 357 PBT with a special foam radiating face. Some are available with both body and sealed front face in PVDF for corrosive applications.

(all beam angles defined as, -3dB or half power inclusive)

dB3 – short range solids and liquids measurement

Range – 125mm – 3m, 125kHz, 19mm diameter radiating face, <10° beam angle. All dB3 versions are fitted with a shallow drip shield.

dBMACH3 – short range for open channel flow measurement

Range – 0 - 2.425m, 125kHz fitted with cone and sun shield (see p8)

dB6 – short range solids and liquids measurement

Range – 300mm – 6m, 75kHz, 30mm diameter radiating face, <10° beam angle.

dB56 – short deadband version, solids and liquids measurement

Range 200mm – 6m, at 50kHz, 45mm radiating face, <10° beam angle.

dB10 – solids, powders and liquids measurement

Range – 300mm – 10m, 50kHz, 45mm diameter radiating face, <10° beam angle.

dB15 – narrow beam transducer for solids, powders and liquids

Range – 500mm – 15m, 41kHz, 60mm diameter radiating face, <8° beam angle.

dB25 – narrow beam, mid-range transducer for solids, powders and liquids

Range – 600mm – 25m, 30kHz, 78mm diameter radiating face, <6° beam angle.

dB40 – narrow beam, long range transducer for solids, powders and liquids

Range – 1.2 – 40m, 20kHz, 160mm diameter radiating face, <5° beam angle.

dB50* – narrow beam, long range transducer for solids, powders and liquids

Range – 2m – 50m, 20kHz, 160mm diameter radiating face, <5° beam angle



ALL BEAM ANGLES ARE INCLUSIVE, BUT GIVE AN EFFECTIVE BEAM ANGLE OF <3 DEGREES ON OUR CONTROLLERS. RANGE ON POWDERS AND SOLIDS DEPENDS ON APPLICATION.

* dB50 – not ATEX (flammable atmosphere) approved, and works with modified Ultra 3 and Ultra 5 controllers only

Transducers:

Flanged Transducers

Flanged transducers

Flange options are available for dB3, dB6, dB10 and dB15 transducers, ANSI or DIN specification, all featuring full PTFE coating on the process wetted side. Various flange sizes are available. Maximum vessel pressure on flanges is 0.5bar (7psi). See technical specifications for more details. These incorporate the performance features of the standard products, but additionally offer a front thread mount option to suit threaded nozzles or flanged tank entries.

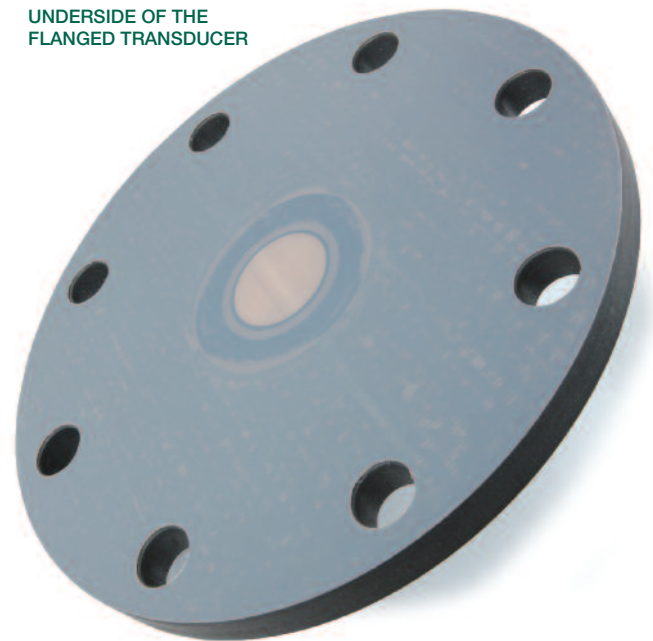
These integral flange options are available with the standard family of transducers, up to the dB15 size.

Features

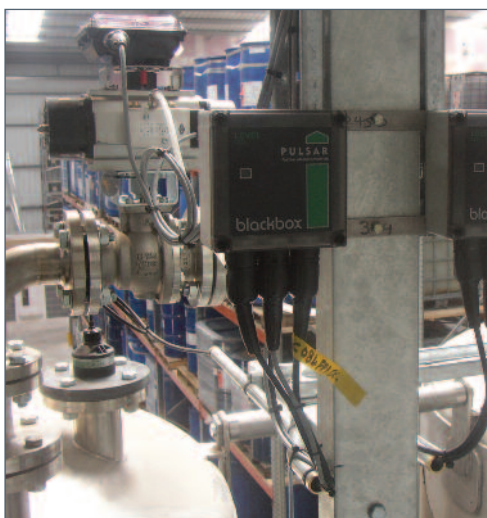
- Full PTFE face on flange
- ATEX and optional FM flammable atmosphere units
- I.S. Intrinsically Safe versions available
- Rugged construction and IP68



UNDERSIDE OF THE FLANGED TRANSDUCER



FLANGED TRANSDUCERS SHOWN ON TANKS



Transducer Options:



Foam Face

A foam faced option is available for all the standard range transducers to provide more acoustic power output in dry, dusty environments. This higher acoustic power output increases return echo strength in these dry applications. Not available on dB3 versions.



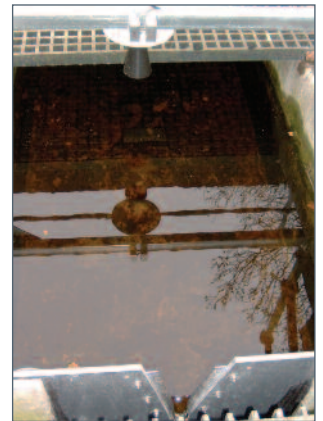
Submergence Shield

A shield can be fitted to keep the transducer face clean and dry in applications at risk of submergence. In case of submergence the controller can be asked to fail high, low or hold the last reading. When the level drops back below the shield it allows the controller to resume operation with a clean transducer face. The shield can be fitted to the dB3, dB6, dB10 and dB15 dB25 standard transducers. Note: All dB3 transducers are fitted with a shallow drip shield.



dBMACH3 – high accuracy open channel flow transducer

Featuring unique sun and submergence shields, the dBMACH3 transducer is designed specifically for open channel flow applications. dBMACH3 is the first ultrasonic transducer with zero effective blanking distance beyond the nose cone, allowing it to be sited as little as a few mm from the high flow level. One of the critical factors affecting ultrasonic accuracy is the measurement distance and air temperature, so by minimising this distance, accuracy is maximised. Operating at 125kHz frequency the transducer provides a resulting high resolution accuracy. Essential in open channel flow applications. The dBMACH3 is used with Ultra 3 or 5 and TWIN when in open channel flow mode, or can be paired with FlowCERT to provide MCERTS approved measurement. Range: 0 - 2.425m



Sanitary Flanged Transducers

For standard transducer from dB3 to dB10 an option of a sanitary flange construction exists. The flange has a full face PTFE (dB3) or PVDF seal for use in hygienic applications. The flange is available in 2" or 3" (on dB3) and 3" on the dB6 and dB10 units. These flanges allow Tri-Clamp fittings to be used onto tanks or vessels.



Transducers:

Threaded Range

dB3, dB6 and dB10 transducers are available with threaded noses for easy mounting. dB3 and dB6 models feature 1.5 inch universal thread while dB10 has a 2" universal thread. Standard transducer bodies are made from Valox 357 PBT with a special foam radiating face. All are available in optional PVDF version for corrosive applications. All performance parameters of the transducers remain unchanged.

dB3 – solids, powders and liquids measurement to 3m

Range 0.15 - 3m, 125kHz operating frequency, <10° beam angle (-3dB inclusive).

dB6 – solids, powders and liquids measurement to 6m

Range 0.3 - 6m, (0.2m deadband option available at 50kHz) 75kHz, <10° beam angle.

dB10 – solids, powders and liquids measurement to 10m

Range 0.3 - 10m, 50kHz <10° beam angle.

All

Operating temperatures -40 to +90°C (+75°C for hazardous area)

ATEX (EEx m) II T6 as standard, ATEX (EEx ia T6) I.S. intrinsically safe optional, all are IP68.

FM approved Ex-proof FM/FMC, Class I, Div. 1, Grp. A, B, C, D; Class II, Div. 1, Grp. E, F, G Optional Intrinsically Safe ATEX EEx ia IIC T6.

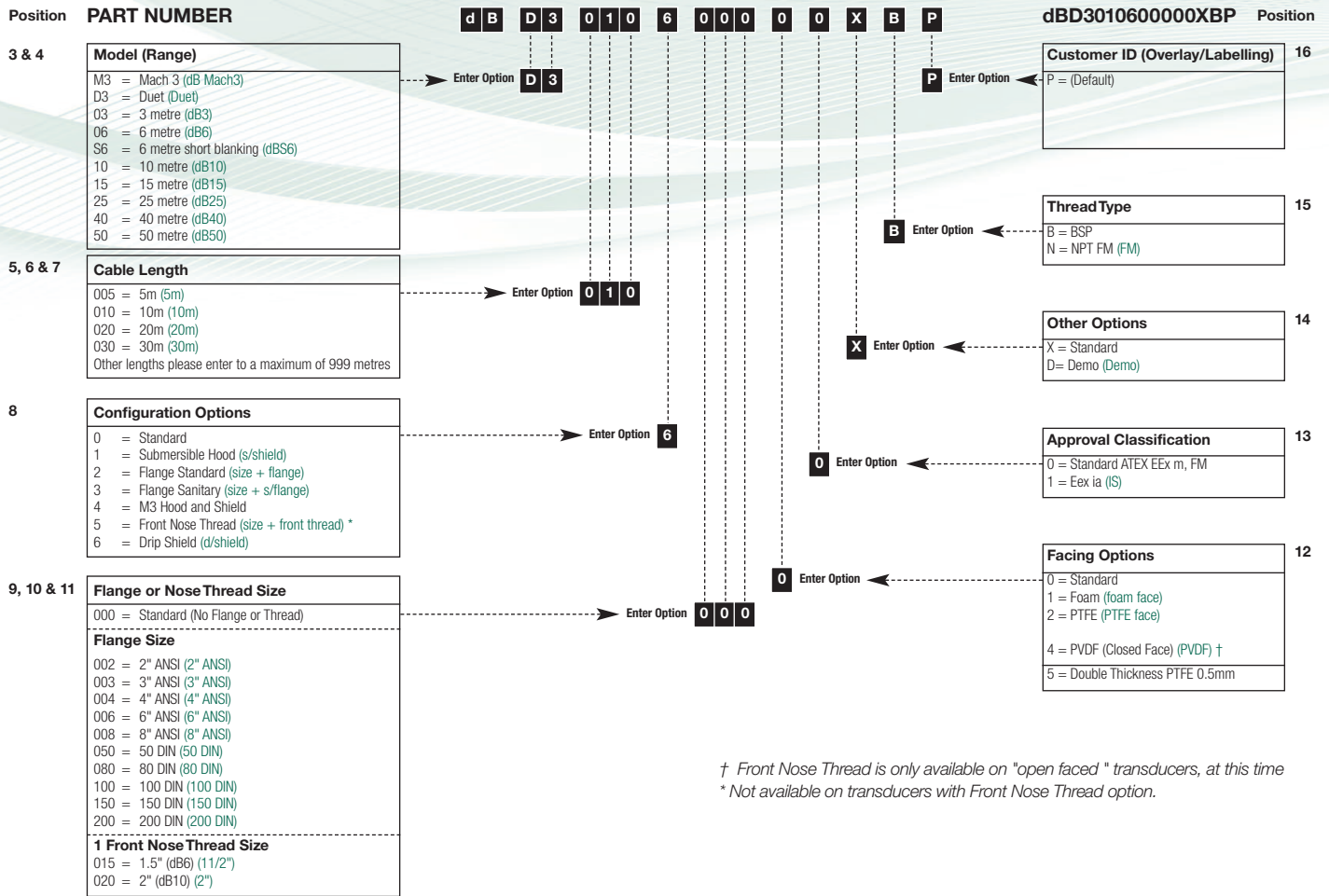
Features

- Universal 1.5" or 2" BSP/NPT nose thread
- ATEX and optional FM flammable atmosphere units
- PVDF version option for corrosive applications
- I.S. approval versions available
- Rugged IP 68



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Transducers:



Technical Specification: PULSAR dB Transducers

DATA APPLICABLE TO ALL TRANSDUCERS

Operating temperature range:	-40°C to +90°C (Hazardous area versions +75°C max)
Hazardous area approval:	Standard ATEX EEx m II T6 or optional EEx ia T6 (FM approved available). NB: Not dB50
Ingress protection (IP) rating:	IP68 to BS EN 60068-2-17 : 1995 and BS EN 60529 (Nema 6P available)
Integral cable length:	Standard 5, 10, 20 or 30 metres
CE Approvals:	EMC tested to BS EN 50081-1 : 1992 for emissions and BS EN 50082-2 : 1995 for immunity Electrical safety tested to BS EN 61010-1 : 1993
Bump, shock and vibration:	To BS EN 60068-2-29, BS EN 60068-2-27 and BS EN 60068-2-6

HOUSING DETAILS

	Housing material	Housing diameter mm	Housing height mm	Mounting connection
dB3:	Valox 357 *PBT	86	98	BSP or 1" NPT
dB6†:	Valox 357 *PBT	86	106	BSP or 1" NPT
dB10†:	Valox 357 *PBT	86	106	BSP or 1" NPT
dB15:	Valox 357 *PBT	86	120	BSP or 1" NPT
dB25:	Valox 357 *PBT	114	140	BSP or 1" NPT
dB40 & dB50:	Valox 357 *PBT	205	215	BSP or 1" NPT

OPTIONAL FLANGES - All have PTFE full face on process side

Flanges:	ANSI	2"	3"	4"	6"	8"	DIN	50	80	100	150	200	Sanitary	2"	3"
dB3:		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓
dB6:		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			✓
dB10:		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			✓
dB15:			✓	✓	✓	✓			✓	✓	✓	✓			

OPTIONS

Facings:	Closed cell soft foam for increased power in dry dusty environments PTFE standard on all flanged transducers for chemical compatibility
Submergence shield:	For continuous operation in applications at risk of submergence
Beam aiming kit:	Recommended for easy transducer aiming in solids applications (drawing available on request)

† Available in optional PVDF body material (Polyvinylidene fluoride)

*PBT - Polybutylene terephthalate

Accessories:

Various transducer options can be provided to suit specific applications, such as submergence shields, foam faced transducers, sanitary flanges, blind flanges and a choice of transducer mounting brackets.

Cable Options

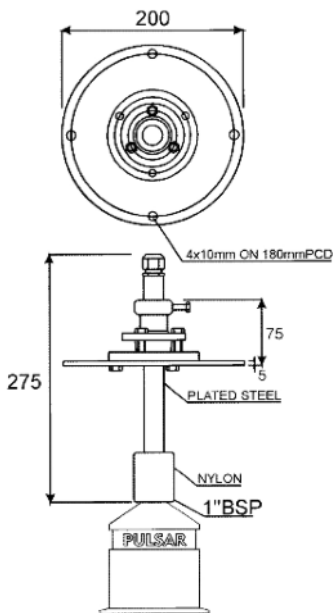
Transducer cable lengths are supplied as a standard in 5m, 10m, 20m or 30m. Longer lengths can be supplied as required in 10m steps. It is important to note that the supplied transducer cable may be extended by using standard 2 or 3 core screened cable for up to 1000m or beyond if needed. No separation is required between transducer and other cables as it is not susceptible to cross talk and significant costs can be saved on site.

Aiming Kit

Pulsar's robust and effective aiming kit allows the transducer to be aimed towards the material draw off point at the bottom of the silo or tank, ensuring that the returning echo is as strong as possible and that the ultrasonic system is able to measure right down to the true empty point of the silo. The location of the aiming kit should be as far away from the fill point as possible to avoid seeing falling material. It should be aimed to coincide with the material's angle of repose, ensuring a more powerful signal return to the transducer. The rotational ball mechanism allows up to 20 degrees off vertical and 360 degrees of rotation.

Features

- Allows rotation to suit silo conditions
- Coincide with angle of repose of material being measured
- Follow material level down to draw off point
- Easy aim and lock system



WE RECOMMEND THE INSTALLATION OF AN AIMING KIT WHEN MEASURING SOLIDS MATERIAL.



AIMING KIT ON A CRUSHER APPLICATION

Blind Flanges

A range of blind PVC flanges with central 1" BSP or NPT hole is available. These are for mounting transducers within a standpipe or tank using rear thread or dB3 front thread mounting. These available in 2", 3", 4" and 6" ANSI or DIN 80, DIN 100, DIN 150 and DIN 200 patterns.

Features

- Selection of DIN or ANSI patterns
- Excellent corrosion resistance



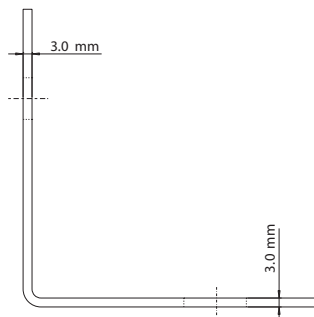
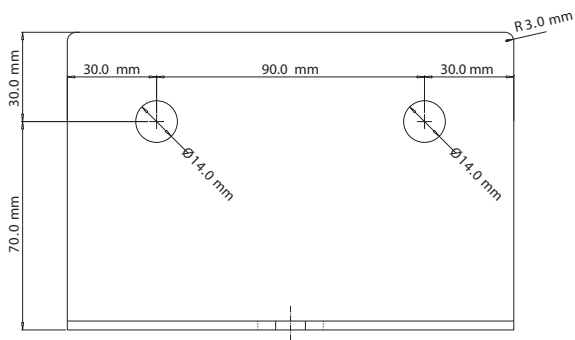
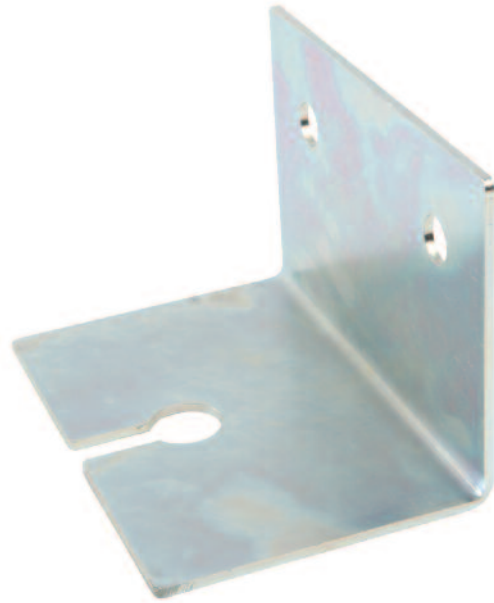
Brackets:

Angled Bracket



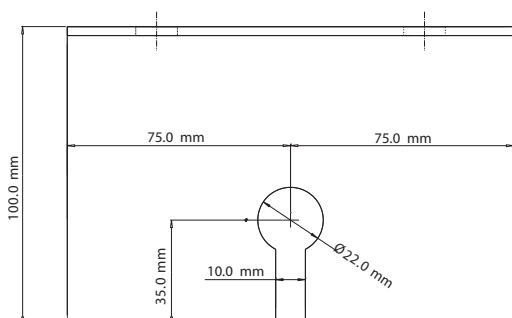
Pulsar Fixed Angle Transducer Bracket p/n dBA004

Fixed angle bracket made from steel with a BZP (bright zinc passivate) coat. Ideal for mounting against a wall where there is an under-hang under a manhole or similar. 2 x 14mm holes allow rigid fixing into a vertical surface using suitable bolts.



TOLERANCES:
MATERIAL +/-0.05mm
HOLE DIA. +/-0.05mm
LINEAR +/-0.25mm

BRACKET DRAWING



Brackets:

Pulsar Hinged Transducer Bracket p/n dBA003

Pulsar's hinged transducer bracket is an easy-mounting solution for any of the dB series transducers, providing a stable method of positioning a transducer above an application. The bracket is made from hot dipped galvanised steel and is hinged to allow the transducer to be swivelled up for cleaning or to allow access. The transducer can then be returned to the original position with no need to recalibrate.

Features

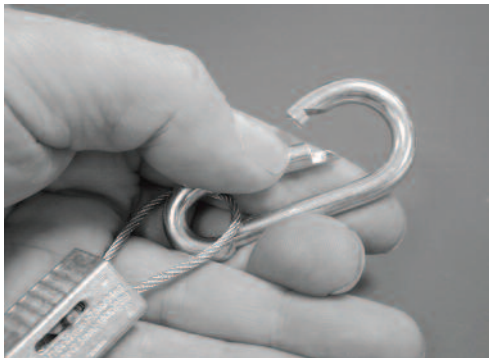
- Rugged construction
- Galvanised or BZP coated
- Hinge allows easy lift cleaning
- Drain holes in channel prevent liquid build up
- Simple to fit on site



The dB series transducer is mounted to one of the 22mm holes in the bracket using the 1" to 20mm adaptor provided. If one of the inner holes is used and the excess bracketry removed, the retaining thro-nut with the steel pull cable attached easily slides to a new position. The bracket is supplied with the plastic channel seal.



HINGED BRACKET OVER A WET WELL



STEEL CABLE WITH KARABINER AND NON-SLIP CONNECTORS

BRACKET DRAWING

