

# dBi PROFIBUS INTELLIGENT TRANSDUCERS

Using high data speed available with Profibus PA to provide full digital communications from a DATEM-enabled transducer.

## Self-contained Transducers with Profibus PA Protocol.

Pulsar Measurement's dBi Transducers use Profibus PA profile 3.0.2 with low power consumption. Fixed current at 20mA. Fully potted to IP68 for outdoor applications, dBi transducers are temperature compensated for increased accuracy and offer volume conversion to a variety of standard tank shapes or 16-point curve fit. The product range supports GSD, EDDL, and FDT/DTM drivers.

### Programming

Using PLC/HMI with Profibus network that: a) supplies GSD Version 3.0 with predefined parameter blocks in cyclic or non-cyclic modes; b) supplies EDDL to provide full support for acquiring / logging of echo traces, diagnostics, and full maintenance I&M functions according to IEC 61804-3 standards; c) supplies (on request) FDT/DTM direct to HMI software to provide enhanced diagnostic /commissioning capabilities.



## THE RIGHT SENSOR FOR

- Liquids & Solids Measurement
- Level & Volume Measurement
- Remote Level Monitoring
- Tank Level Monitoring
- Profibus PA Communication

By using Pulsar Measurement's proprietary PC software with USB powered PA modem, the transducer can be operated and is fully functional from a laptop or desktop PC without an additional power supply, providing easy setup.

### Standard Options

The dBi Profibus PA range is available with the same set of options that have made the standard dB Ultrasonic transducer series so popular. dBi Intelligent Transducers are available with a host of mounting options: nose threaded, rear threaded, flange-mounted, faced with chemical resistant PTFE or PVDF bodies, or fitted with a submergence shield. There is also a wide range of brackets available to aid installation and the aiming kit will help in solids applications to direct the transducer at the draw-off point of the silo or bin.

### Functional Qualities

dBi Profibus PA Transducers are highly developed ultrasonic level measurement devices that provide non-contacting level measurement for a wide variety of applications in both liquids and solids. Their unique design gives an unrivaled performance in echo discrimination and accuracy in a Profibus PA device.

Easy calibration and maintenance free 'fit and forget' performance mean that you can install the dBi Profibus PA Transducers rapidly and with confidence, with calibration being achieved either through the use of a Profibus master or with a PC that utilizes the Pulsar dBi Profibus PA Modem and PAPC software.

dBi Profibus PA Transducers operate on the principle of timing and the echo received from a measured pulse of sound transmitted in air and utilize 'state of the art' echo extraction technology.



dBi6 Profibus PA Transducer with Submergence Shield.



Profibus PA Communication Protocol

### Echo Processing

Both dBi HART and Profibus PA Transducers feature Pulsar Measurement's world-leading DATEM echo processing software. DATEM, Digital Adaptive Tracking of Echo Movement, allows the system to zero in on the echo from the true target and follow it as it moves up and down the vessel, ignoring the stationary echoes from other elements in the measurement path. Stanchions, chains, and ladders, that cause many ultrasonic systems to fail are no barrier to Pulsar Measurement equipment, allowing dBi Intelligent Transducers to give reliable measurement ins applications where other manufacturers' equipment would not work.

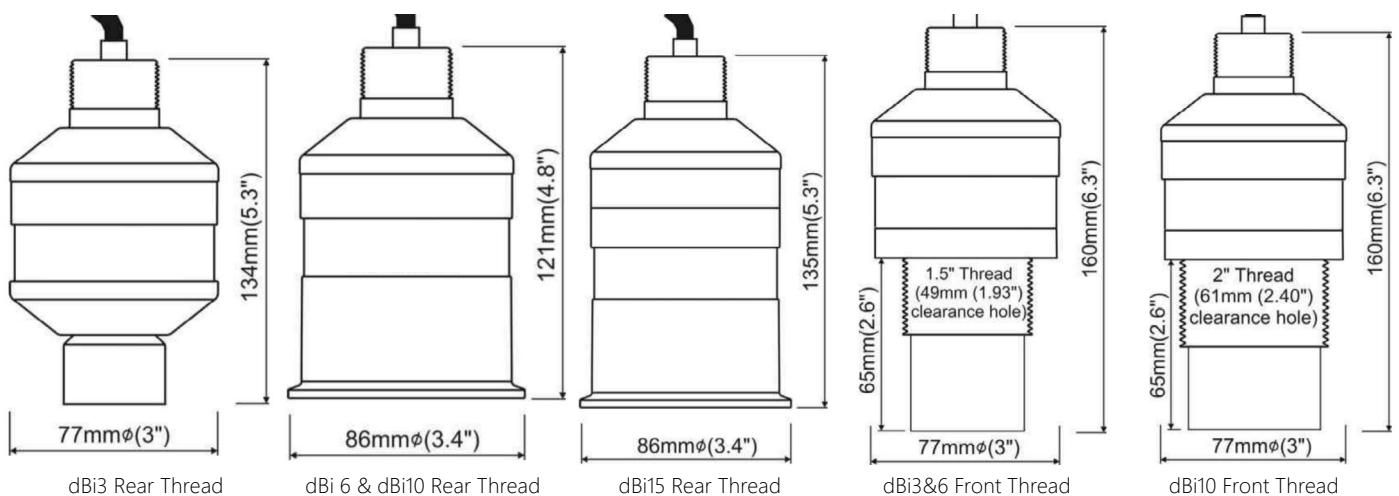
# Technical Specifications

## PHYSICAL: TRANSDUCER SPECIFIC

	<b>dBi3</b>	<b>dBi6</b>	<b>dBi10</b>	<b>dBi15</b>
<b>Sensor Body Dimensions:</b>	77 mm D x 134 mm H (3 in x 5 in) Rear thread 1" BSP/NPT	86 mm D x 121 mm H (3.4 in x 4.8 in) Rear thread 1" BSP/NPT	86 mm D x 121 mm H (3.4 in x 4.8 in) Rear thread 1" BSP/NPT	86 mm D x 135 mm H (3.4 in x 5.3 in) Rear thread 1" BSP/NPT
<b>Weight:</b>	1 kg (2.2 lb)	1.2 kg (2.7 lb)	1.3 kg (2.9 lb)	1.4 kg (3.1 lb)
<b>Measurement Range:</b>	125 mm to 3 m (4.9 in to 9.8 ft)	300 mm to 6 m (11.8 in to 19.7 ft)	300 mm to 10 m (11.8 in to 32.8 ft)	500 mm to 15 m (19.7 in to 49.2 ft)
<b>Frequency:</b>	125kHz	75kHz	50kHz	41kHz
<b>Beam Angle:</b>	<10°	<10°	<10°	<8°
<b>Accuracy</b>	2 mm (0.08 in)	4 mm (0.2 in)	3 mm (0.1 in) up to 6 m range (20 ft) 0.2 in (6 mm) over 6 m range (20 ft)	5 mm (0.2 in) up to 10 m (33 ft) 10 mm (0.4 in) over 10 m range (33 ft)
<b>Resolution:</b>	1 mm (0.04 in)	2 mm (0.08 in)	3 mm (0.1 in)	5 mm (0.2 in)

## PHYSICAL: ALL TRANSDUCERS

<b>Housing Material:</b>	Valox 357 PBT (Polybutylene terephthalate)
<b>Temperature Compensation:</b>	Internal temperature sensor, ± 0.5 °C/°F
<b>Transducer Cable Requirements:</b>	Twin screened. Integral cable length 5 m, 10 m, 20 m or 30 m (16 ft, 32 ft, 65 ft, or 98 ft)
<b>Operating Temperature Range:</b>	40 °C to +80 °C (-40 °F to +176 °F) process temperature
<b>Ingress Protection:</b>	IP68 to BS EN 60068-2-17:1995 and BS EN 60529 (Nema 6P available)
<b>Approvals:</b>	See EC Declaration of Conformity in the manual
<b>Hazardous Area Approval:</b>	ATEX; Ex ia Zone 0 and FISCO
<b>Power:</b>	Bus-powered, per IEC 61158-2; 20mA (general purpose or I.S. version) 20mA 18-24 V DC
<b>Update Time:</b>	1 to 2 seconds at 20mA current loop
<b>Programming:</b>	PA modem; Simatic PDM, EDDL, FDT/DTM on request. PC interface 2-wire loop powered from PC or laptop. No external power is required.
<b>Outputs:</b>	Profile 3.0.2, Class A with I&M functionality





An example of silo level measurement.



An example of tank level measurement.



Liquid Tank Level Monitoring

## Delivering the Measure of Possibility

Pulsar Measurement offers worldwide professional support for all of our products, and our network of global partners all offer full support and training. Our facilities in Malvern, UK and Largo, USA are home to technical support teams who are always available to answer your call or attend your site when required. Our global presence, with direct offices in the UK, USA, Canada, and Malaysia, allows us to create close relationships with our customers and provide service, support, training, and information throughout the lifetime of your product.

By taking a step forward in echo processing technology, Pulsar Measurement addresses applications previously thought to be beyond the scope of ultrasonic measurement. This technology improves signal processing at the transducer head which has made it possible to increase resistance to electrical noise, enabling the transducer to 'zone in' on the true echo.

For more information, please visit our website:

[www.pulsarmeasurement.com](http://www.pulsarmeasurement.com)



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