

# Technical Update

## dBMACH3 high frequency transducer - the accurate answer for open channel flow



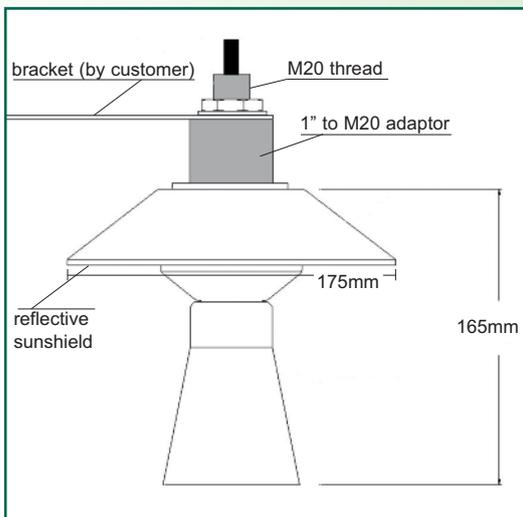
Pulsar's new dBMACH3 transducer works in conjunction with the Pulsar **Ultra 3 and Ultra 5 control units**, in their "flow measurement" configuration, to deliver non-contacting ultrasonic open channel flow measurement to BS3680 when used with a suitable primary measurement device such as a V-notch weir or flume.

The dBMACH3 operates at 125kHz. The higher the frequency of the transducer, the better is its resolution and the higher the accuracy of the resulting measurement. Under the terms of the Urban Waste Water Treatment Directive, certified under the MCERTS arrangements, a system must achieve an overall accuracy of at least  $\pm 8\%$  over a 24-hour period.

One important factor in improving accuracy is the siting of the transducer. Flow measurement accuracy is fundamentally related to the distance over which the measurement is made, so it is vitally important that the transducer face is

positioned as close to the flow as possible. **The unique design of the dBMACH3 allows it to be positioned only a few mm above the maximum liquid level.** The dBMACH3 is the first ultrasonic transducer with **no** blanking distance beyond its length. Add to this the reflective solar shield that reduces the effect of solar radiated heat, and the dBMACH3 is the most advanced, most effective and most accurate ultrasonic transducer for open channel flow measurement.

dBMACH3 may be positioned up to 1000m from its control unit, minimising installation costs through the use of a simple shielded pair interconnection cable. Pulsar's control units are configured to calculate the flow to BS3680 when used with a suitable primary measurement device.



### Specifications:

Operating frequency: 125kHz  
Beam angle:  $12^\circ$  @ -3dB  
Range: 0 - 2.5m  
Accuracy: Better than  $\pm 1$ mm  
Resolution:  $\pm 0.5$ mm  
Blanking distance: 75mm from transducer face (zero from mouth of cone)  
Operating temperature range:  $-20^\circ\text{C}$  to  $+90^\circ\text{C}$   
Mounting connection 1" BSP or NPT

Hazardous area approval: ATEX EEx m IIC T6, optional ATEX EEx ia IIC T6  
On NPT threaded versions, FM Approved Class I, Div 1, Group A,B,C & D.  
Class II, Div 1, Group E,F & G. Class III.

More information on Pulsar's range of transducers and ultrasonic controllers can be obtained from our web site: [www.pulsar-pm.com](http://www.pulsar-pm.com).

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