

(Short lead-time) Immersion Transducers



Precision Acoustics Ltd (PA) is pleased to offer a wide range of transducers. In addition to custom designs we also have a carefully selected offering of transducers which can be ordered for rapid delivery. This document introduces our short lead-time transducer options and provides a summary of their capabilities. For transducers with alternative specifications (including focussed devices) please contact Precision Acoustics Ltd to discuss your requirements

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PLANAR TRANSDUCERS

| Active diameter (mm) | Frequency (MHz) | | | | | | | | | Case size* | |
|----------------------|-----------------|---|---|---|---|---|----|----|----|------------|----|
| | 0.5 | 1 | 2 | 3 | 5 | 7 | 10 | 15 | 20 | | 30 |
| 6 | | | | | | | | ✓ | ✓ | ✓ | T |
| 10 | | | | | | | ✓ | ✓ | | | XS |
| 15 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | S |
| 19 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | M |
| 23 | | ✓ | ✓ | ✓ | ✓ | | | | | | L |
| 44 | ✓ | | | | | | | | | | XL |

*See below for housing dimensions.

Available sizes

Key features:

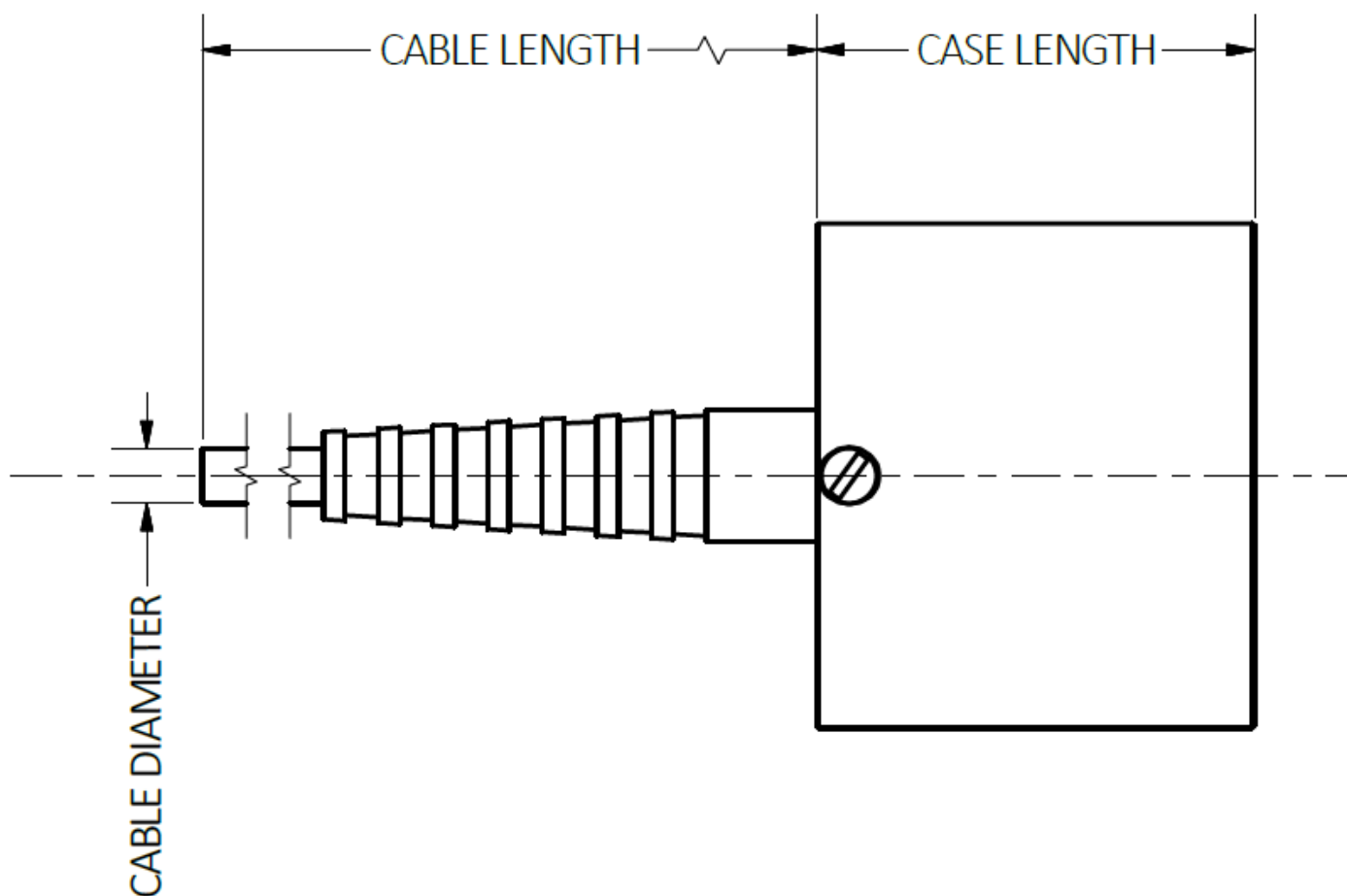
- Suitable for immersion use
- 316 Stainless steel housing
- Integral coaxial cable (1.5 m length) with BNC connector
- PZT Piezoceramic active element (0.5 MHz to 7 MHz only)
 - Medium damping – moderate bandwidth
 - Impedance matched for use with 50 Ohm systems.
- PVDF Piezopolymer active element (≥ 10 MHz)
 - High damping – broad bandwidth
 - Not impedance matched
- Can be used in a pulse-echo mode

ORDER CODE

'TX' prefix _ 'Frequency' (in MHz) _ 'Active diameter' (in mm)

To order one of these planar transducers, please use an order code consisting of a 'TX' prefix followed by the frequency (in MHz) and the active diameter (in mm). For example, a 1MHz transducer with 23mm active diameter can be ordered with code: **TX_1_23**

HOUSING DIMENSIONS



| Case Size: | H | XL | L | M | S | XS | T |
|------------------------|----|----|----|----|----|------|-----|
| Case diameter (mm) | 67 | 51 | 31 | 26 | 22 | 13.5 | 9.8 |
| Acoustic aperture (mm) | 58 | 43 | 23 | 19 | 15 | 10 | 6 |
| Case length (mm) | 53 | 53 | 53 | 53 | 53 | 25 | 25 |



EXAMPLE DATA FOR PIEZOCERAMIC TRANSDUCERS

- Typical bandwidth: **>50%** (-6dB)¹
- - 6 dB Centre frequency: **+/-10%** of nominal.
- All transducers supplied with test data to include:
 - X & Y Transverse beam profiles.
 - Temporal/impulse response.
 - Frequency response.

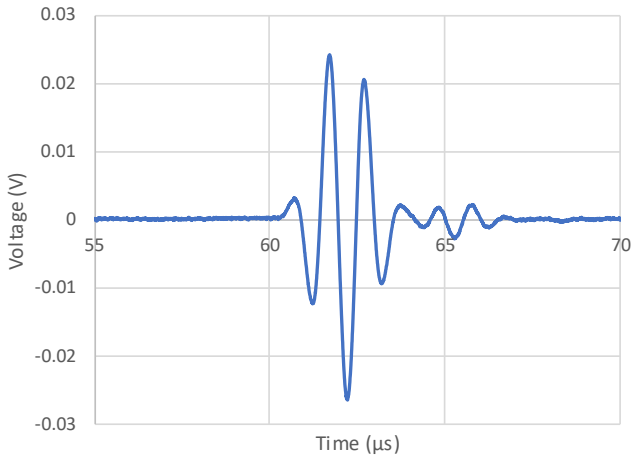


Figure 1. Response to single cycle Sine wave input. 1MHz, 23mm diameter planar transducer

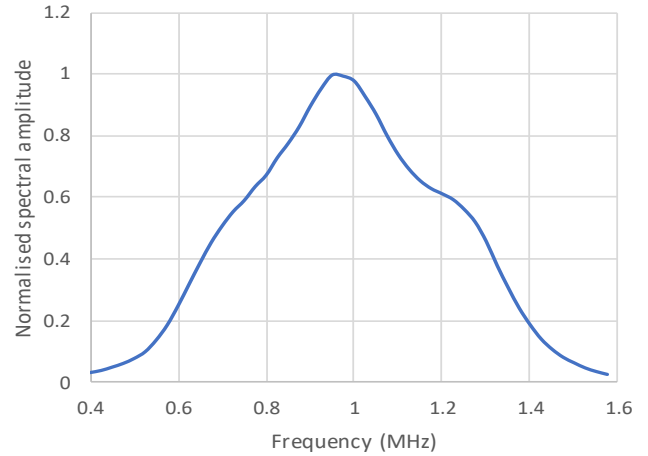


Figure 2. Frequency [profile for 1MHz, 23mm diameter planar transducer.

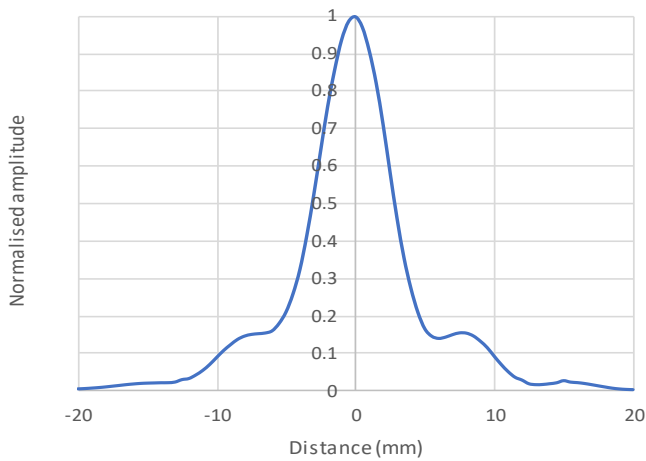


Figure 3. Transverse 'X' beam profile of 1MHz, 23mm diameter planar transducer.

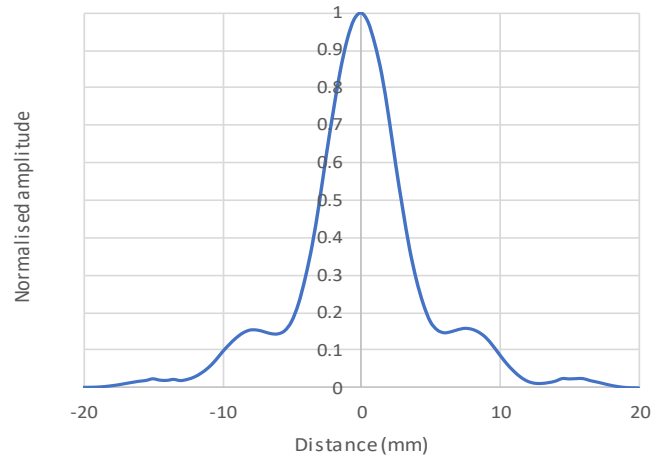


Figure 4. Transverse 'Y' beam profile of 1MHz, 23mm diameter planar transducer.

¹ Bandwidth and pulse shape will vary depending on choice of frequency and housing size.