

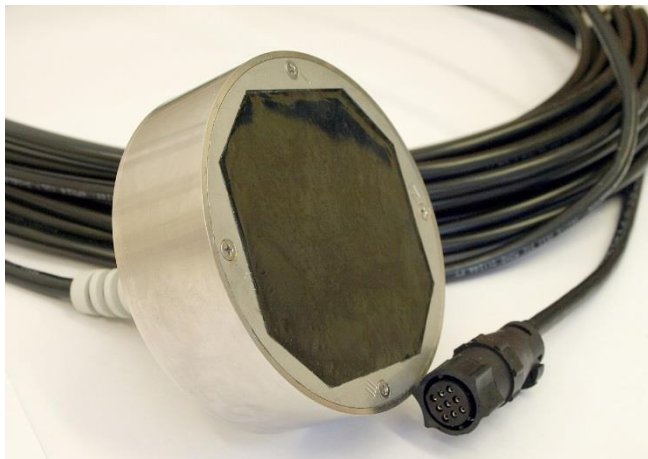
SB-120-9 Split beam Transducer

Features

- Centre Frequency of 120 kHz
- Wide bandwidth of 50 kHz
- Beamwidth: 9°
- TVR: 169 dB
- Sidelobes: <-20 dB
- Usable in split beam as well as single beam mode
- Customisation possible

Applications

- Split beam sonar
- Single beam sonar



Description

The SB120 is an electroacoustic ultrasonic transducer for underwater applications containing ceramic elements arranged in quadrants hermetically sealed with water resistant polyurethane rubber in a cylindrical stainless-steel case.

In the projector mode, transmission of four beam configurations is realised through different connections of the transducer quadrants to the driver. A narrow beam with circular cross-section is radiated if all quadrants are connected in parallel. Using two of the quadrants in parallel will generate elliptical cross-section beams in one plane and narrow in the perpendicular plane. A single quadrant will generate a wide beam of approximately circular cross-section.

In the hydrophone mode, the beams formed using the connections described above for the projector mode are identical to the corresponding projector beams.

The transducer also allows passive and active split-beam modes for target detection and localisation. The active split-beam mode normally requires system calibration for target strength measurement

Customisation

The SB-120-9 design can be adjusted to meet custom specifications. Please contact Callaghan Innovation. This includes centre frequency, beamwidth, mounting, cable, etc

Technical specifications

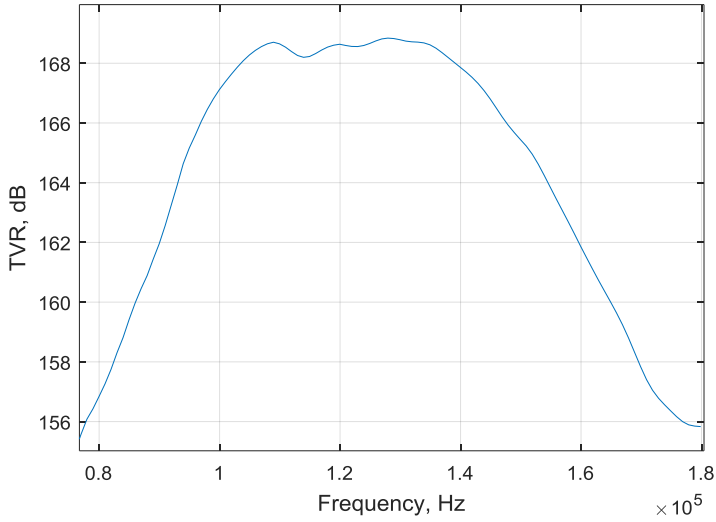
Specifications are for 20 °C transducer and ambient water temperature. Values are with 1 metre cable attached.

Parameter	Min	Typ	Max	Unit
Centre frequency		120		kHz
Bandwidth (-3 dB)	96		146	kHz
Impedance magnitude*	150	200	250	Ohm
Impedance phase*	-55	-70	-80	deg
Transmit response (TVR@120 kHz)**		169		dB
Beamwidth (circular, all quadrants in parallel)	8	9	10	deg
Side lobes			-20	dB
Maximum peak power input			500	W
Maximum continuous power input			10	W
Maximum transducer depth			10	m
Cable diameter		7.4		mm
Weight without cable (in air)			1.2	kg
Storage temperature	-10		50	°C
Dimensions	Diameter 110mm, height 35 mm (excludes cable gland)			

* All quadrants in parallel, ** re 1 μ Pa per 1 V, *** Open circuit voltage response re 1 V per 1 μ Pa

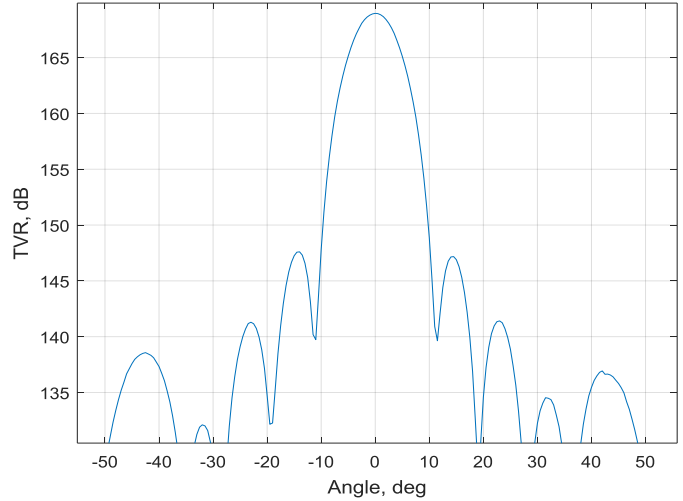
Frequency response

TVR on axis at 20° C. Cable length 25 m.



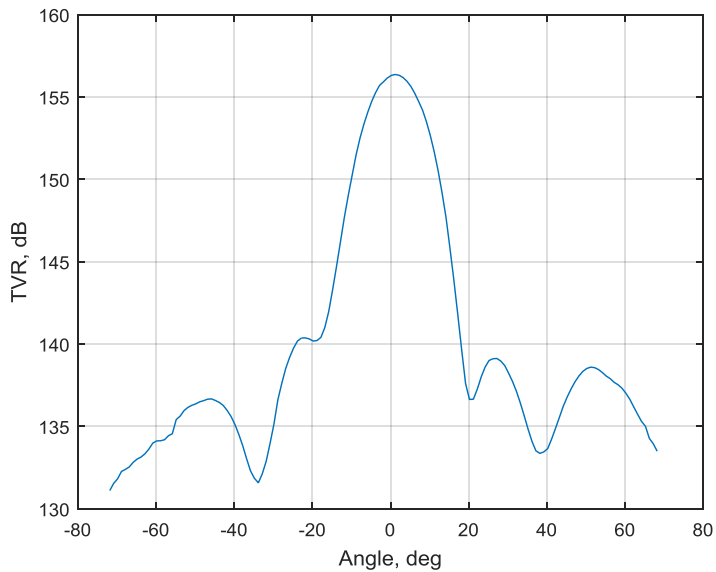
Directivity pattern

TVR at 120 kHz. All quadrants in parallel.



Single quadrant directivity pattern

TVR on axis at 20° C. Cable length 25 m.



Revision history

Date	Version	Notes
16 May 2018	1.0	First release

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