

Ultrasonic transducer S1802

DATA SHEET

Intended use

A general-purpose low-frequency transducer S1802 for the dry-point-contact (DPC) excitation or acquiring shear-horizontal ultrasonic waves in highly scattering materials (concrete, wood, stones etc.) can be used in ready-made housing with the Lemo00 plug or non-wired for self-tailored applications, e.g. for customization of transducer arrays by the customer.

Main technical specifications

Type of transducer:	Dry-point-contact
Type of generated wave mode:	Shear-horizontal
Special properties:	Couplant-free operation
Nominal frequency:	50 kHz
Electric capacity of the piezoelectric element:	700 ± 100 pF
Maximum excitation pulse voltage, V:	400 V
Delay time in transducer protector:	0,9 μs
Connector type:	LEMO00.250
Overall dimensions:	11x22.6 mm
Weight:	14 gr
Operating temperature range:	from -20 to +50 °C



Measurement conditions and equipment used

Temperature 25°C, rel. humidity 43%

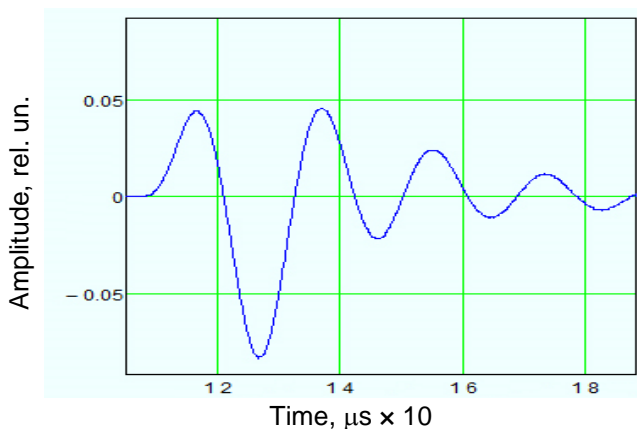
Generator transmitting signal: square pulse with 200 V amplitude, duration 10 μs

Receiving path parameters: integrating amplifier bandwidth 0.001 – 40 MHz, noise 0.7 μV / √Hz, input resistance 4 kΩ.

Calibration sample: 3D box UCB500, plexiglass, thickness 175 mm, longitudinal wave velocity 2700 m/s, transversal waves velocity 1300 m/s.

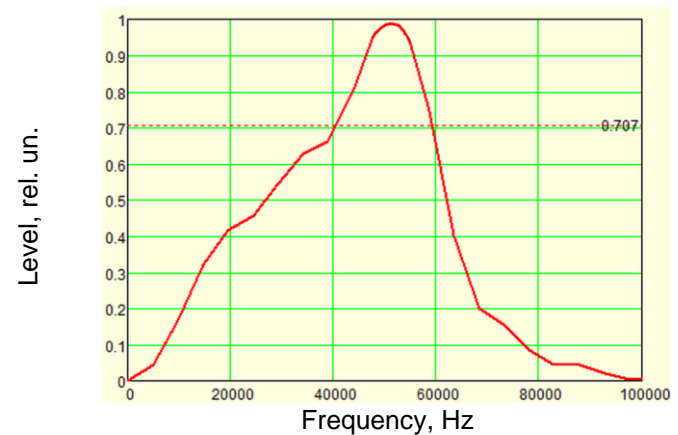
Measured characteristics

Shape of the measured pulse



Pulse duration:	64.4 μs
Maximum AFR frequency f_p :	53.8 kHz
Lower AFR frequency f_l :	41.3 kHz
Upper AFR frequency f_u :	59.3 kHz

Amplitude frequency response



Operating AFR frequency f_c :	49.9 kHz
Nominal double conversion ratio S_{rel} :	-60 dB
Absolute transmission band P :	18.4 kHz
Relative transmission band B_w :	37.3 %