

Ultrasonic transducer S1803

DATA SHEET

Intended use

A general-purpose low-frequency transducer S1803 for the dry-point-contact (DPC) excitation or acquiring longitudinal 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 (DPC)
Type of generated wave mode:	Longitudinal
Special properties:	Couplant-free operation
Nominal frequency:	100 kHz
Electric capacity of the piezoelectric element:	950 ± 50 pF
Maximum excitation pulse voltage:	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%

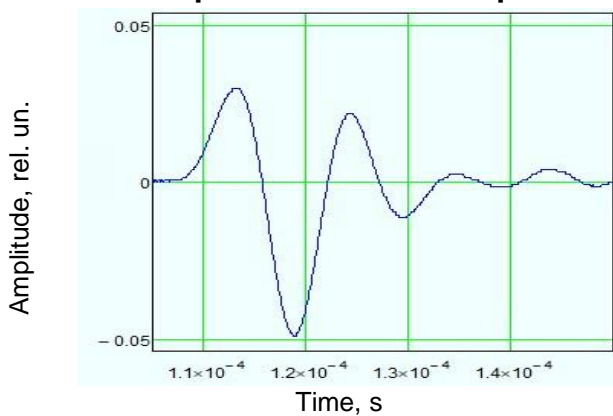
Generator transmitting signal: square pulse with 200 V amplitude, duration 10 μs

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

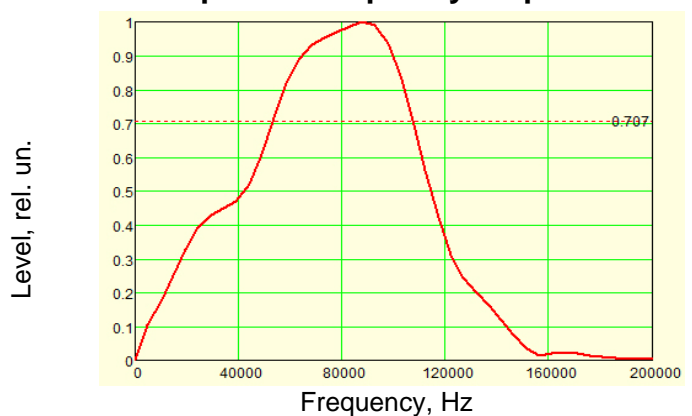
Calibration sample: 3D box UCB500, plexiglass, thickness 175 mm, longitudinal wave velocity 2700 m/s, transversal waves velocity 1300 m/s.

Measured characteristics

Shape of the measured pulse



Amplitude frequency response



Pulse duration:	22.2 μs
Maximum AFR frequency f_p :	87.9 kHz
Lower AFR frequency (-3 dB level) f_l :	97.9 kHz
Upper AFR frequency (-3 dB level) f_u :	122.1 kHz

Operating AFR frequency f_c :	80.3 kHz
Nominal double conversion ratio S_{rel} :	-60 dB
Absolute band width P:	24.4 kHz
Relative band width B_w :	22.4 %