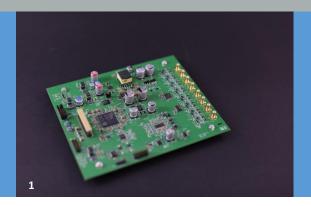
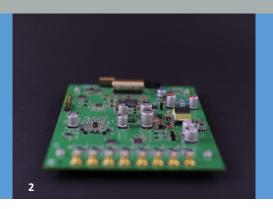


#### FRAUNHOFER-INSTITUT FÜR BIOMEDIZINISCHE TECHNIK IBMT





1 / 2 Full 1-ch ultrasound electronic.

# 1-Ch System with 1:8 Multiplexer

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# System description

This single-channel ultrasonic system has been specially developed for industrial applications. The focus of development is on cost optimization while ensuring high performance, reliability and flexibility. Up to eight individual measuring paths can be controlled by the system via an integrated multiplexer. The used ZYNQ-7 chip, which combines the advantages of an FPGA with those of a microcontroller, takes over the entire sequence control of the system, the transmission signal generation, the receiveend data management as well as the administration of the communication interfaces. The data processing can be done completely on the integrated chip, so that only the final calculated measurement value is transferred to the user. But it is also possible to transmit the acquired ultrasound data via a fast USB 3.0 interface to a terminal device, whereupon the data analysis can be performed.

The system properties listed in the table are for orientation only. On request, the device can be adapted to individual requirements.

### Standard specifications

Transmitter TX	
Channels:	1
Transmit voltage:	+/- 100 V
	(adjustable)
Transmit current:	2.5 A max.
Signals:	Tri-state burst signals
	(programmable)
Resolution:	12.6 ns
	(up to 2 ns possible)

## Receiver RX

Channels:	2
Noise:	0.75 nV/√Hz
Amplification:	Max. 55 dB
	48 dB adjustable
Sampling frequency:	Up to 125 MSPS
Resolution:	12 bit
Local memory:	BRAM 6 kByte

#### Svstem

System	
Frequency range:	100 kHz – 20 MHz
Input voltage:	12 V (DC)
Power consumption:	Approx. 5 W
FPGA / SoC:	ZYNQ XC7Z010
Signal processing:	Embedded
Data interface:	USB 3.0
Multiplexer:	1:8 (Tx), 4:2 (Rx)
Transducer interface:	8 x SMB
Dimensions:	160 x 130 x 20 mm