

US-MUX 16 Channels

16 channels UT electronics multiplexed system



The US-MUX is the combination of the Us-key and a multiplexor 1 to 16. Then you have a device that gives you the best of the both systems:

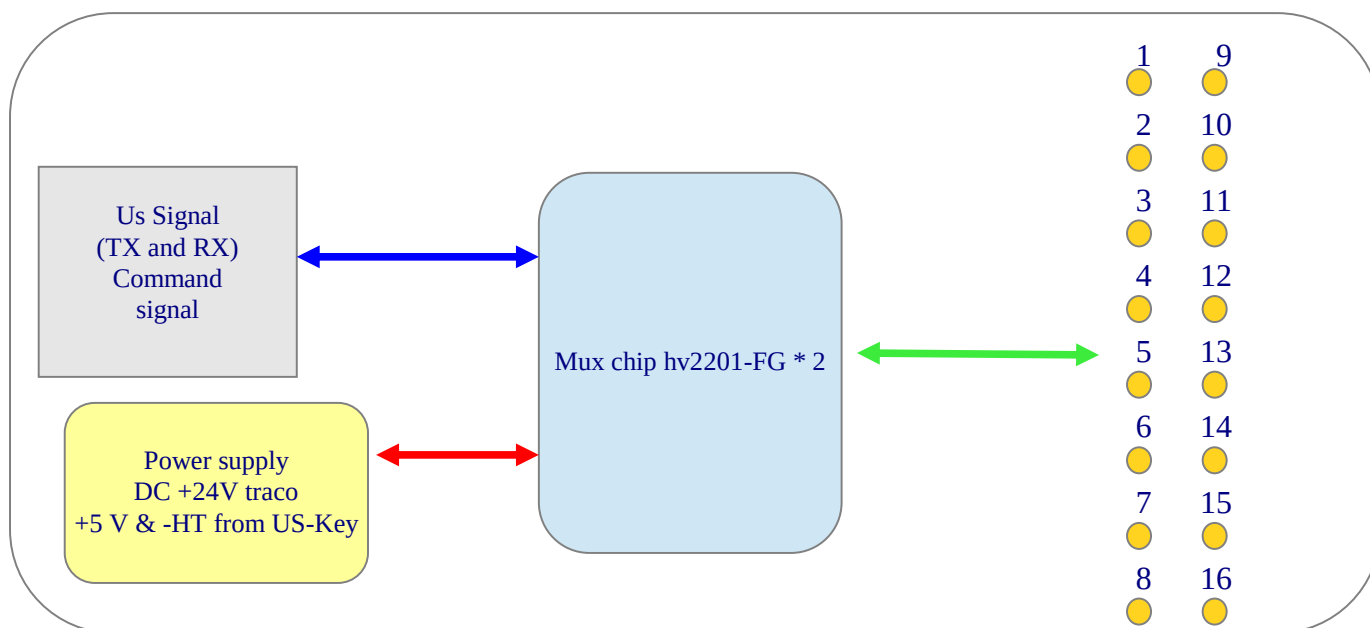
Flexibility of the us key (performances, easy to use, matlab and labview access) and a fast multiplexer to control 16 different transducers



Fast switching mode, switch channel at the pulse repetitive frequency of the Us-key.
Manual and automatic switching mode.
No external power supply needed.
No additional noise, the only noise level is the Us-key standard noise level.
Less than 0,1dB dispersion between channels.
High input impedance.
Software: labview. Matlab, Windows SDK

Mux 1 to 16

Multiplexor 1 to 16 for the input signal. The command and the input signal is coming from Us-key.



Symbol	Parameter	Value	Units
ST	Switching time 16 channel	3,6	µs
VNN	Negative power supply (us-key)	-30 to -160	V
VDD	Power supply switch	5	V
VPP	Power supply switch	24	V
Zin	Input impedance	2000	Ohm
D	dispersion	0,1	dB

Overview:



Dimension: 170 mm * 125 mm *50 mm

US-Key

Single channel ultrasound device

General description:

Us-Key is a small device to get ultrasound acquisitions and measurements. This is a transmitter, receiver and digitizer electronics.

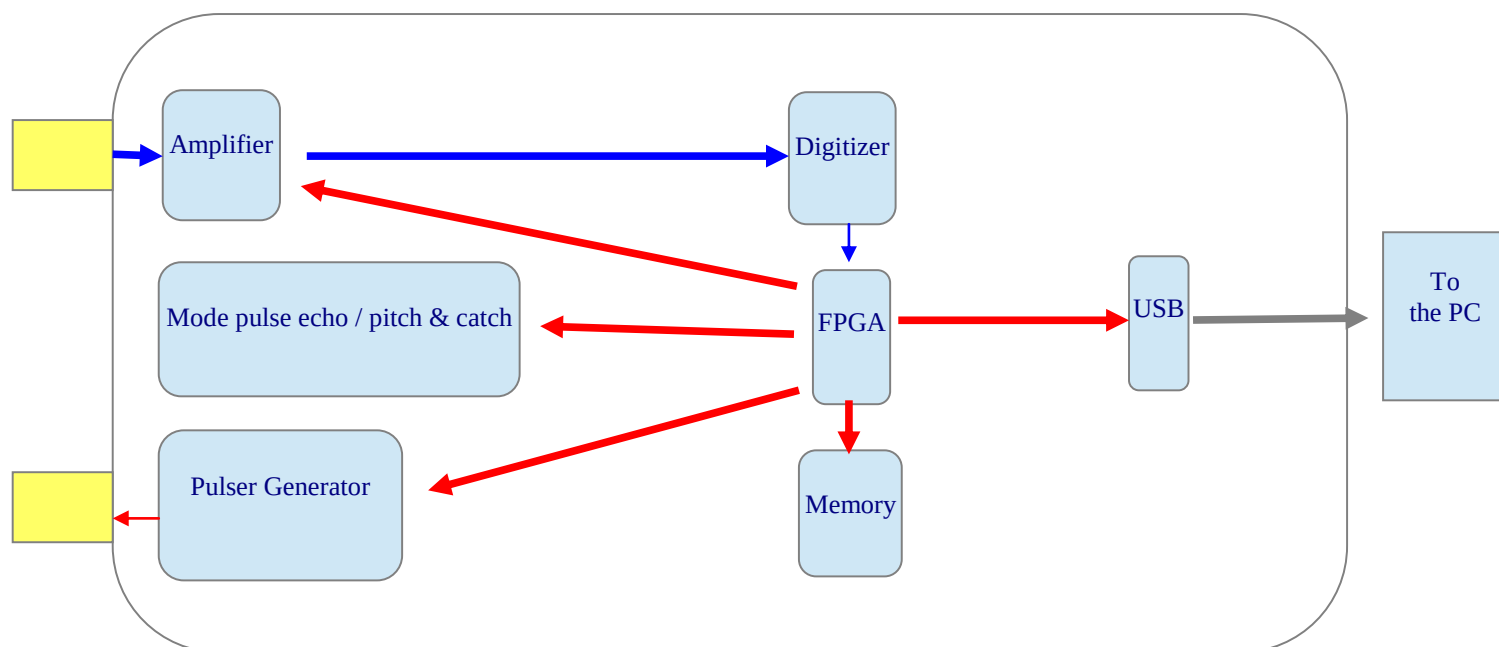
The transmitter can generate pulses with a voltage level and width programmed by the user. A low noise preamplifier and a VGA amplifier give a gain between 0 to 80 dB, the digitizer is a 12 bits resolution and can work at 80 MHz but also 40MHz, 20MHz, 10MHz.

Us-Key can work with pulse echo mode or pitch and catch mode.

Features:

- USB2 high speed connection
- Ultra low noise preamplifier : $0,74\text{nV}/\sqrt{\text{Hz}}$
- Bandwidth (-6 dB) : 540KHz to 18Mhz (option 30MHz)
- High voltage transmitting pulses
- 50 Ohm load drive
- Digitizer 12 bits at 80MSPS (option 160 MSPS)
- Programmable gain : 0 to 80dB
- DAC curve available
- USB power supply 5Volts
- Win 8 / 7 / Vista / XP

Block Diagram:



Electrical Characteristics:

Receiver

Symbol	Parameter	value	Units
BW	Bandwidth to -6dB	0,54 to 18	MHz
F0	Central frequency	3	MHz
Lin	Linearity	+/- 0,5	dB
Gain	Gain Range	0 to 80	dB
Zin	Input Impedance	50	Ohm
Vin	Input Voltage range	+/-275	mV
Noise	Amplifier noise	0,74	nV / $\sqrt{\text{Hz}}$
Res	ADC resolution	12	Bits
Fs	Sampling Frequency	80	MHz

Transmitter

Symbol	Parameter	Value	Units
HV min	High Voltage min	-30	V
HV Max	High Voltage Max	-160*	V
HV step	High Voltage step	5	V
PW min	Pulse Width min	16,6	ns
PW Max	Pulse Width Max	1160	ns
PW mean step	Pulse Width step	6	ns
PTF **	Pulse Time Fall	5,2 to 7,8	ns

* : basically the us-key can give a HV Max of -230V but with the mux it's -160V

** : falling time is get with -140V and pulse width of 16,6ns on 50ohm load.

