

Pulse-Shaper

EL-PF2



User Manual



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1 Functional Description

The pulse shaper generates pulses when the preset trigger conditions of the input signal are met. The input signal can contain positive and/or negative half waves. An adjustable threshold with indication of the edge (pos. or neg.) defines the trigger time for the initiation of an output pulse.

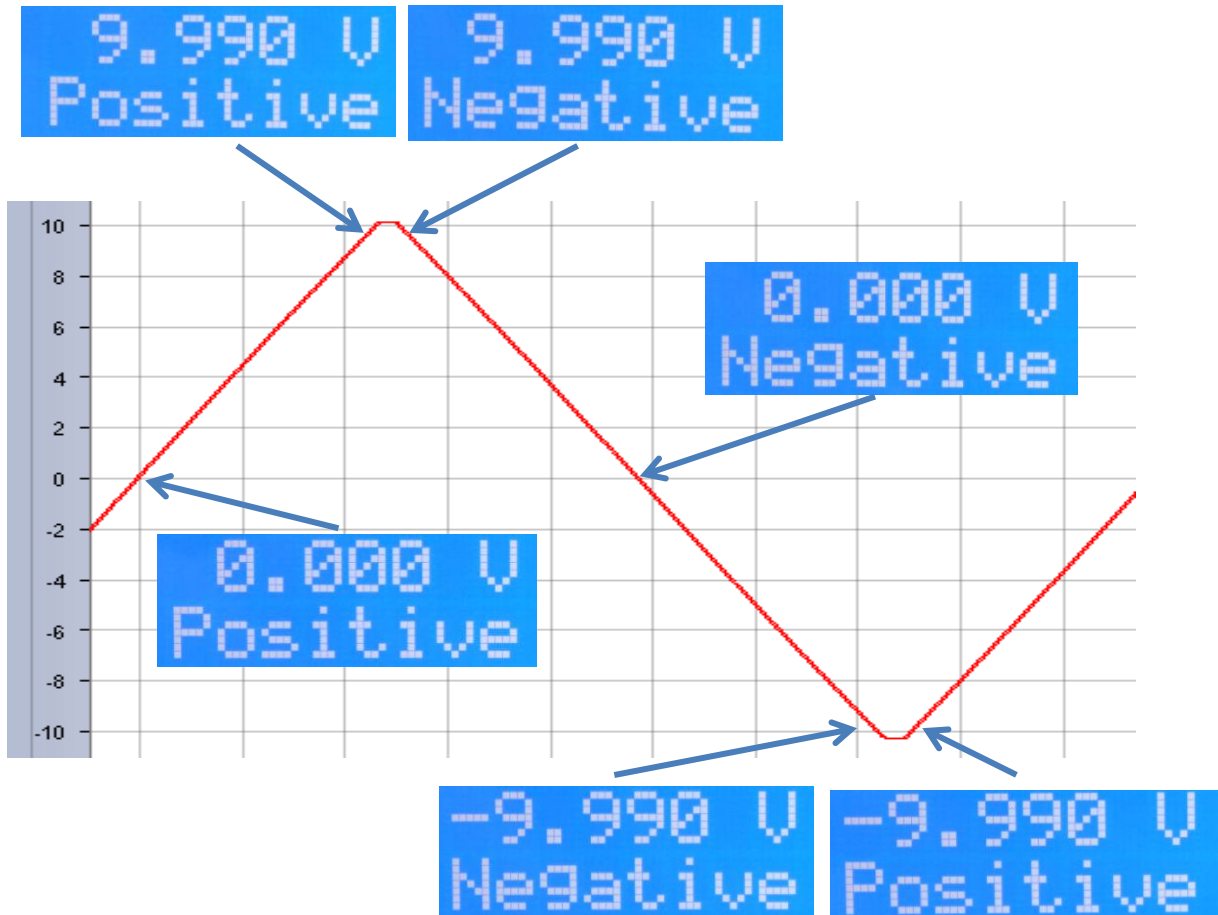
Set values are retained when the device is switched off.

1 Operating Modes

1.1 Trigger Pulse

A square wave pulse with predefined duration is generated on an input signal. The input signal can contain positive and/or negative half waves. An adjustable threshold with indication of the edge (pos. or neg.) defines the trigger time point for the triggering of an output pulse.

Trigger examples on a triangular signal as input:



The pulse duration is shown at the very top of the display (Time). Value and unit can be selected separately.

Setting range : 0.1us ... 9999.9us, 0.1ms ...9999.9ms

Minimum:

Maximum:



1.2 Pulse delay

By connecting the two channels in series, not only the duration of an output pulse can be set, but also a delay to the trigger time.

The output signal of channel 1 is switched internally to the input of channel 2. After the time set for channel 1 has elapsed, the pulse is triggered at the output of channel 2.

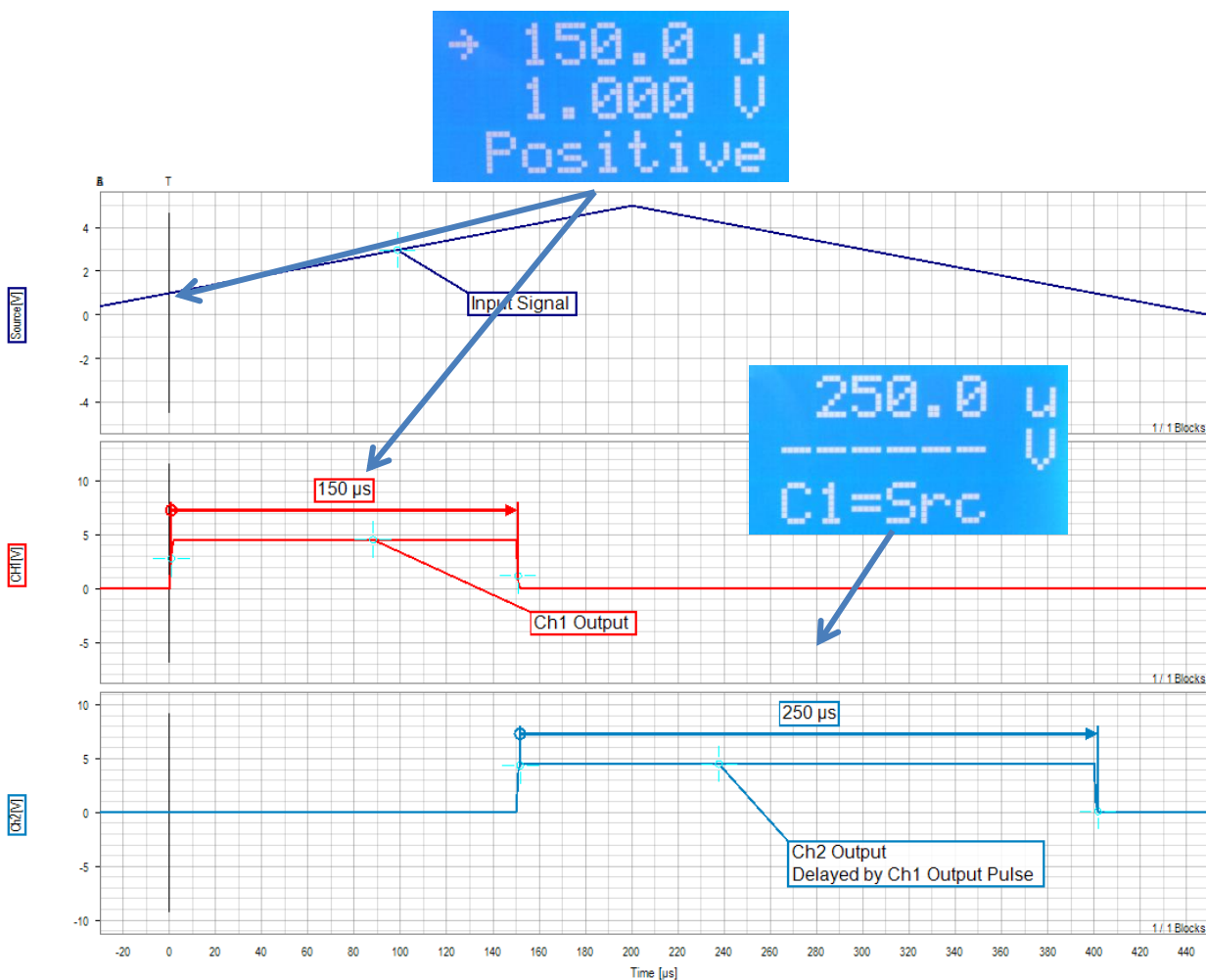
Setting on the device

Under "Slope" at channel 2 select the mode "C1=Src".
(Ch1 = Source).



Example with a triangular signal at the input:

The setting at channel 1 Starts a pulse (red) at 1V, positive edge of the input signal.
Channel 2 generates another pulse (blue) after the elapsed time of channel 1.



1.3 Pulse blocking (Disarm)

Channel 1 can be configured for disarming channel 2. During the pulse duration of channel 1 (triggered by its triggering), no pulse is generated at channel 2, even if the trigger condition would be fulfilled there.

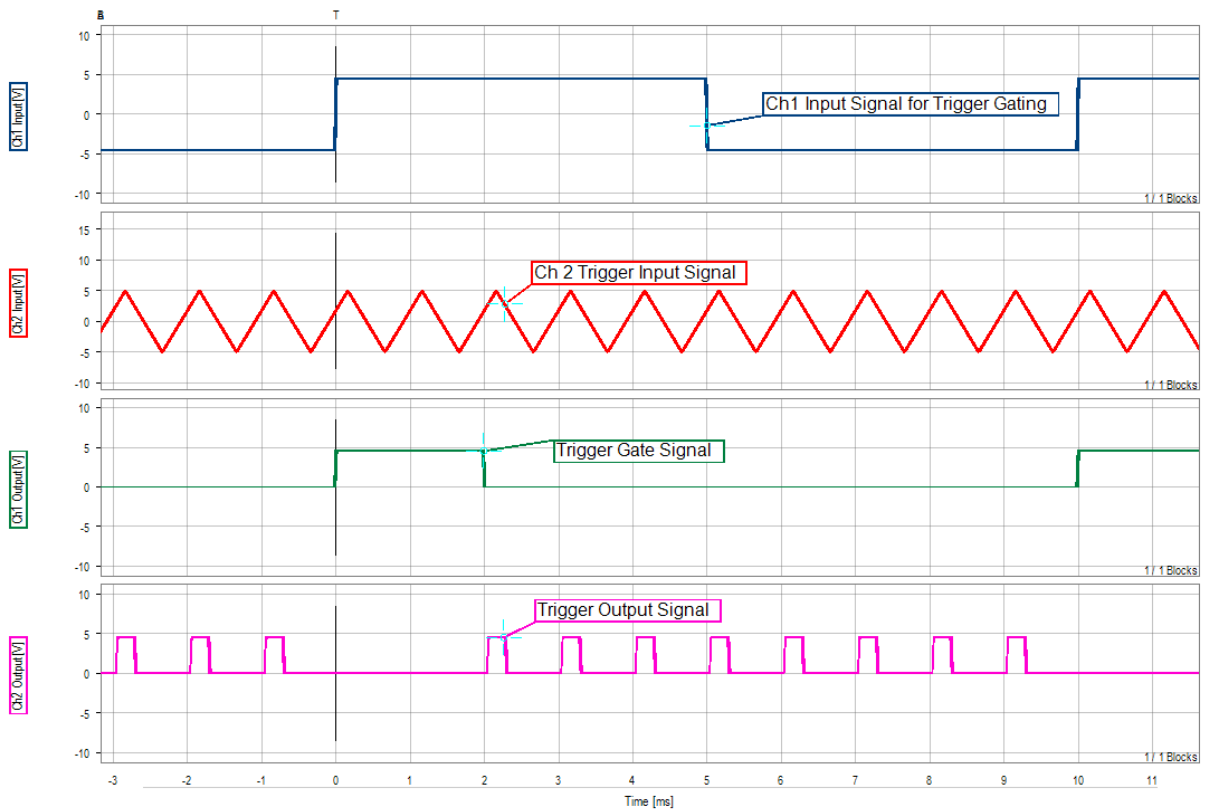
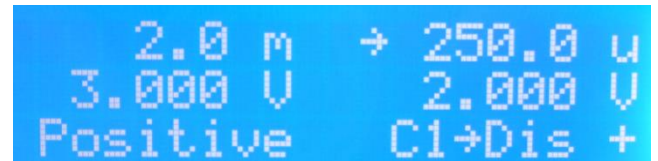
Setting on the device

Under "Slope" for channel 2, select the mode "C1=Dis". Plus or minus indicate on which edge channel 2 triggers.



Example with 2 different input signals on channel 1 and 2:

Output of channel 2 (pink) is only triggered when the time of channel 1 (green) has expired.



1.4 Pulse suppression

A parameter can be used to suppress a number of triggers until the first output pulse.

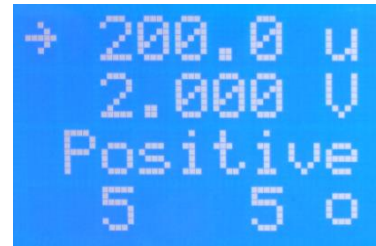
Setting on the device

Definition of the pulse width: 200us

Trigger threshold: 2V

Positive edge

Under "Suppr." (Suppressor) the number of pulses to be suppressed can be set: 5 pulses.

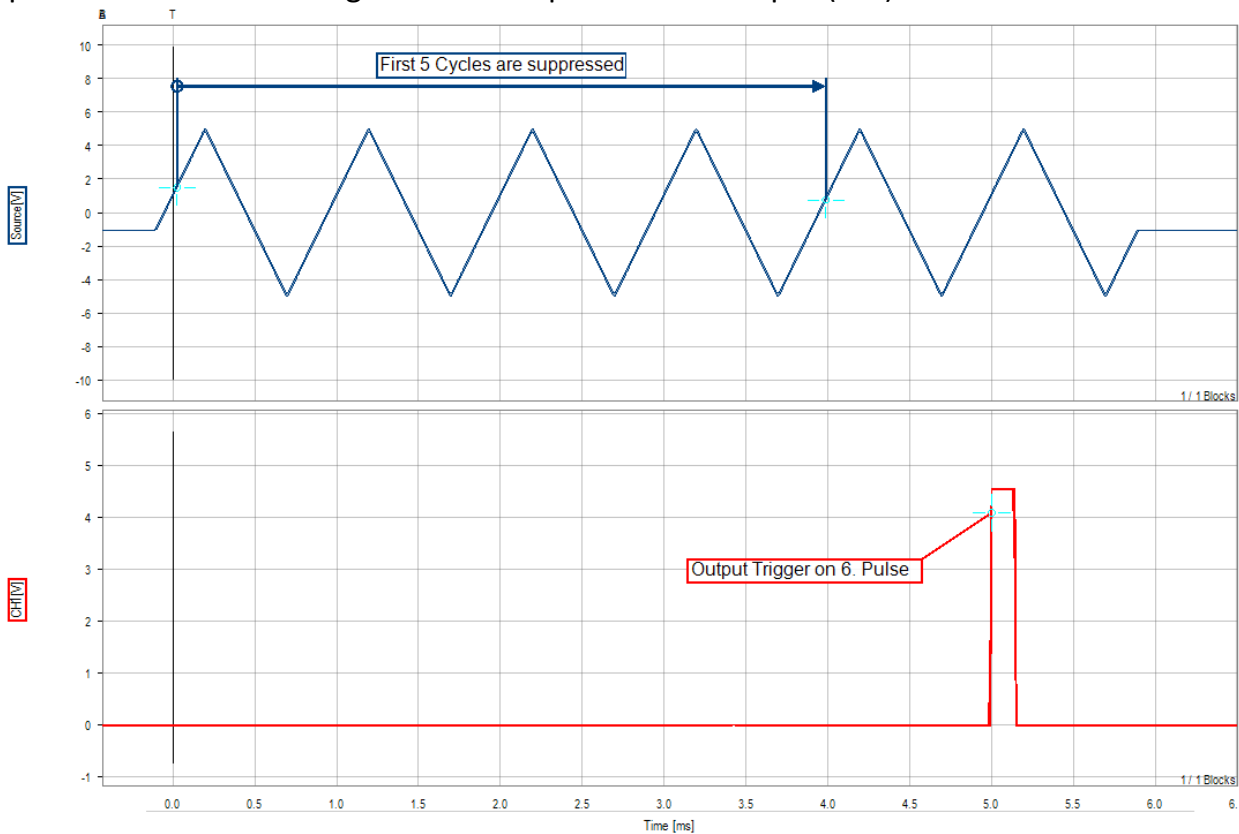


Press the "Set/Res" key to accept the set value.

Pressing the "Set/Res" key again triggers the counting process.

The digit on the right counts the detected

pulses to zero and then generates the pulse at the output (red).



1.5 Pulse generator

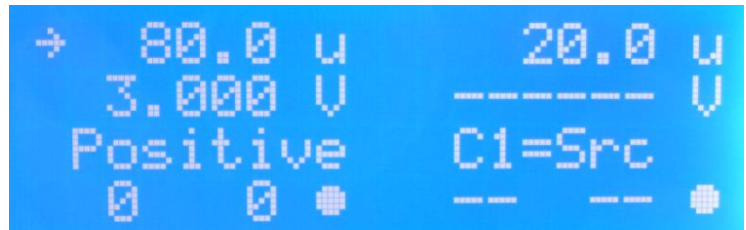
By an additional external connection (inverted output 2 to input 1) the device works as a free-running pulse generator.

Setting on the device

Trigger channel 1 to "positive". Triggers when the inverted pulse of channel 2 is over.

On channel 2 select the mode "C1=Src". (Ch1 = Source).

Internally links channel 1 with channel 2.

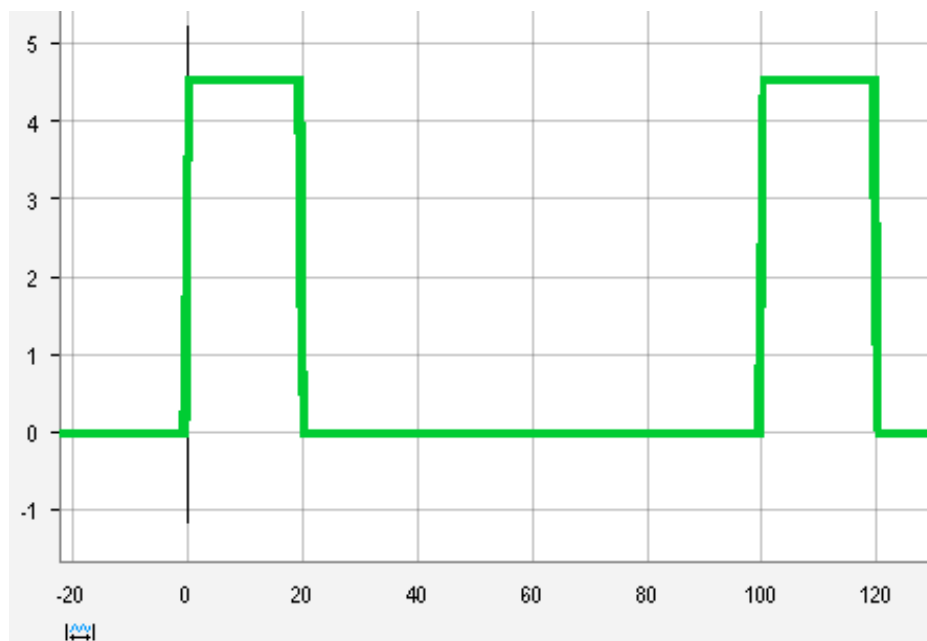


The first pulse must be taken manually by pressing one of the "Test" buttons. After the EL-PF2 repeats the pulses independently.



Example of a generated 10kHz output signal with duty cycle 20%:

Pulse length: 20us (Ch 2), Period duration: 100us (Ch 1 +Ch 1)



2 Technical Data

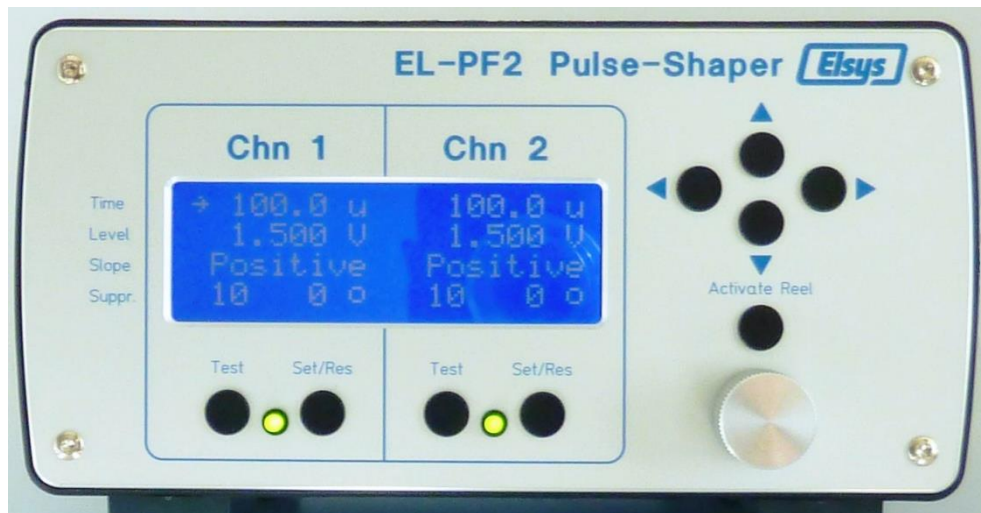
- Number of channels: 2, without special instructions, the following information applies analogously to both channels.
- Operating elements: LCD-Display 4 x 20 Characters
 Pushbuttons for cursor placement
 Incremental rotary knob for setting parameter values, Step increment depends on the rotation speed.
 Turning the knob while holding it down adjusts the values in larger steps.
- Input: Isolated BNC socket
 Differential input stage (not galvanically isolated)
 Input impedance: 100 kOhm, approx. 40pF
 CMRR: > 70dB
 Common Mode: > +/- 30V
 Input protection: up to +/-100V
 Trigger level adjustable from -9.990V to +9.990V in steps of 10mV. Precision: +/- 50mV.
 A fixed preset hysteresis of approx... 200mV prevents triggering on the wrong edge.
 Min. pulse width (over/under trigger level): approx. 200ns
- Output: 2 BNC-socket, one each for positive and inverse pulse
 TTL-Level (<= 0.4V ... >= 4V)
 Output impedance: approx. 50 Ohm
 Protected for external voltages up to max. +/- 10V
- Pulse Width (Time): Setting Range: 0.1us ... 9999.9us, 0.1ms ...9999.9ms
 Precision: +/- 50ppm
 Delay Trigger to PulsOut (Pulsbegin): < 90ns
 Delay Trigger to PulsOut (Pulsend): Time +/- 20ns
- Output Rise-/Fall-Time < 20ns (ZLoad =100 Ohm, < 100pF)
 Long-lasting active pulses can be interrupted by adjusting the Time parameter.
- Pulse-Suppression: 0 to min. 99
 After pressing the Set/Reset key, all detected triggers are suppressed up to the set number. This is indicated by a countdown counter. After that, a pulse is generated on each following trigger (until the Set/Reset key is pressed again).
- Test-Pulse: When the test button is pressed, a single pulse with the set duration is generated. The count-down counter for the pulse suppression remains unchanged.
- Pulse-Indicator: For each channel, an icon lights up on the display when pulses are active (similar to an LED).

Operating Condition: 0°C ... 50°C

Housing: Rugged aluminum construction
Dimensions: approx. 172 x 100 x 180 mm (B x H x T)
Weight: approx. 1.5kg.

Power Supply: 95...240Vac, 50...60Hz, approx. 15W.

Front view with



Rear Side



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