

## Level Trigger EL-BULT14

Rack System, up to 14 channels

### Device Description

The device EL-BULT14 is able to produce TTL trigger pulses out of analog signals from optical (Laser), reluctance or capacitive and eddy-current sensors.

Each of the 14 channels has a corresponding input (Probe IN) and trigger pulse out (Pulse Out) BNC connector on the rear side of the device.

The channel selectors can be used to route the amplified as well as the trigger pulse signal from one of the 14 channels to the front BNC connectors for monitoring purposes.

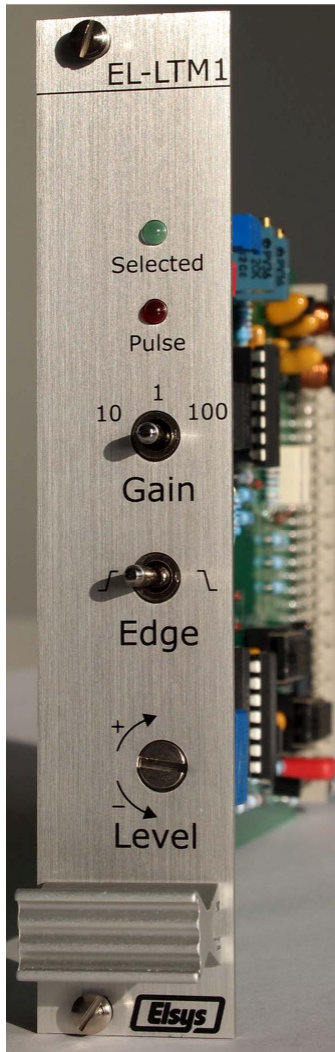
### Front View



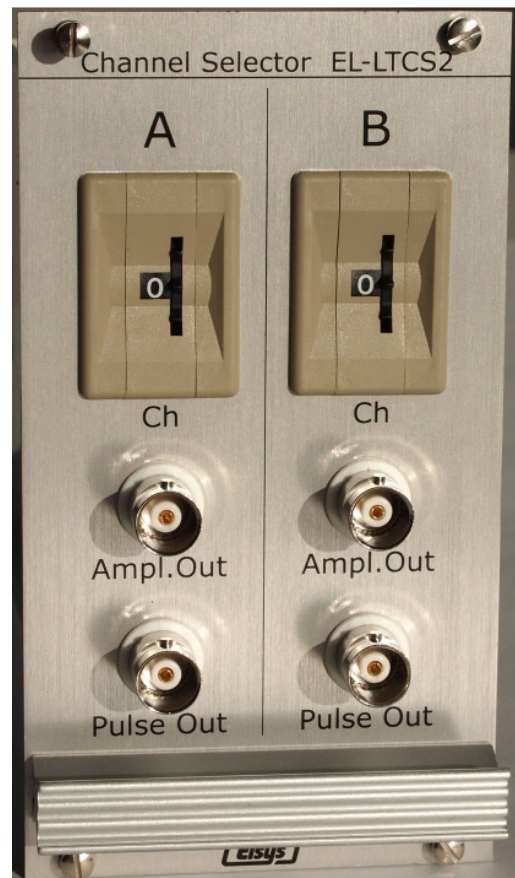
### Rear View



## Plug-In Modules



Trigger Module



Channel Selector

## Control Elements

### Trigger Module

- Green LED : The green LED indicates that this channel is selected by at least one of the two channel selectors.
- Red LED : The red LED will flash at each generated trigger pulse
- Toggle switch: *GAIN* : This switch adjusts the gain for one channel. Possible gain factors are 1, 10, 100.
- Toggle switch: *Edge*. : This switch defines the slope of the input signal to generate a trigger pulse.
- Level setting : Defines the amplified level at which a trigger pulse is generated.

## Channel Selector

There are two identical groups A and B

The rotary switch defines which trigger module will be connected to the front BNC connectors of the corresponding channel selector. The signals were routed over the backplane to the channel selector. The channel numbers correspond to the slot numbers of the installed trigger modules. For channel number 0 and 15 the front BNC connectors are open.

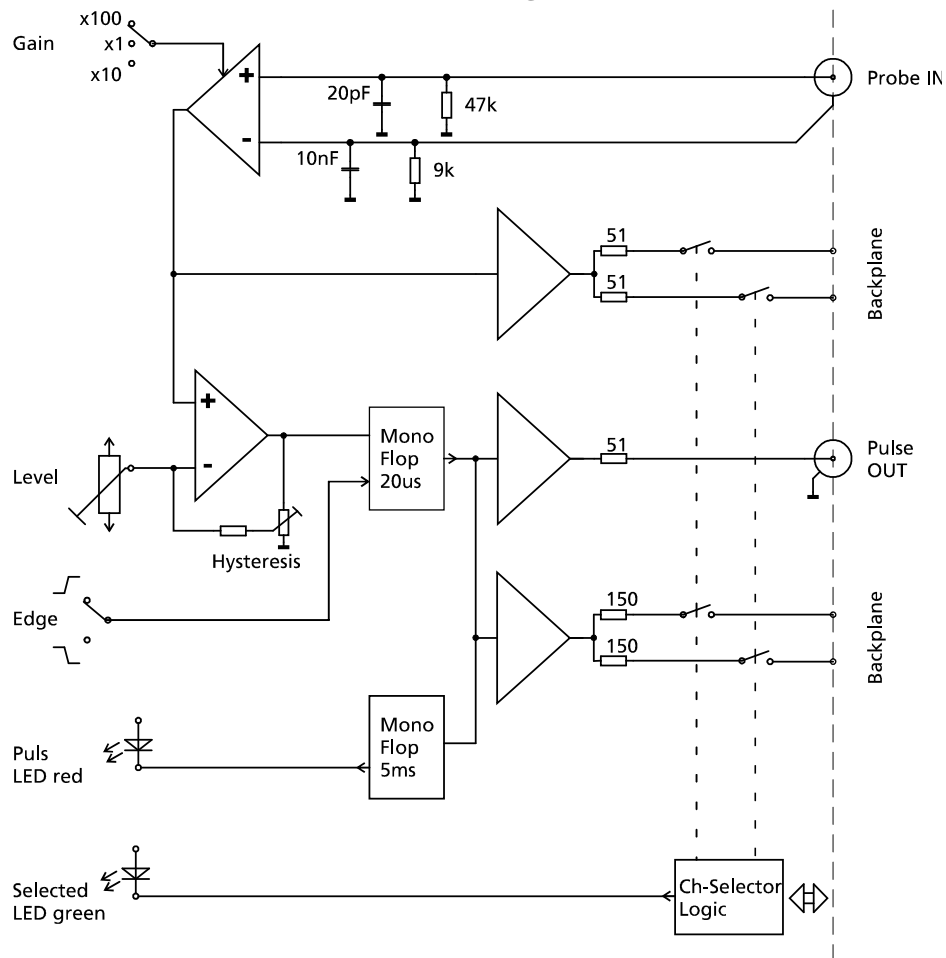
## Rear Side Base Unit

Mains plug : Input 100 .. 240 VAC, fused with two fuses 3.15ATL  
 Main switch : To switch on or off the device.

## Rear Side Channel Connectors

Input *Probe IN* : BNC-Connector named *Probe IN*. Input for the sensor signal.  
 Output *Pulse OUT*. : BNC-Connector named *Pulse OUT*. Output of the trigger pulse (0...5V, TTL).

## Block Diagram



## Specifications

### Channel Specifications:

Input amplifier	: Differential type with isolated BNC connector
Input range	: +/-10V, +/-1V, +/-0.1V (Gain = 1, 10, 100)
Input impedance	: Pos. Signal path: approx. 47k $\Omega$    20pF Neg. BNC shield: approx. 9k $\Omega$    10nF
Max. input voltage	: $\pm$ 42V (short peaks up to 250V)
Input sensitivity	: Trigger level can be set between (-9 ...+9V) / gain
Hysteresis	: Standard approx. 2% of the input range. Can be adjusted by a Trimpoti on the upper side of the module board. With a jumper inside of the plug in module the hysteresis can be magnified by a factor of approx. 3. This may be useful when the module is connected to a Reluctance Sensor.
Bandwidth	: DC to 400kHz (200kHz @ Gain=100)
Pulse Output	: TTL (0.4 ... 3.5 V), pulse width 20 $\mu$ s, Impedance approx. 100 $\Omega$
Outputs at Ch. Selectors	: BNC for amplified analog signal. Impedance approx. 50 $\Omega$ BNC for trigger pulse. Impedance approx. 150 $\Omega$ Outputs are protected for up to +/-10V

### Specifications of the Base Unit:

Number of channels	: One per plug-In module (up to 14 in one chassis)
Supply voltage	: 100 .. 240 VAC, fused with two fuses 3.15ATL
Dim. of rack chassis	: 19", 480 x 134 x 260 mm (W x H x D)
Weight	: Rack chassis with 14 channels: 5.3 kg one plug-In channel: approx. 0.23 kg

### Adjusting of the Hysteresis:

The hysteresis eliminates the effect of generating a trigger on the other as the wanted edge.

The value of the hysteresis can be adjusted by a Trimpotentiometer. This Trimpotis of all channels are accessible by removing the cover at the top of the device. Turning clockwise increases the hysteresis. The value of the hysteresis can be set between approx. 0.1 to 5% of the amplifier range (e.g. 10mV to 500mV at gain=1).

By installing the jumper Jx, the hysteresis will be increased by a factor of approx. 3 (e.g. 30mv to 1.5V at gain=1). This may be helpful at the use of reluctance sensors

