

# Reluctance-Trigger EL-BU-14/TRIG\_R

## Rack System, up to 14 channels

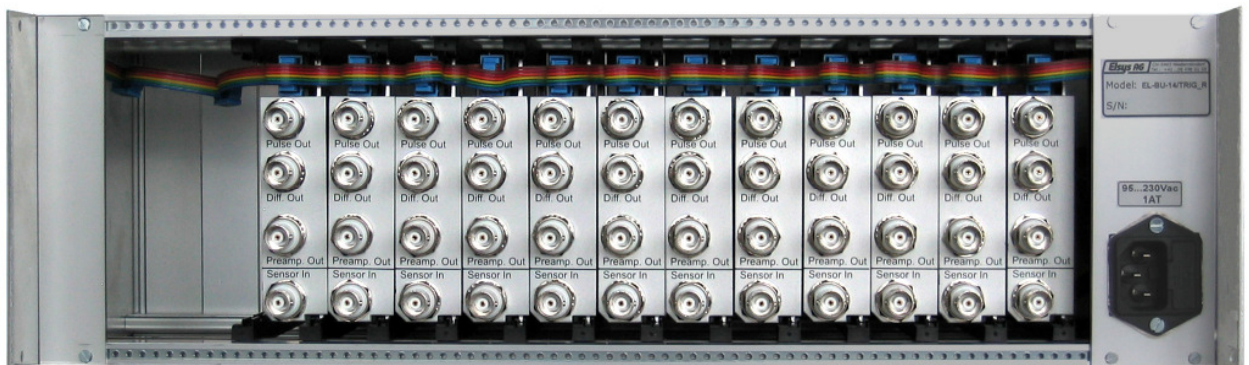
### Device Description

The device EL-TRIG\_R is able to produce TTL-Trigger-Pulses out of analog signals from reluctance or capacitive and eddy-current sensors.

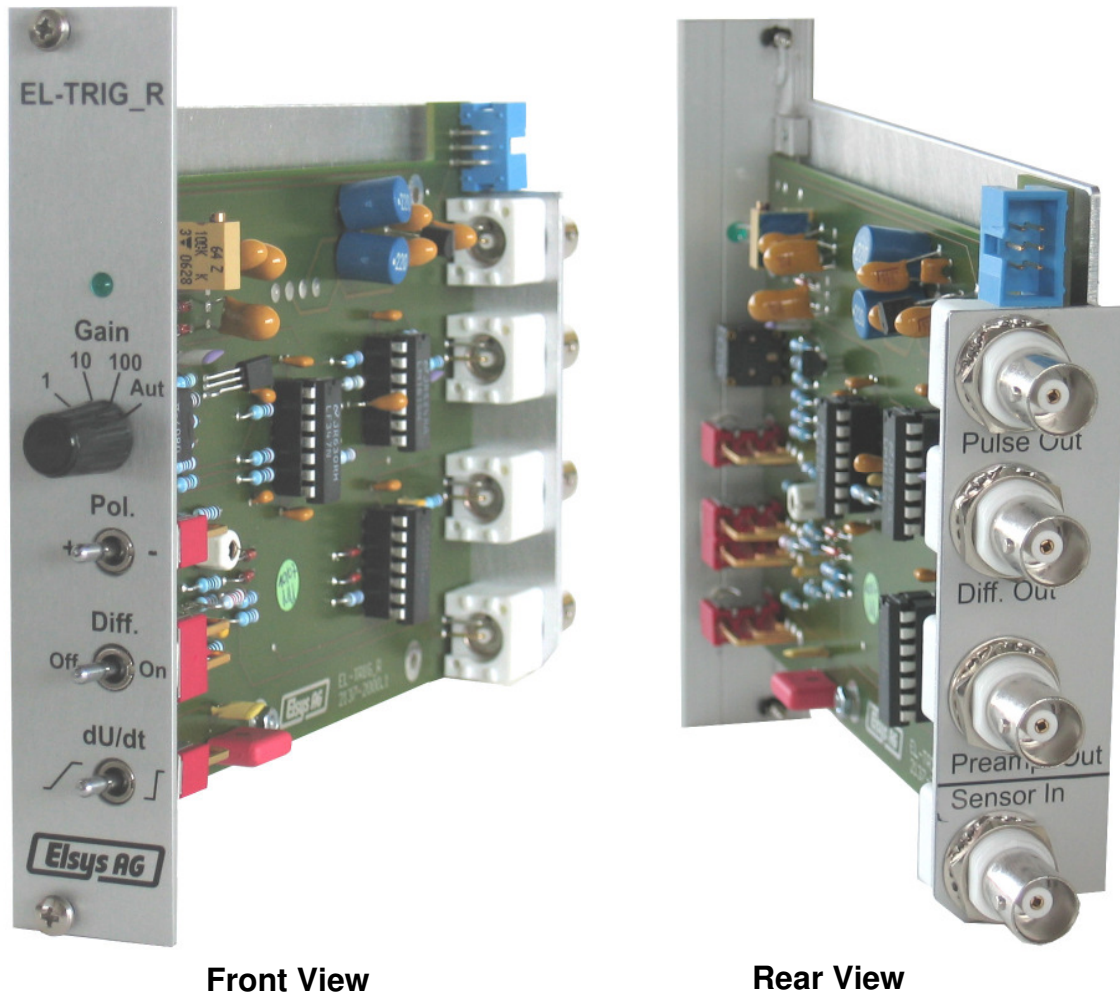
### Front View



### Rear View



## Plug-In Channel Module



Front View

Rear View

## Control Elements

### Front Side

- Main switch (Base Unit) :To switch on or off the device.
- LED-Displays : Each LED belongs to a channel, from which it indicates the pulse signal on the channel output.
- Rotary switch *GAIN* : Rotary switches named *GAIN*. This switches adjusts the gain for one channel. Possible gain factors are 1, 10, 100 and automatic.
- Toggle switch *Pol.* : Switches named *Pol.* This switches can invert (-) or not invert (+) the output signal of the preamplifier.
- Position left (+)* : *Trigger-Pulse on negative slope (Diff. = off), and neg. peak values (Diff. = on).*
- Position right (-)* : *Trigger-Pulse on pos. slope (Diff. = off), and pos. peak values (Diff. = on).*
- Toggle switch *Diff.* : Switches named *Diff.* Each one switches on or off the differentiator for one channel. If the differentiator is on, the signal is attenuated at the input by a **factor of 50**.
- Toggle switch *dU/dt*: Switches named *dU/dt*. Each switch is for changing the time constant from the differentiator for one channel. For low frequency signals (<1kHz) it's preferred to choose the operating position "flat slope" (left), for fast signals (>1kHz) the operating position "steep slope" (right) should be selected.

## Rear Side Base Unit

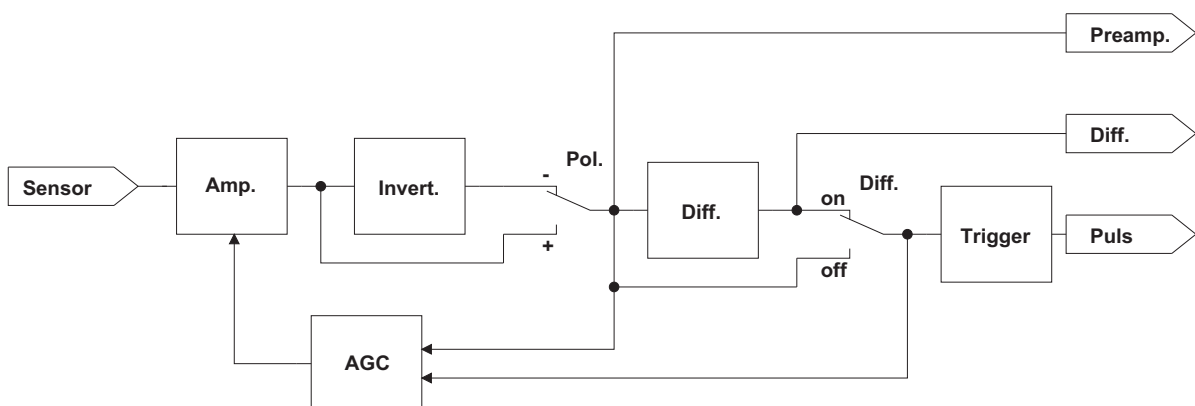
Mains plug : Input 95 .. 230 VAC, fused with two fuses 1AT

## Rear Side Channel Connectors

- Input *Sensor* : BNC-Connector named *Sensor*. Input for the sensor signal.
- Output *Preamp.* : BNC-Connector named *Preamp* to monitor the signal at the preamplifier output.
- Output *Diff.* : BNC-Connector named *Diff* to monitor the signals after the differentiator circuit.
- Output *Pulse* : BNC-Connector named *Pulse*. Output of TTL-signal after the zero crossing detector circuit.

## Block diagram

The graphic below shows the functional operation of one channel.



## Specifications

### Channel specifications:

Input sensitivity	: See table below
Input impedance Diff on	: approx. 102kΩ    10pF
Input impedance Diff off	: approx. 17kΩ
Bandwidth	: 30 Hz to 30kHz
Max. input voltage	: ± 35V (short peaks up to 250V)
Pulse output	: TTL (0.4 ... 3.5 V), Pulse width 5μs, Impedance 100Ω
All other outputs	: Impedance 560Ω

### Specifications of the Base Unit:

Number of channels	: One per Plug-In Module (up to 14 in one chassis)
Supply voltage	: 95 .. 230 VAC, fused with two fuses 1AT
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

### Input sensitivity and trigger level with Differentiator switched OFF (for Reluctance Sensors):

- Signal: Sinus, symmetric to zero line, Frequency 30Hz ... 30kHz
- Gain factor: See table below
- Polarity: May be neglected
- **Differentiator: Off**
- Time constant from Differentiator: May be neglected

Gain	Responsivity, approx.
1	100 mVpp
10	10 mVpp
100	1 mVpp
Auto	2 mVpp

### Input sensitivity and trigger level with Differentiator switched ON (for Capacitive and Eddy-current Sensors):

- Signal: Sinus, symmetric to zero line
- Gain factor: See table below
- Polarity: May be neglected
- **Differentiator: On**
- Time constant of Differentiator: See table below

Frequency	dU/dt	Responsivity, approx.			
		Gain 1	10	100	Auto
20 Hz	Flat	-	5 Vpp	0.5 Vpp	1 Vpp
100 Hz	Flat	12 Vpp	1.2 Vpp	0.12 Vpp	0.25 Vpp
1 kHz	Flat	1.2 Vpp	0.2 Vpp	0.012 Vpp	0.025 Vpp
1 kHz	Steep	-	2.5 Vpp	0.25 Vpp	0.5 Vpp
10 kHz	Steep	2.5 Vpp	0.25 Vpp	0.025 Vpp	0.05 Vpp
40 kHz	Steep	1.5 Vpp	0.15 Vpp	0.015 Vpp	0.025 Vpp