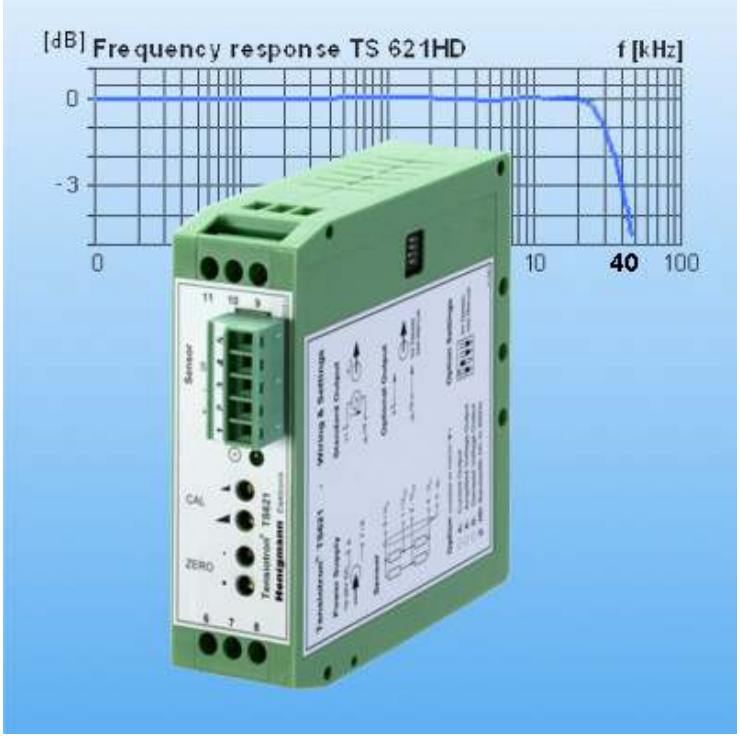
TENSIOTRON® TS 621 HD

High speed strain gauge amplifier - wide bandwidth 40kHz



The **TENSIOTRON® TS 621 HD** electronic strain gauge amplifier is especially intended for amplification of high frequency sensor signals.

Best temperature stability, long-term stability and high accuracy are guaranteed by using modern technology.

The **TS 621 HD** delivers superb performance features such as galvanic isolation, removable terminal block for the sensor connections, multiple options and high quality.

Special features:

- Detection of high frequency sensor signals by large gain bandwidth; **DC...40kHz**
- Great noise immunity and service reliability for use in rough industrial operation
- Direct input power supply of 24V DC, reverse-polarity protected, providing
  - wide operating input power supply of 19-36V DC, LED indicates power-on status
  - integrated DC-DC converter for galvanic isolation between power supply and measuring circuit (very important to avoid ground loops in combination with secondary electronics)
- Provides a well-regulated power supply for sensor excitation, balanced to ground
- Coarse and fine adjustments for zero and amplification setting
- Screw terminal for power and outputs
- Removable screw terminal plug for the sensor connections
  - available accessory: adapter plug 2/1 (parallel connection of 2 sensors directly at amplifier input)
- Standard: voltage output 0-10V, bipolar
- Optional outputs available:
  - Option **D** → additional **filtered voltage output**, selectable cut-off frequency 0,5 / 5 / 10 / 20Hz
  - Option **A40** → additional **current output**, selectable 0-20 / 4-20mA, unipolar or bipolar
  - Option **X40** → additional voltage output, selectable **amplification factor 2x, 3x, 4x, 5x**

Technical Data TS 621 HD

Designation		**Tensiotron® TS 621 HD**
Design		DIN-rail housing for convenient snap-in installation
Accuracy class		**0,1**
Sensors to be connected: - strain gauge, full bridge	 Ω	admissible connection impedance ≥ 150
Bridge excitation voltage - referenced to ground (GND)	V DC V DC	10 ± 0,5 % ± 5
Nominal gain G_{nom}		667
Nominal measuring range U_{sig}	mV	± 15
Calibration range referenced to G_{nom}	%	38 to 100 to 580
Adjustment range zero @ G_{nom} - fine approx. - coarse approx.	 % [1] % [1]	 ± 20 ± 60
Input impedance	Ω	10^{10}
Cut-off frequency (- 3 dB)	kHz	approx. 40
Phase delay (frequency range)	µs	< 7,5
max. slew rate V_{out}	V / µs	2,5
max. ringing at surge [2]	%	< 5
Standard output - voltage output V_{out} (@ G_{nom} • U_{sig})	 V	 0 to ± 10, max. 10 mA
OPTION additional output:		
- D 2nd voltage output, filtered		
Vd_{out}	V	0 to ± 10, max. 10 mA
Bessel low-pass-filter 5th order	Hz	f_C = 0,5 / 5 / 10 / 15
(configuration via DIP switch)		
- A40 current output		
- bipolar	mA	0 to ± 20, admissible load 0 to 500 Ω
- unipolar	mA	0 to + 20, admissible load 0 to 500 Ω
- unipolar (configuration via DIP switch)	mA	4 to + 20, admissible load 0 to 500 Ω
cut-off frequency f_C (-3dB)	kHz	approx. 40
- X40 2nd voltage output with selectable amplification factor X		
V_{out}* = X • V_{out}	V	V_{out}* = 2 / 3 / 4 / 5 • V_{out}
voltage output V_{out}* (configuration via DIP switch)	V	0 to ± 10, max. 10 mA
cut-off frequency f_C (-3dB)	kHz	approx. 40

Nominal temperature range Operation temperature range Storage temperature range	° C ° C ° C	0 to + 60 0 to + 60 -25 to + 75
Temperature influence per 10 °C - on zero at amplifier output - on calibration	 mV % [1]	 < 10 (@ G_{nom}) < 0,05
Supply voltage Power consumption	V DC W	19 to 36 max. 3 integrated DC-DC converter for galvanic isolation between supply voltage and measurement circuit
Amplifier connection		screw terminals for flexible cable 0,2 to 2,5 mm^2
Sensor connection		plug with screw terminals for flexible cable 0,08 to 1,5 mm^2
Dimensions (L x W x H)	mm	80 x 25 x 95
Weight	g	approx. 100
Installation		Snap-in installation on DIN-EN mounting rails

[1] of final value

[2] @ G_{nom} and 15 mV square wave amplitude input signal (Usig)

Explanation of grammalogue:

f_C	⇒ Cut-off frequency	V_{out}	⇒ Voltage at standard output
G_{nom}	⇒ Nominal gain	V_{out}*	⇒ Voltage at optional output with select. amplification factor
U_{sig}	⇒ Input voltage	Vd_{out}	⇒ Voltage at optional damped output

Technical execution subject to change without prior notice