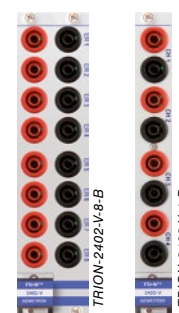


TRION-2402-V

Isolated wide range voltage module

- **Sampling:** 24 bit; 204.8 kS/s per channel
- **Input types:** Voltage ± 300 mV to $\pm 1000^{(2)}$ V_{DC}
Current
- **Isolation:** 4 kV



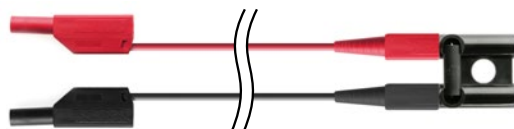
TRION-2402-V specifications					
Input channels		4 (TRION-2402-V-4-B)			
		8 (TRION-2402-V-8-B)			
Sampling rate		204.8 kS/s per channel			
Resolution		24 bit			
Input ranges					
Voltage		±0.3 V, ±1 V, ±3 V, ±10 V, ±30 V, ±100 V, ±400 V and ±1000 V ²⁾			
Current		Depending on external Shunt; e.g. 20 mA, 1 A, 5 A			
Voltage input accuracy		Signal frequency	Accuracy		
	Range > 10 V	DC to 1 kHz	±0.02 % of reading ±0.02 % of range ±3 mV		
		>1 kHz to 5 kHz	±0.3 % of reading ±0.02 % of range ±3 mV		
		>5 kHz to 10 kHz	±1 % of reading ±0.02 % of range ±3 mV		
	Range ≤ 10 V	DC to 1 kHz	±0.02 % of reading ±0.02 % of range ±200 µV		
		>1 kHz to 5 kHz	±0.3 % of reading ±0.02 % of range ±200 µV		
		>5 kHz to 10 kHz	±1 % of reading ±0.02 % of range ±200 µV		
Offset drift	Range > 10 V	typical 10 µV/°C + 10 ppm of range, max 500 µV/°C + 20 ppm of range/°C			
	Range ≤ 10 V	typical 0.3 µV/°C + 10 ppm of range, max 15 µV/°C + 20 ppm of range/°C			
Gain drift		typical 10 ppm/°C max. 20 ppm/°C			
Linearity		typical 0.01 %			
Input impedance	Range > 10 V	10 MΩ			
	Range ≤ 10 V	5 MΩ			
Input bias current		< 100 pA			
Input coupling		DC			
Input configuration		Isolated			
Typical SNR	Range	1 V	10 V	100 V	1000 V ⁽²⁾
	100 S/s ≤ fs ≤ 1 kS/s	113 dB	115 dB	113 dB	115 dB
	10 kS/s < fs ≤ 102.4 kS/s	106 dB	109 dB	106 dB	109 dB
	102.4 kS/s < f ≤ 200 kS/s	81 dB	81 dB	81 dB	81 dB
Spurious free dynamic range	Range	1 V	10 V	100 V	1000 V
	100 S/s ≤ fs ≤ 1 kS/s	139 dB	140 dB	139 dB	140 dB
	10 kS/s < fs ≤ 102.4 kS/s	134 dB	134 dB	134 dB	134 dB
	102.4 kS/s < f ≤ 200 kS/s	132 dB ¹⁾ / 110 dB	131 dB ¹⁾ / 112 dB	132 dB ¹⁾ / 110 dB	131 dB ¹⁾ / 112 dB
Typical CMRR	≤10 V Range	100 dB @ 50 Hz	100 dB @ 1 kHz	100 dB @ 1 kHz	
	>10 V Range	90 dB @ 50 Hz	60 dB @ 1 kHz	60 dB @ 1 kHz	
Low pass Filter (in DEWESoft 7™, digital)		10 Hz, 30 Hz, 100 Hz, 300 Hz, 1 kHz, 3 kHz, 10 kHz, 30 kHz (-3 dB), Off			
Characteristic		Bessel or Butterworth			
Filter order		2nd , 4th, 6th, 8th			
Analog anti aliasing filter		2nd order Bessel, automatically set by sample rate			
Sample rate ≤ 1 kS/s		2.5 kHz (-3 dB), 1.5 kHz (-1 dB)			
Sample rate ≤ 10 kS/s		25 kHz (-3 dB), 15 kHz (-1 dB)			
Sample rate > 10 kS/s		250 kHz (-3 dB), 150 kHz (-1 dB)			
Bandwidth (-3 dB digital filter)					
1 kS/s ≤ fs ≤ 51.2 kS/s		0.494 fs			
51.2 kS/s < fs ≤ 102.4 kS/s		0.49 fs			
102.4 kS/s < fs ≤ 204.8 kS/s		0.38 fs			
Typ. crosstalk fin 1 kHz [10 kHz]		110 dB [95 dB]			
Channel to channel phase mismatch		<60 nsec between channels using the same range			
Measurement category		CAT II 300 V			
Isolation voltage		4 kV			
Non-destructive voltage					
Range ≤ 10 V		±1000 V _{DC}			
Range > 10 V		±2000 V _{DC}			
Typical power consumption					
TRION-2402-V-8		8.3 W			
TRION-2402-V-4		4.5 W			
Connector		4 mm safety banana sockets			
Weight		Appr. 270 g (4 ch version), appr. 400 g (8 ch version)			
¹⁾ below 0.22 fs					
²⁾ Unit meets IEC/EN 61010-1:2010 and IEC/EN 61010-2-30:2010 up to input voltage 300 V					

Shunts for TRION™ voltage input modules

Shunts	
SE-CUR-SHUNT-01	20 mA shunt adaptor (50 Ohm, $\pm 0.1\%$, 1 W); Fitting into 4 mm banana jacks with 19 mm distance Not compatible with TRION-x-V-4-B
SE-CUR-SHUNT-01-UNI	20 mA shunt adaptor (50 Ohm, $\pm 0.1\%$, 1 W); Fitting into 4 mm banana jacks - also for TRION-x-V-4-B
SE-CUR-SHUNT-04	5 A shunt box (100 mOhm, $\pm 0.1\%$, <10 ppm); Current input via 2 safety banana jacks, output 2x 0.3 m cable with banana plugs
SE-CUR-SHUNT-05	5 A shunt box (100 mOhm, $\pm 0.1\%$, <10 ppm); Current input via 2 safety banana jacks, output via 2 safety banana jacks
SE-CUR-SHUNT-06	20 A shunt box (0.5 mOhm, $\pm 0.1\%$, < ± 30 ppm/K); Current input via 2 safety banana jacks, output via 2 safety banana jacks



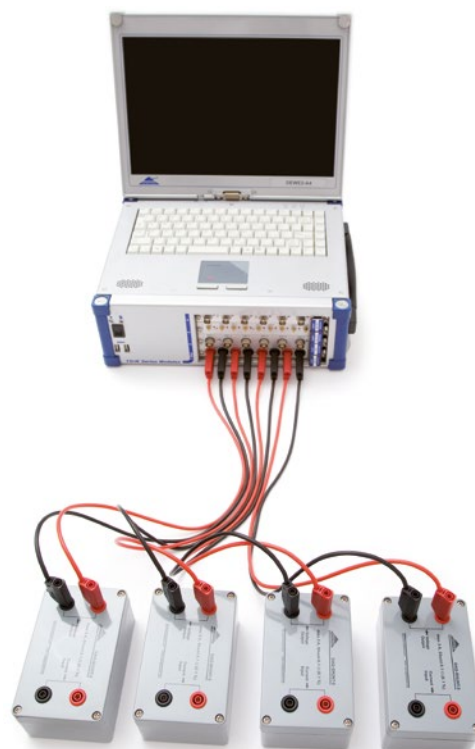
SE-CUR-SHUNT-01
(not compatible with TRION-x-V-4 modules)



SE-CUR-SHUNT-01-UNI
(50 cm cable length)



SE-CUR-SHUNT-04



SE-CUR-SHUNT-05



SE-CUR-SHUNT-06