

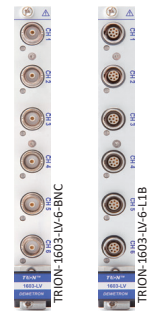


TRION-1603-LV



DEWETRON

- ▶ Isolated input module
- ▶ Sampling: 250 kS/s per channel at 16-bit;
- ▶ ADC: Low noise, SAR
- ▶ Voltage range: ± 5 mV to ± 100 V



Module specifications

TRION-1603-LV specifications										
Input channels		TRION-1603-LV-6-BNC			6 channels BNC; voltage input					
		TRION-1603-LV-6-L1B			6 channels LEMO; voltage or current input; TEDS					
Sampling rate / resolution		100 S/s to 250 kS/s			16-bit					
Data transfer		16-bit								
ADC type		SAR (Successive Approximation Register)								
Data rate DMA transfer		6 analog channels: max. 3 MB/s								
Input ranges										
– Voltage										
– Current ¹⁾										
Accuracy ²⁾	Voltage	DC to 1kHz		±0.02 % of reading ± 0.02 % of range ±20 µV						
		>1 kHz to 5 kHz		±0.2 % of reading ± 0.02 % of range ±20 µV						
		>5 kHz to 10 kHz		±1 % of reading ± 0.02 % of range ±20 µV						
	Current ¹⁾	DC to 1kHz		±0.1 % of reading ± 0.02 % of range ±10 µA						
		>1 kHz to 5 kHz		±0.2 % of reading ± 0.02 % of range ±10 µA						
		>5 kHz to 10 kHz		±0.5 % of reading ± 0.02 % of range ±10 µA						
MTBF ³⁾		TRION-1603-LV-6-BNC: 292,916 h								
Input noise (5 mV range)										
– 0 to 10 Hz										
– Noise density										
Input impedance		1 MΩ shunted by 18 pF								
Input bias current		<1 nA								
Input coupling		DC								
Gain drift		Typical 10 ppm/°C max. 20 ppm/°C								
Offset drift		Typical 0.3 µV/°C + 10 ppm of range/°C, max 15 µV/°C + 20 ppm of range/°C								
Linearity		Typical 0.01 %								
Current input		Internal 10 Ω shunt; max. 100 mA protected with resettable fuse								
Typical signal-to-noise ratio, spu- rious		20 mV range			2 V range			100 V range		
Free SNR, effective number of Bits ⁴⁾		SNR	SFDR ⁵⁾	ENOB ⁶⁾	SNR	SFDR ⁵⁾	ENOB ⁶⁾	SNR	SFDR ⁵⁾	ENOB ⁶⁾
Sample rate		[dB]	[dB]	[Bit]	[dB]	[dB]	[Bit]	[dB]	[dB]	[Bit]

Tab. 40: Module specifications

TRION-1603-LV specifications									
1 kS/s	93	120	15.2	93	120	15.2	93	120	15.2
10 kS/s	90	120	14.7	93	120	15.2	93	120	15.2
100 kS/s	80	116	13.0	93	120	15.2	93	120	15.2
250 kS/s	74	100	12.0	93	120	15.2	93	120	15.2
Typical THD	-97 dB								
Typical CMR									
– ≤2 V range	140 dB @ 50 Hz 120 dB @ 1 kHz								
– >2 V range	90 dB @ 50 Hz 60 dB @ 1 kHz								
Low pass filter (-3 dB, digital)	10 Hz, 30 Hz, 100 Hz, 300 Hz, 1 kHz, 3 kHz, 10 kHz, 30 kHz, 100 kHz								
– Characteristic	Bessel or Butterworth								
– Filter order	2 nd , 4 th , 6 th , 8 th								
Analog antialiasing filter	2 nd order Bessel, automatically selected								
Bandwidth (-3 dB, deactivated digital filter)	100 kHz 2 nd order Bessel filter								
Crosstalk fin 1 kHz [10 kHz]	≤2 V range: 120 dB [105 dB]								
Channel-to-channel phase mismatch	Typically <10 ns when using the same range; <60 ns for using different ranges								
Board-to-board phase mismatch	<30 ns								
Rated input voltage to earth according to EN 61010-2-30	33 V _{RMS} , 46.7 V _{PEAK} , 70 V _{DC}								
Input configuration	Isolated								
– Isolation impedance	Isolation resistance >1 GΩ; Isolation capacitance typically 15 pF								
– Isolation voltage (channel-to-channel and channel-to-chassis)	1500 V _{PEAK} with TRION-1603-LV-6-BNC 800 V _{PEAK} with TRION-1603-LV-6-L1B								
Overvoltage protection	±300 V _{DC}								
Voltage excitation ¹⁾	1 to 28 V @ 1 % ±1 mV accuracy freely programmable (max. 100 mA, max. 1 W) per channel								
ESD protection	IEC61000-4-2: ±8 kV air discharge, ±4 kV contact discharge								
Supported TEDS chips (LEMO only)	All common TEDS chips are supported.								
Power consumption	6 W w/o sensor supply ¹⁾ ; absolute maximum with sensor supply ¹⁾ : 13 W								

Tab. 40: Module specifications

1) TRION-1603-LV-6-L1B only

2) 1 year accuracy 23 °C ±5 °C

3) Mean time between failure

4) LP Filter in auto mode

5) SFDR excluding harmonics

6) ENOB calculated from SNR