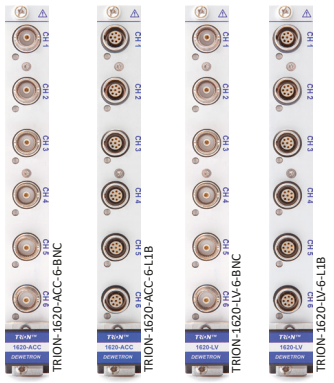
TRION-1620-ACC/LV

DEWETRON

TRION-1620-ACC/LV

- Sampling: 2 MS/s per channel at 16-bit; 24-bit in oversampling mode
- ADC: Low noise, SAR
- Input ranges
  - Voltage: ±5 mV to ±100 V
  - IEPE®: ±5 mV to ±50 V
- Isolated



Module specifications

TRION-1620-ACC/LV specifications				
Input channels		TRION-1620-LV-6-BNC	6 channels BNC, voltage input	
		TRION-1620-ACC-6-BNC	6 channels BNC, voltage input; IEPE®; 1 counter	
		TRION-1620-LV-6-L1B	6 channels 1B LEMO, voltage or current input, 1 to 28 V sensor supply, TEDS	
		TRION-1620-ACC-6-L1B	6 channels 1B LEMO, voltage or current input, IEPE®, 1 counter, sensor supply, TEDS	
Sampling rate / resolution		Highspeed mode	>1 to 2 MS/s	16-bit
		Over sampling mode	100 S/s to 1 MS/s	24-bit
Data transfer		16-bit / 24-bit		
Data rate DMA transfer		6 analog channels: max 24 MB/s; 1 x counter: max. 16 MB/s		
ADC type		SAR (Successive Approximation Register)		
Input ranges – Voltage – IEPE® – Current[1)]		±5 mV, ±10 mV, ±20 mV, ±50 mV, ±100 mV, ±200 mV, ±500 mV, ±1 V, ±2 V, ±5 V, ±10 V, ±20 V, ±50 V, ±100 V, ±5 mV, ±10 mV, ±20 mV, ±50 mV, ±100 mV, ±200 mV, ±500 mV, ±1 V, ±2 V, ±5 V, ±10 V, ±20 V, ±50 V ±10 mA, ±20 mA, ±50 mA, ±100 mA		
Accuracy[3)]	Voltage	DC to 1 kHz	±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	±0.5 % of reading ± 0.02 % of range ±20 µV	
		>10 kHz to 50 kHz	±1.00 % of reading ± 0.02 % of range ±20 µV	
		>50 kHz to 100 kHz	±3.00 % of reading ± 0.02 % of range ±20 µV	
	Current[1)]	DC to 1 kHz	±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	
		>10 kHz to 50 kHz	±1.00 % of reading ± 0.02 % of range ±10 µA	
		>50 kHz to 100 kHz	±2.00 % of reading ± 0.02 % of range ±20 µA	
MTBF[4)]		TRION-1620-LV-6-BNC: 230,318 h		

Tab. 15: Module specifications

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TRION-1620-ACC/LV specifications									
Input noise (5 mV range) – 0 to 10 Hz – Noise density	 1.5 μV_{PP} 6.4 nV/SQRT(Hz)								
Input impedance	1 MΩ shunted by 18 pF								
Current input	Internal 10 Ω shunt; max. 100 mA protected with resettable fuse								
Input bias current	<1 nA								
Input coupling	DC; AC: 0.16Hz[2)]								
Gain drift	Typically 10 ppm/°C max. 20 ppm/°C								
Offset drift	Typically 0.3 µV/°C + 10 ppm of range/°C, max 15 µV/°C + 20 ppm of range/°C								
Linearity	Typically 0.01 %								
Input configuration	Isolated								
Isolation impedance	Isolation resistance >1 GΩ; Isolation capacitance typically 15 pF								
Rated input voltage to earth according to EN 61010-2-30	33 V_{RMS}, 46.7 V_{PEAK}, 70 V_{DC}								
Isolation voltage (channel-to-channel and channel-to-chassis)	1500 V_{PEAK}								
Overvoltage protection	±300 V_{DC}								
IEPE® excitation[2)]	4 mA, 8 mA ±10 % @ 1 % ±1 mV accuracy @ 24 V compliance voltage								
Voltage excitation[1)]	1 to 28 V @ 1 % ±1 mV accuracy freely programmable (max. 100 mA, max. 1 W) per channel								
Typical signal-to-noise ratio, spurious Free SNR, effective number of Bits[5)]	**20 mV range**			**2 V range**			**100 V range**		
Sample rate	SNR [dB]	SFDR[6)] [dB]	ENOB[7)] [Bit]	SNR [dB]	SFDR[6)] [dB]	ENOB[7)] [Bit]	SNR [dB]	SFDR[6)] [dB]	ENOB[7)] [Bit]
0.1 kS/s	104	125	17.0	130	155	21.3	130	155	21.3
1 kS/s	97	125	15.8	123	150	20.1	122	145	20.0
10 kS/s	91	122	14.8	111	150	18.1	112	135	18.3
100 kS/s	82	116	13.3	106	142	17.3	105	130	17.1
200 kS/s	78.7	116	12.8	103.7	142	16.9	102	125	16.7
500 kS/s	74	114	12.0	99.5	140	16.2	98	121	16.0
1000 kS/s	71	87	11.5	93.2	130	15.2	93	116	15.2
2000 kS/s	56	56	9.0	88	88	14.3	88	88	14.3
Typical THD	-97 dB								
Typical CMR – ≤2 V range – >2 V range	 >140 dB @ 50 Hz >120 dB @ 1 kHz >90 dB @ 50 Hz >60 dB @ 1 kHz								
Low pass Filter (-3 dB, digital) – Characteristic – Filter order	10 Hz, 30 Hz, 100 Hz, 300 Hz, 1 kHz, 3 kHz, 10 kHz, 30 kHz, 100 kHz, 300 kHz, 600 kHz Bessel or Butterworth 2^{nd} , 4^{th}, 6^{th}, 8^{th}								

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Analog anti-aliasing filter	2nd order Bessel, automatically selected
Bandwidth (-3 dB, deactivated digital filter)	1 MHz 2nd 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
Counter	1x counter channel linked to analog channel #1; trigger level 70 % of actual analog input range
Counter modes	Event counting, period, frequency, pulse width, duty cycle
Counter input bandwidth	1 MHz to 10 kHz depending on analog filter of CH1
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	Voltage mode: 6 W; IEPE® mode: 7.5 W

Tab. 15: Module specifications

1) TRION-1620-LV-6-L1B only
2) TRION-1620-ACC only
3) 1 year accuracy 23 °C ±5 °C
4) Mean time between failure
5) LP Filter in auto mode
6) SFDR excluding harmonics
7) ENOB calculated from SNR