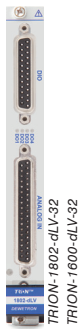


TRION-1802/1600-dLV-32

Multi-function module with voltage inputs, digital I/Os, counter and CAN

- Channels: 32 single ended or 16 differential, synchronous channels
- Sampling: TRION-1802-dLV-32: 18 bit; 200 kS/s per channel
TRION-1600-dLV-32: 16 bit; 20 kS/s per channel
- Input types: 5 V/10 V
- Features: 2x Counter; CAN bus; RS-485; 8x DI; 4x DO; 2x Alarm Out



Module specifications

TRION-1802/1600-dLV series specifications					
Configuration	TRION-1802-dLV-32 TRION-1802-dLV-32-CAN TRION-1600-dLV-32 TRION-1600-dLV-32-CAN	32 channels single ended or 16 channels fully differential 32 channels single ended or 16 channels fully differential + CAN 32 channels single ended or 16 channels fully differential 32 channels single ended or 16 channels fully differential + CAN			
Sampling Rate / Resolution	TRION-1802-dLV-32 High speed mode >50 to 200 kS/s, 18-bit Over Sampling mode 100 S/s to 50 kS/s, 24-bit TRION-1600-dLV-32 100 S/s to 20 kS/s, 16-bit				
Data Transfer	TRION-1802-dLV-32 TRION-1600-dLV-32	16-bit / 24-bit / 32-bit 16-bit			
ADC type	18-bit SAR ²⁾ (Successive Approximation Register)				
Data rate DMA transfer	32 analog channels: max 28 MB/s; 2x counter: max. 6 MB/s				
Input ranges	Voltage	±5 V; ±10 V			
Input noise		0 to 10 Hz: 10 μ V _{pp} full bandwidth: 1.35 mV _{pp}			
Input impedance	1 M Ω single ended, 2 M Ω differential				
Input bias current	<25 pA				
Input coupling	DC				
Accuracy ¹⁾	Voltage	DC to 1 kHz ±0.02 % of reading ± 0.01 % of range ±20 μ V >1 kHz to 5 kHz ±0.5 % of reading ± 0.01 % of range ±20 μ V >5 kHz to 10 kHz ²⁾ ±1 % of reading ± 0.01 % of range ±20 μ V			
Gain drift	typical 10 ppm/ $^{\circ}$ C max. 20 ppm/ $^{\circ}$ C				
Offset drift	typical 0.3 μ V/ $^{\circ}$ C + 10 ppm of range, max 15 μ V/ $^{\circ}$ C + 20 ppm of range/ $^{\circ}$ C				
Typical Signal-to-noise ratio, Spurious-free SNR, Effective number of Bits, V _{pp} ²⁾	10 V range				
	Sample rate	SNR [dB]	SFDR ³⁾ [dB]	ENOB ⁴⁾ [Bit]	V _{pp} [mV _{pp}]
	0.1 kS/s	127	130	20.8	0.015
	1 kS/s	118	130	19.3	0.055
	10 kS/s	109	130	17.8	0.22
	20 kS/s	106	130	17.3	0.33
	50 kS/s ²⁾	102 ²⁾	130 ²⁾	16.7	0.52 ⁵⁾
	100 kS/s ²⁾	99 ²⁾	130 ²⁾	16.2	0.66 ⁵⁾
	200 kS/s ²⁾	96 ²⁾	125 ²⁾	15.7	1.00 ⁵⁾
Linearity	<20 ppm				
Input configuration	differential or single ended with GND Sense				
Typical THD	-95 dB				
Typical CMRR in differential mode	100 dB @ 50 Hz; >70 dB @ 1 kHz				
Low pass Filter (-3 dB, IIR)	1 Hz to 40 % of sample rate freely programmable or OFF				
Characteristic	Bessel or Butterworth				
Filter order	2 nd , 4 th , 6 th , 8 th				
Analog antialiasing filter	3 rd order Butterworth				
Bandwidth (-3 dB, deactivated IIR filter)	70 kHz 3 rd order Butterworth filter				
Crosstalk fin 1 kHz [10 kHz]	>108 dB				
Channel to channel phase mismatch	typically <30 nsec when using the same input range				
Board to board phase mismatch	<30 nsec				
Common mode input voltage range	±12.5 V				
Overvoltage protection (IN+, IN-, Sense)	±50 V _{DC}				

▶ continued on next page ...

TRION-1802/1600-dLV-32

Digital IN specification	
Digital Input	8 CMOS/TTL compatible digital inputs; weak pullup via 100 kΩ
Overvoltage protection	±30 V permanent, 50 V _{PEAK} (for 100 ms)
Counter	2 counter channels; TTL input; shared with digital inputs
Counter modes	
Event counting	Basic event counting, gated counting, up/down counting and encoder mode (X1, X2 and X4)
Waveform timing	Period, frequency, pulse width duty cycle and edge separation
Sensor modes	Encoder (angle and linear)
Digital OUT specification	
Digital output	4 DO; TTL
Output indication	LED (green = high; off = low)
Maximum current	25 mA continuously
Power-on default	Low
Interfaces	
CAN bus	1 CAN Bus; not isolated; routed to SUBD-25
CAN specification	CAN 2.0B
CAN Physical Layer	High Speed
CAN Bus fault protection	±36 V
Termination	Programmable: High impedance or 120 Ω
RS485	1 RS485 interface dedicated to DAQP and HSI series modules
General specification	
Sensor power supply (per module)	5 V (600 mA) and 12 V (600 mA)
ESD protection	IEC61000-4-2: ±8 kV air discharge, ±4 kV contact discharge
Power consumption	Voltage mode: 6 W
¹⁾ 1 year accuracy 23 °C ±5 °C ²⁾ LP Filter in auto mode ³⁾ SFDR excluding harmonics ⁴⁾ ENOB calculated from SNR ⁵⁾ TRION-1802-dLV-32 only	

TRION-1802/1600-dLV-32 module

