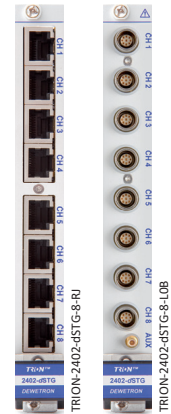


TRION-2402-dSTG



TRION-2402-dSTG

- ▶ Differential universal input module
- ▶ Sampling: 24 bit, 200 kS/s per channel
- ▶ Input types
 - Voltage
 - Strain gauge, bridge sensor, piezo-resistive bridge
 - IEPE®
 - Resistance, potentiometer



Module specifications

TRION-2402-dSTG specifications		
Input channels	TRION-2402-dSTG-8-RJ	8 channels using RJ-45 sockets
	TRION-2402-dSTG-8-LOB	8 channels using LEMO 0B sockets
Sampling rate	200 kS/s channel	
Resolution	24 bit	
Input ranges	<ul style="list-style-type: none"> – Voltage: $\pm 10, 30, 100, 300 \text{ mV}, 1 \text{ V}, 3 \text{ V}, 10 \text{ V}$ – Bridge: $1, 3, 10, 30, 100, 300, 1000 \text{ mV/V}$ or mV/mA – IEPE®: $\pm 100, 300 \text{ mV}, 1\text{V}, 3\text{V}, 10\text{V}$ – Resistance: $10, 30, 100, 300 \Omega, 1, 3, 10, 30 \text{ k}\Omega$ – Current: Depending on external shunt 	
Voltage input accuracy ¹⁾	$\pm 0.02 \%$ of reading $\pm 0.02 \%$ of range $\pm 20 \mu\text{V}$	
– Gain drift	Typical $10 \text{ ppm}/^\circ\text{C}$ max. $20 \text{ ppm}/^\circ\text{C}$	
– Offset drift	Typical $0.3 \mu\text{V}/^\circ\text{C} + 10 \text{ ppm of range}/^\circ\text{C}$, max $2 \mu\text{V}/^\circ\text{C} + 20 \text{ ppm of range}/^\circ\text{C}$	
– Linearity	Typical $\pm 0.01 \%$	
Input impedance	$100 \text{ M}\Omega$	
Input bias current	$< 1 \text{ nA}$	
Input configuration	Single-ended or differential (programmable)	
Input coupling	DC, AC (0.16 Hz, 0.5 Hz, 3.4 Hz, 10 Hz); max. DC voltage when AC coupled: 50 V	
Excitation voltage	0 to $13.5 \text{ V}_{\text{DC}}$ (programmable, 1 mV steps), 100 mA max. current, max. 8 W per module	
– Accuracy ¹⁾	$\pm 0.03 \%$ $\pm 1 \text{ mV}$	
– Drift	$\pm 10 \text{ ppm/K} \pm 50 \mu\text{V/K}$	
– Current limit	100 mA	
– Protection	Continuous short to ground	

Tab. 34: Module specifications

TRION-2402-dSTG



TRION-2402-dSTG specifications												
Excitation current	0.002 to 20 mADC (pogrammable, 1 μ A steps)											
– Accuracy ¹⁾	0.05% \pm 2 μ A											
– Drift	15 ppm/ $^{\circ}$ C											
– Compliance voltage	10 V											
– Output impedance	>10 M Ω											
IEPE [®] excitation	4 mA \pm 10 %											
– Compliance voltage	22 V											
Supported sensors	4- or 6-wire full bridge 3- or 5-wire $\frac{1}{2}$ bridge with internal completion 3- or 4-wire $\frac{1}{4}$ bridge with internal resistor for 120 and 350 Ω 4-wire full bridge with constant current excitation (piezo-resistive bridge sensors) Potentiometer; resistance IEPE [®] (fixed 4 mA excitation)											
Bridge resistance	80 Ω to 10 k Ω @ \leq 5 V _{DC} excitation											
Shunt calibration	Two internal shunt resistors 50 k Ω and 100 k Ω											
Shunt and completion resistor accuracy	0.05 % \pm 15 ppm/K											
Automatic bridge balance	250 % of range											
Typical signal-to-noise ratio, spurious	10 mV range			100 mV range			1 V range			10 V range		
Free SNR, effective number of bits ²⁾	SNR	SFDR ³⁾	ENOB ⁴⁾	SNR	SFDR ³⁾	ENOB ⁴⁾	SNR	SFDR ³⁾	ENOB ⁴⁾	SNR	SFDR ³⁾	ENOB ⁴⁾
Sample rate	[dB]	[dB]	[Bit]	[dB]	[dB]	[Bit]	[dB]	[dB]	[Bit]	[dB]	[dB]	[Bit]
1 kS/s	82	108	13.3	101	128	16.5	111	141	18.1	112	141	18.3
10 kS/s	78	106	12.7	98	126	16.0	108	136	17.6	109	138	17.8
100 kS/s	72	103	11.7	92	123	15.0	104	134	17.0	107	136	17.5
200 kS/s	69	99	11.2	80	120 ⁵⁾ /106	13.0	81	133 ⁵⁾ /106	13.2	81	135 ⁵⁾ /106	13.2
Typical THD	-97 dB											
Typical CMRR	100 dB @ 50 Hz; 90 dB @ 1 kHz; 80 dB @ 10 kHz											
Analog anti-aliasing filter	– Sample rate \leq 1k S/s 2.5 kHz (-3 dB), 1.5 kHz (-1 dB) – Sample rate \leq 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)	2.5 kHz (-3 dB), 1.5 kHz (-1 dB)						0.494 fs					
	25 kHz (-3 dB), 15 kHz (-1 dB)						0.49 fs					
	250 kHz (-3 dB), 150 kHz (-1 dB)						0.38 fs					
Crosstalk fin 1 kHz [10 kHz]	120 dB [105 dB]											
Channel-to-channel phase mismatch	Typically <60 ns between channels using the same range											

Tab. 34: Module specifications

TRION-2402-dSTG



TRION-2402-dSTG specifications		
Common mode voltage	$\pm 10 V_{DC}$	
Overvoltage protection	$\pm 50 V_{DC}$	
Supported TEDS chips	DS2406, DS2430A, DS2431, DS2432, DS2433	
Supported MSI adapters	MSI adapters are not supported	
Typical power consumption	Voltage mode; no excitation	7 W
	IEPE® mode	7 W
	350 Ω full bridge (5 V / 10 V)	7 W / 9.5 W
	120 Ω quarter bridge 5 V excitation	8 W
	Bridge mode without connected sensor	11.5 W ⁷⁾
Weight	Approx. 200 g (RJ45 version), appr. 250 g (LEMO version)	

Tab. 34: Module specifications

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|-------------------------------------|--|
| 1) 1 year accuracy 23 °C \pm 5 °C | 5) Below 0.22 fs |
| 2) LP Filter in auto mode | 6) Consider maximum power supply of your DEWE2 chassis |
| 3) SFDR excluding harmonics | 7) Do not switch to bridge mode if the input is open. |
| 4) ENOB calculated from SNR | |