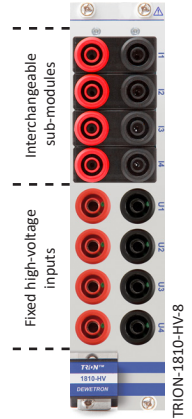


TRION-1810-HV-8



TRION-1810-HV-8

- ▶ Isolated TRION module for high-voltage inputs
- ▶ Channels: Up to 8 voltage channels
 - 4 permanently installed high-voltage channels
 - 4 interchangeable sub-modules
- ▶ Sampling: Up to 1 MS/s
- ▶ Resolution: 24-bit
- ▶ Input types
 - Fixed installed channels: 1000 V
 - Interchangeable sub-modules: 5 V, 600



Module specifications

TRION-1810-HV-8 general specifications	
Input channels	Up to 8 (high) voltage channels with interchangeable inserts
Sampling rate	Up to 1 MS/s
Resolution	24-bit
Typical channel-to-channel phase mismatch	<250 ns (0.1° @ 1 kHz, 0.005° @ 50 Hz)
Typical board-to-board phase mismatch <ul style="list-style-type: none"> – Same board type – Different board type 	<250 ns (0.1° @ 1 kHz, 0.005° @ 50 Hz) ±1 sample or 0.2° @ 1 kHz (whichever is higher)
Low pass filter (-3 dB, digital and analog combined) <ul style="list-style-type: none"> – Filter order and characteristics 	100 Hz to 300 kHz freely programmable or OFF 2 nd , 4 th , 6 th , 8 th Bessel or Butterworth
Filter delay compensation	Up to 15 μs the group delay of the selected filter will be automatically compensated. This works for: <ul style="list-style-type: none"> – 2nd order filter 15 kHz to 300 kHz – 4th order filter 30 kHz to 300 kHz – 6th order filter 60 kHz to 300 kHz
Onboard data buffer	512 MB
Power consumption	Typ. 12.5 W, max. 14 W

Tab. 45: General specifications

TRION-1810-HV-8



The following section provides detailed information on the fixed high-voltage inputs. The values given below were determined in a standardized test setting¹⁾.

Fixed high-voltage inputs				
Input range	1000 V ($\pm 2000 V_{PEAK}$) CF = 2			
Resolution	18-bit			
Accuracy ^{2) 3)}				
– DC	± 0.02 % of reading ± 0.02 % of range			
– 0.5 Hz to 1 kHz	± 0.03 % of reading			
– 1 kHz to 5 kHz	± 0.15 % of reading			
– 5 kHz to 10 kHz	± 0.35 % of reading			
– 10 kHz to 50 kHz	± 0.6 % of reading			
– 50 kHz to 300 kHz	$\pm (0.02 \% * f)$ of reading			f: frequency in kHz
Gain drift	20 ppm/°C			
Offset drift	5 mV/°C			
Typical THD	-95 dB			
CMRR	>85 dB @ 50 Hz; >60 dB @ 1 kHz; >40 dB @ 100 kHz			
Bandwidth	5 MHz			
Rated input voltage to earth according to EN 61010-2-30	600 V CAT IV / 1000 V CAT III			
Common mode voltage	1000 V _{RMS}			
Isolation voltage	3750 V _{RMS} (1 min), 35 kV/ μ s transient immunity			
Overvoltage protection	4250 V _{PEAK} or 3000 V _{RMS} (1 min)			
Input resistance	5 M Ω ; 2 pF			
Isolation (earth) resistance	100 G Ω ; 2.5 pF			
Connector	Safety banana sockets			
	SNR	SFDR ⁴⁾	ENOB ⁵⁾	Noise _{pp}
Sample rate	[dB]	[dB]	[Bit]	[mV]
0.1 kS/s	126	144	20.6	2.6
1 kS/s	123	140	20.1	4.5
10 kS/s	118	137	19.3	9.5
100 kS/s	110	134	18.0	27.2
1000 kS/s	100	134	16.3	92.5

Tab. 46: Fixed high-voltage inputs

1) The following accuracy conditions were applied: Temperature: 23 \pm 5 °C; humidity: 40 to 60 % rel. humidity; input waveform: sine wave; common mode voltage: 0 V; line filter: Auto; sample rate: 1 MS/s; resolution: 24 bit; power factor: 1; after warm-up; after zero level, accuracy: Frequency (f) in [kHz] (12-month accuracy \pm reading error and range error)

2) Add 0.02 % of reading with filter settings OFF

3) Below 1 % of range, add 10 ppm of range.

4) SFDR excluding harmonics

5) ENOB calculated from SNR

TRION-1810-HV-8

Interchangeable sub-modules

The following TRION-SUB-xV modules can be used with the TRION-1810-HV-8 module. For detailed information about the various sub-modules refer to chapter [TRION sub-modules](#) in the TRION(3) series modules technical reference manual.



Fig. 130: Supported TRION sub-modules

Type	Range	Bandwidth	Isolated
TRION-SUB-600V	600 V _{RMS} (± 1500 V _{PEAK})	300 kHz	Yes
TRION-SUB-5V	5 V _{RMS} (± 10 V _{PEAK})	300 kHz	Yes

Tab. 47: Supported sub-modules