


LTTsmart – Technical Data

2-channel precision data acquisition system incl. analog frontend per module

Technical Specifications – Optional Specifications marked with *

Specifications are subject to change without notice.

Available types of Modules

	<p>2-Channel precision data acquisition system with 2 analog inputs:</p> <ul style="list-style-type: none"> – 2 MHz // 24 Bit ADC per channel (optional 4 MHz) – ± 500 mV and ± 10 V AC/DC (low voltage) – Optional: ± 90 V (mid voltage) or 1000Vrms (high voltage) – Extremely high precision: $\pm(0.015\% \cdot \text{Signal} + 0.015\% \cdot \text{Range})$ – ICP®/IEPE with 4 mA supply* – Charge input* – Pulse/Counter Inputs with 1.20 ns resolution* – Strain-Gage* – 2.5 kV galvanic isolation <p>USB 3.0 Interface Digital-I/O (LVCMOS/LVTTL 0 V to 3.3 V)* LinkUp/LinkDown-Sync.-Interface to cascade multiple devices</p> <p>ca. 146 x 31 x 140 mm³ (L x W x H) per Module</p>
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Input Characteristics

Quantization	24 Bits
max. Sampling Rate	2 MSample/s per channel (optional 4 MHz)
max. Bandwidth	DC – 900 kHz (optional 1.7 MHz)
Filter	Analog: 900 kHz low-pass filter (optional 1.7 MHz) Digital: a variety of selectable filters
Inter-Channel Phase Difference	< 10 ns
Input Connectors	BNC, High Voltage Banana, DIN-Sensor
Galvanic Isolation	2500 VDC
Volt Input Ranges	± 500 mV, ± 10 V, ± 90 V*, ± 1000 Vrms*
Volt Input Impedance	1M Ω _50pF, [10M Ω _5pF at ± 1000 Vrms]*
Volt Input Couplings	single-ended (AC/DC) (AC only available at ± 500 mV and ± 10 V)

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Input Characteristics

	Range	Bandwidth		
		5 kHz	50 kHz	1 MHz
Dynamic Range	± 1000 Vrms*	110 dB	104 dB	94 dB
	± 90 V*	113 dB	107 dB	96 dB
	± 10 V	115 dB	109 dB	98 dB
	± 500 mV	102 dB	94 dB	82 dB
ENOB (THD + noise) effective number of bits	Range	effective bits	dB @ 125 kHz sampling rate	
	± 1000 Vrms*	typ 15.3 Bit	-95 dB	
	± 90 V*	typ 15.5 Bit	-96 dB	
	± 10 V	typ 15.6 Bit	-97 dB	
	± 500 mV	typ 14.3 Bit	-89 dB	
Crosstalk	< -120 dB (DC – 200 kHz)			
Input Protection	± 17.5 V @ range ± 500 mV, ± 10 V ± 2000 V @ range 1000 Vrms			

Signal Conditioning

ICP®/IEPE*	Constant current supply: 4 mA Input coupling: AC and DC
Charge*	1 mV/pC, range: ± 5 nC (optional up to ± 500 nC) High-pass: 0.15 Hz auto charge clear; manual clear
Pulse/Counter Input*	Input signal: TTL Time resolution 1.20 ns (832 MHz)
Strain-Gauge*	Quarter (120 Ω , 350 Ω) / Half / Full Bridges Constant voltage supply: 0 ... 10 V with sense

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Operation Conditions

Power Supply	12-16 VDC (absolute max. rating 10-35 VDC)
	5 W typical per channel
	external power supply: 100-240 VAC
Environmental Temperature	+10 °C to +30 °C
Operating System	Windows 7 / 8 / 10, Linux and others

Data Recording

RAM	64 MByte per channel 512 MByte RAM with 8 channels
Interface to PC	USB 3.0, USB 2.0
Recording Media	internal RAM, PC's hard disk

Data Transfer Rates

PC with USB	>170 MByte/s (USB 3.0), 35 MByte/s (USB 2.0)
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Number of Channels

max. No. of Devices	Any number of devices with up to 8 modules each (max. 16 channels per device)
Synchronization*	Yes (max. delay between devices: <20 ns)
External Clock*	1 input and 1 output with 3.3 V LVPECL
External Trigger*	1 input and 1 output with 3.3 V LVCMOS/LVTTL
Digital Inputs*	8 inputs and 8 outputs with 3.3 V LVCMOS/LVTTL