

LTTsmart – Technical Data

2-channel precision data acquisition system incl. analog frontend

Technical Specifications – Optional Specifications marked with *

Specifications are subject to change without notice.



Available Housings

LTTsmart	<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, ± 10 V AC/DC – ± 1000 Vrms – 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)</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	< 1 ns
Input Connectors	BNC and High Voltage Banana
Galvanic Isolation	2500 VDC
Volt Input Ranges	± 500 mV, ± 10 V, ± 1000 Vrms*
Volt Input Impedance	1M Ω _50pF, [10M Ω _5pF at ± 1000 Vrms]*
Volt Input Couplings	single-ended (AC/DC) (AC only at ± 500 mV and ± 10 V)

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Input Characteristics

	Range	Bandwidth		
		5 kHz	50 kHz	1 MHz
Dynamic Range	±1000 V	110 dB	104 dB	94 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 V	typ 15.3 Bit	-95 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 V			

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-Gage*	Quarter (120 Ω, 350 Ω) / Half / Full Bridges Constant voltage supply: 0 ... 10 V

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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

Internal SSD	256 MByte/s*
PC with USB	170 MByte/s (USB 3.0) – 35 MByte/s (USB 2.0)

Number of Channels

max. No. of Devices	Any number of devices with up to 16 analog Channels each device
Synchronization*	Yes (max. delay between devices: ± 1 ns)
External Clock*	1 input and 1 output with 3.3 V LVPECL
External Trigger*	1 input and 1 output with 5 V TTL
Digital Inputs*	16 inputs and 16 outputs with 5 V TTL