

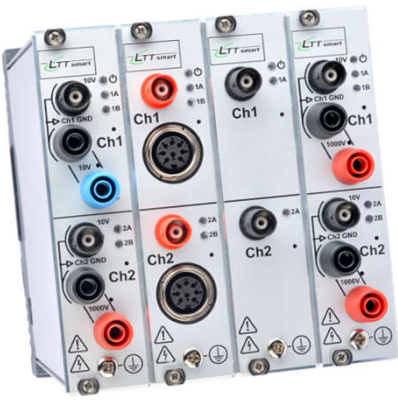
LTTsmart – Technical Data

2-channel high precision data acquisition system incl. analog front end 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-Gauge* – 2.5 kV galvanic isolation <p>USB 3.0 Interface Digital-I/O (LVCMOS/LVTTL 0 V to 3.3 V)* SyncUp/SyncDown- 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 and/or DIN
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 available only 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 15.4 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 Bridge 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)
	6 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

Internal 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 Channel per device)
Synchronization*	Yes (max. delay between devices: ± 10 ns)
External Clock*	1 input and 1 output with 3.3 V LVPECL
External Trigger*	1 input and 1 output with 3.3V LVCMOS
Digital Inputs*	8 inputs and 8 outputs with 3.3VLVCMOS per device

Available File Formats

FAMOS	Excel
DASLab	Matlab
DIAdem	and others

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Module variants:

	Base	HH	LH	MM	LL	LL	Li	LDi	LDiP	
1000 Vrms		✓ (2 x)	✓ (1 x)							1000 Vrms
+/-90 V				✓						+/-90 V
+/-10 V		✓	✓	✓	✓	✓	✓	✓	✓	+/-10 V
+/-500 mV		✓	✓	✓	✓	✓	✓	✓	✓	+/-500 mV
+/-100 mA										+/-100 mA
ICP							✓	✓	✓	ICP
Resistance							✓	✓	✓	Resistance
PT100, PT1000							✓	✓	✓	PT100, PT1000
Charge							✓	✓	✓	Charge
Strain Gauge								✓	✓	Strain Gauge
Pulse/Counter									✓	Pulse/Counter
Digital I/O	✓ (8 x)					✓ (2 x)			✓ (2 x)	Digital I/O
Sync Up/Down	✓									Sync Up/Down
USB 3.1	✓									USB 3.1
Power Input	✓									Power Input
Front-Style	A	B	F	C	C	E	C	D	D	Front-Style

Type	LTTbase	HH	MM, LL, Li	LDi, LDiP	LL_TTL	LH
Front:	A	B	C	D	E	F



ANALOG
DIGITAL



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MESSTECHNIK

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