

Transient Recorder

For high speed measurements

Type 2529A...

State of the art transient recorder for charge, voltage and IEPE signals. The device is particularly well suited for ballistic testing. In combination with the KiDynamic software a highly scalable and efficient environment is created.

- Excellent bandwidth and sampling frequency
- Ideal for efficient KiDynamic software suite
- Scalable design for hard- and software
- State of the art charge amplifier with wide range and bandwidth

Description

The transient recorder 2529A is ideal for high-speed signal conditioning and data acquisition. The high sampling frequency and bandwidth for all input signals ensures accurate measurements for fast events. The transient recorder is particularly well suited for tests according to CIP and AEP-97 requirements.

The device is truly scalable in terms of input connections and capabilities. The 2529A can be configured for highly efficient end-of-line quality control systems, or expanded to extremely capable data acquisition system for research and development. The software selectable input configuration allows to switch between charge, voltage and IEPE signal on the fly and further increases the flexibility of the device.

For best performance and efficiency, the device is closely incorporated into the KiDynamic software suite. Alternatively, the 2529A can be controlled via LabView, C++ , C# and Python.

Technical data, an overview

- Up to 16 channels
- Wide arrange of SW-selectable inputs
 - Charge 120 pC to 100'000 pC
 - IEPE with programmable supply current
 - Voltage up to 25 V
 - Digital I/O
- High bandwidth
 - Charge up to 500 kHz
 - IEPE up to 1 MHz
 - Voltage up to 10 MHz
- High frequency DAQ
 - Up to 20 MS/s/Ch
 - 16-bit resolution



Application

The 2529A covers all applications where high frequency signals need to be measured, especially for the acquisition of charge signals. This includes:

- Testing of propellants (e.g. for airbags)
- Testing dynamic propulsion systems
- Testing of explosives & measurement of shock waves
- Testing of ammunition

Ordering key

			2529A					0	
Total number of channels	8 channels	08							
	16 channels	16							
Charge-enabled channels	2 channels	02							
	4 channels	04							
	8 channels	08							
	12 channels	12							
	16 channels	16							
IEPE signal conditioning	Without IEPE	0							
	IEPE enabled on all channels	1							
Sampling rate	250 kS/s/Ch	A							
	1,000 kS/s/Ch	B							
	20,000 kS/s/Ch	C							
Digital I/Os	Without	0							
	D I/O enabled	A							

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Technical data, detailed
Connections

Number of charge inputs		Up to 16
Number of voltage inputs		Up to 16
Input connectors, front		BNC neg.
Digital I/O inputs		Trigger-in Trigger-out x2 Armed-out
Digital I/O connectors		BNC neg.
Communication		1Gb Ethernet.
Ethernet connector		RJ45

General data

Operating temperature	°C	15 ... 35
Usage temperature	°C	0 ... 35
Storage temperature	°C	-20 ... 60
Rel. humidity, non condensing		
Up to 31°C	%	<80
31°C ..45°C	%	<50
Outer dimensions (WxHxD)	mm	330 x 115 x 289
Weight	kg	6
Power supply	V DC	10 ... 36
Power consumption	W	-30 ... 60

Voltage input

Voltage input ranges	V	±0.1 ±0.2 ±0.5 ±1.0 ±2.5 ±5.0 ±12.5 ±25.0
Voltage input offset	%FSO	-100 ... 100
Bandwidth (upper limit)	kHz	10,000
Slew rate (10% - 90%)	ns	50
Input coupling	-	AC and DC
Input impedance	MΩ	1
Input capacitance	pF	42
DC range error ¹	%	±0.1
Offset error ¹	%	±0.1
Offset drift	/°C	±0.1% ± 0.1mV
Input noise (±100 mV input)		
@ 20 MS/s	μVrms	<50
@ 1 MS/s	μVrms	<20

¹⁾ after auto adjustment

Piezotron (IEPE) input

DC range error	%	±0.1
Offset error	%	±0.1
Offset drift	/°C	±0.01% ±0.1mV
Input noise	mArms	< 7
Supply current (adjustable)	mA	4 ... 20
Slew rate	V/μs/mA	3.5

Digital output

Trigger-out delay, typ.	us	3.5
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Charge input

Charge input ranges	pC	±120 ±240 ±600 ±1,200 ±2,900 ±5,800 ±10,000 ±14,500 ±20,000 ±29,000 ±50,000 ±100,000
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Bandwidth (upper limit)		
-3dB up to 35,000 pC	kHz	>500
±5% up to 35,000 pC	kHz	>100
-3dB up to 100,000 pC	kHz	>100
Bandwidth (lower limit)		
All ranges, -3dB	kHz	<0.00001
Reset / operate jump	pC	<2
Drift (compensated)	pC/s	<0.001
Linearity	%	<0.1
Gain error	%	<0.15
Noise 1Hz ... 100 kHz	%FS rms	<0.01
Accuracy		
Within operating temp.	%FS	<0.3
Within usage temp.	%FS	<0.55
Overvoltage protection	V	50
Input impedance	Ω	>10 ¹⁴

Data acquisition

Sampling frequency	MS/s/Ch	up to 20
Resolution	bit	16
Memory	MS/Ch	64
SSD storage	GB	400