Specifications

SIGMA

All Sigma Models

Trigger

Auto Mode	Timebase free runs
Source	CH1, CH2, CH3, CH4 External Trigger 5 V TTL
Slope:	+ or – with hysteresis up to 8 divs
Coupling	AC or DC set by the channel
Post-Trigger Delay	0 to 399 s to a resolution of 10 ns
Pre-Trigger	0 to 100 % with 0.2 % resolution
Trigger Range	100 % of input voltage range (Adjustable 8 or 12-bit digital trigger)
Trigger Output	TTL level signal via rear connector

Trigger Tools

Pulse Width	› or ‹ 2 x max. sample clock period to 399 s
Frequency/Period	0.0025 Hz to 50 MHz max limited by the bandwidth
Skew	Preset time between trigger events
Combination	Edge trigger on all channels with high, low or don't care level selection
Band Gating	Enter or leave a band A Delayed by Time Gates B to 399 s B Gates A Delayed by N to 9999 counts
Delay By N	Trigger after N events, 2 to 9999 counts
Divide By N	Trigger every N events, 2 to 9999 counts
Slew Rate	› or ‹ time to pass through A and B levels (CH1 only)
Runt	Trigger on low level pulse

Engineering Scaling

Individual channel and horizontal axis

Formula	± Scale Factor x V/Div ± Zero Offset
Eng. Units	Four character user scaling entry

Display

Liquid Crystal	10.4" SVGA with color fully adjustable. Full annotation of current settings
Modes	Refresh, Roll, TruTrace®, Persistence (Decay or accumulate), X-Y, Measurement Snapshot, Single shot, Multishot, Hold all or Channel holds
Control	Front panel and menu via touch panel, mouse and keyboard
Auto-Setup	Sets vertical, horizontal and trigger for repetitive signals › 40 Hz

Data Storage

Recorded traces, Setups (Stored data is stamped with time and user defined labels)

Internal Hard Disk	≥ 20 Gbyte
Data Format	WFT, DAT, TIFF, PDF, wmf, ASCII Text, DIAdem, Window Enhanced Metafile (emf), jpg, bmp

Measurements

Measurements are made simultaneously and run live. The Y-T Snapshot measurement list can be assigned to any trace.

Snapshot	Level at Vertical cursor 1 or 2, Time at Vertical cursor 1 or 2, Level at Horizontal cursor 1 or 2, Top, Base, Amplitude, Peak to Peak, Max, Min, Risetime, Falltime, Overshoot, Preshoot, Pulsewidth, Frequency, Period, DCrms, ACrms Standard deviation
Trace Analysis	+, -, *, ÷, Invert Filter, and FFT (FFTs can be averaged 2 to 100 times), Averaging 2 to 5000

Enhanced Analysis

Measurements

Level at Vertical cursor 1 or 2, Time at Vertical cursor 1 or 2, Level at Horizontal cursor 1 or 2, Top, Base, Max level, Time at Max level, Mean, Area, Amplitude, Peak to Peak, Pulse width, Period, Frequency, Duty Cycle, Rise Time, Fall Time, Rising Crossing, Falling Crossing, Overshoot, Preshoot, Top Knee, Base Knee, ACrms (Standard Deviation), DCrms, Count, Level at Trigger, Time at Trigger, FFT Harmonic

Trace Math

Constant, Log, Antilog, Sine, Cosine, Sum, Delta, Product, Ratio, Square, Square Root, Average

Trace analysis

Integrate, Time shift, Differentiate waveforms. Graph or Histogram of selected measurements

Probe Compensation

1 V ± 5 % pk-to-pk at 1 kHz

PC Interfacing

Standards

VGA, Com 1, Centronic, Ethernet and 4 x USB2 for mouse and keyboard and other devices, Sound out and microphone input

SYCHROSCOPE Option

Internal card enables tracking and triggering simultaneously to rotating machinery

Physical/Environmental Characteristics

Dimensions	14.9 (w) x 10 (h) x 11.9 (d) in 37.8 (w) x 25.4 (h) x 30.2 (d) cm
Weight	18 lb, 8.2 kg (4 channel) 19 lb, 8.6 kg (8 channel)
Operating Temp	+ 5 °C to + 50 °C
Full Specs.	+ 15 °C to + 35 °C

Power requirements

Voltage	90 - 264 VAC
Frequency	47 - 63 Hz
Power	250 W (300 V-A)

Specifications

Sigma 30

The *Sigma 30* is a four channel 12-bit high resolution, high accuracy scope.

Vertical

Bandwidth (-3 dB)	DC Coupled: DC to 5 MHz AC Coupled: 4 Hz to 5 MHz
Bandwidth Limits	500 kHz
Sensitivity Range	5 mV/div to 20 V/div in a 1- 2-5 sequence
Resolution	12-bit (1 in 4096) 0.025 % of Graticule Full Scale Deflection
Zoom	2 to 50 in a 1-2-5 sequence
Input Coupling	AC-DC-GROUND
Inputs	4 channels: 1 MΩ, 28 pF, 400 V pk Single ended, switchable to differential mode using channel pairs
Diff Mode CMRR	- 55 dB
Diff Mode CMV	Equal to measurement range
Position Range	± 4 divisions
Accuracy	± 0.25 % ± 3 LSB

Horizontal

Timebase Range	5 µs/div to 100 secs/div (External clock to 10 MHz)
Max. Sample Rate	10 MS/s
Glitch Detect	100 ns
Record Length	200 k standard, 1 M option
Segmentation	2 to 5000 memory segments (100word min. segment size)
Zoom	x 2 to x 4000 (x 2 to x 20,000 with 1 MS)
Time Accuracy	± 25 ppm

Sigma 75

The *Sigma 75* is a four or eight channel scope. It offers 8-bit resolution with an accuracy of 0.25%.

Vertical

Bandwidth (-3 dB)	DC Coupled: DC to 25 MHz AC Coupled: 4 Hz to 25 MHz
Bandwidth Limits	5 MHz /500 kHz
Sensitivity Range	5 mV/div to 20 V/div in a 1-2-5 sequence
Resolution	8-bit (1 in 256) 0.42 % of Graticule Full Scale Deflection
Zoom	2 to 50 in a 1-2-5 sequence
Input Coupling	AC-DC-GROUND
Inputs	4 or 8 channels: 1 MΩ, 28 pF, 400 V pk Single-ended, switchable to differential mode using channel pairs
Diff Mode CMRR	- 55 dB
Diff Mode CMV	Equal to measurement range
Position Range	± 4 divisions
Accuracy	± 0.25 % ± 1 LSB

Horizontal

Timebase Range	500 ns/div to 100 secs/div (External clock to 100 MHz)
Max. Sample Rate	100 MS/s
Glitch Detect	10 ns
Record Length	200 k standard, 1 MS optional
Segmentation	2 to 5000 memory segments (100word min. segment size)
Zoom	x 2 to x 20,000
TimeBase Accuracy	± 25 ppm

Sigma 90

The *Sigma 90* is a 4 or 8 channel, high resolution, high accuracy scope. It offers 10 MS/s sample rate with 12-bit resolution, switchable to 100 MS/s sample rate with 8-bit resolution in channel groups of 4.

Vertical

Bandwidth (-3 dB)	
12-bit Mode	DC Coupled: DC to 5 MHz AC Coupled: 4 Hz to 5 MHz
8-bit Mode	DC coupled: DC to 25 MHz AC Coupled: 4 Hz to 25 MHz
Bandwidth Limits	
12-bit Mode	500 kHz
8-bit Mode	5 MHz, 500 kHz
Sensitivity Range	5 mV/div to 20 V/div in a 1-2-5 sequence
Resolution: 12-bit Mode	12-bit (1 in 4096), 0.025 % of Graticule FS Deflection
Resolution: 8-bit Mode	8-bit (1 in 256), 0.42 % of Graticule FS Deflection
Zoom	2 to 50 in a 1-2-5 sequence
Input Coupling	AC-DC-GROUND
Inputs	4 or 8 channels: 1 MΩ, 28 pF, 400 V pk Single-ended, switchable to differential mode using channel pairs
Diff Mode CMRR	- 55 dB
Diff Mode CMV	Equal to measurement range
Position Range	± 4 divisions
Accuracy: 12-bit Mode	± 0.25 % ± 3 LSB
Accuracy: 8-bit Mode	± 0.25 % ± 1 LSB

Horizontal

Timebase Range:	
12-bit Mode	5 µs/div to 100 secs/div (External clock to 10 MHz)
8-bit Mode	500 ns/div to 100 secs/div (External clock to 100 MHz
Max. Sample Rate:	
12-bit Mode	10 MS/s
8-bit Mode	100 MS/s
Glitch Detect	10 ns
Record Length	1 MS per channel
Segmentation	2 to 5000 memory segments (100 word min. segment size)
Zoom	x 2 to x 20,000
TimeBase Accuracy	± 25 ppm

Sigma 100/Sigma 100 Hv

The *Sigma 100* is a four or eight channel, high speed, high resolution/accuracy scope. It offers 100 MS/s sample rate with 12-bit resolution and a 14-bit resolution mode.

Vertical

Bandwidth (-3 dB)	
12-bit Mode	DC Coupled: DC to 25 MHz AC Coupled: 4 Hz to 25 MHz
14-bit Mode	DC coupled: DC to 435 kHz AC Coupled: 4 Hz to 435 kHz
Bandwidth Limits	
12-bit Mode	5 MHz, 500 kHz
14-bit Mode	435 kHz
Sensitivity Range	5 mV/div to 20 V/div in a 1-2-5 sequence
Resolution: 12-bit Mode	12-bit (1 in 4096) 0.025 % of Graticule FS Deflection
Resolution: 14-bit Mode	14-bit (1 in 16384) 0.006 % of Graticule FS Deflection
Zoom	2 to 50 in a 1-2-5 sequence
Input Coupling	AC-DC-GROUND
Inputs	4 or 8 channels: 1 MΩ, 28 pF, 400 V pk Single ended, switchable to differential mode using channel pairs
Diff Mode CMRR	- 55 dB
Diff Mode CMV	Equal to measurement range
Position Range	± 4 divisions
Accuracy: 12-bit Mode	± 0.25 % ± 3 LSB
Accuracy: 14-bit Mode	± 0.25 % ± 6 LSB

Horizontal

Timebase Range:	
12-bit Mode	100 ns/div to 100 secs/div (External clock to 100 MHz)
14-bit Mode	50 µs/div to 100 secs/div (External clock to 1 MHz)
Max. Sample Rate:	
12-bit Mode	100 MS/s
14-bit Mode	1 MS/s
Glitch Detect	10 ns
Record Length	1 MS per channel
Segmentation	2 to 5000 memory segments (100 word min. segment size)
Zoom	x 2 to x 20,000
TimeBase Accuracy	± 25 ppm

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