

Specifications

<p><b>All Sigma Models</b></p> <p><b>Trigger</b> Timebase free runs CH1, CH2, CH3, CH4 External Trigger 5 V TTL + or - with hysteresis up to 8 divs AC or DC set by the channel</p> <p><b>Post-Trigger Delay</b> 0 to 399 s to a resolution of 10 ns</p> <p><b>Pre-Trigger</b> 0 to 100 % with 0.2 % resolution</p> <p><b>Trigger Range</b> 100 % of input voltage range (Adjustable 8 or 12-bit digital trigger) TTL level signal via rear connector</p>		<p><b>Enhanced Analysis</b></p> <p><b>Measurements</b> 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</p> <p><b>Trace Math</b> Constant, Log, Antilog, Sine, Cosine, Sum, Delta, Product, Ratio, Square, Square Root, Average</p> <p><b>Trace analysis</b> Integrate, Time shift, Differentiate waveforms, Graph or Histogram of selected measurements</p>	<p><b>Power requirements</b></p> <p><b>Voltage</b> 90 - 264 VAC <b>Frequency</b> 47 - 63 Hz <b>Power</b> 250 W (300 V-A)</p>
<p><b>Display</b></p> <p><b>Liquid Crystal</b> 10.4" SVGA with color fully adjustable. Full annotation of current settings Refresh, Roll, TrueTrace®, Persistence (Decay or accumulate), X-Y, Measurement Snapshot, Single shot, Multishot, Hold all or Channel holds Front panel and menu via touch panel, mouse and keyboard</p> <p><b>Control</b> Sets vertical, horizontal and trigger for repetitive signals &gt; 40 Hz</p> <p><b>Auto-Setup</b> Records traces, Setups (Stored data is stamped with time and user defined labels)</p> <p><b>Data Storage</b> Recorded traces, Setups (Stored data is stamped with time and user defined labels)</p>	<p><b>Internal Hard Disk</b> &gt; 20 Gbyte</p> <p><b>Data Format</b> WFF, DAT, TIFF, PDF, wmf, ASCII Text, DIAdem, Window Enhanced Metafile (emf), jpg, bmp</p> <p><b>Measurements</b> Measurements are made simultaneously and run live. The Y-T Snapshot measurement list can be assigned to any trace.</p> <p><b>Snapshot</b> 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, Risettime, Falltime, Overshoot, Preshoot, Pulsewidth, Frequency, Period, DCrms, ACrms Standard deviation +, -, *, ÷, Invert Filter, and FFT (FFTs can be averaged 2 to 100 times), Averaging 2 to 5000</p>	<p><b>Probe Compensation</b> 1 V ± 5 % pk-to-pk at 1 kHz</p> <p><b>PC Interfacing</b></p> <p><b>Standards</b> VGA, Com 1, Centronic, Ethernet and 4 x USB2 for mouse and keyboard and other devices, Sound out and microphone input</p> <p><b>SYCHROSCOPE Option</b> Internal card enables tracking and triggering simultaneously to rotating machinery</p> <p><b>Physical/Environmental Characteristics</b></p> <p><b>Dimensions</b> 14.9 (w) x 10 (h) x 11.9 (d) in 37.8 (w) x 25.4 (h) x 30.2 (d) cm <b>Weight</b> 18 lb, 8.2 kg (4 channel) 19 lb, 8.6 kg (8 channel) <b>Operating Temp</b> + 5 °C to + 50 °C <b>Full Specs.</b> + 15 °C to + 35 °C</p>	<p><b>Image</b> </p>
<p><b>Trigger Tools</b> &gt; or &lt; 2 x max. sample clock period to 399 s</p> <p><b>Frequency/Period</b> 0.0025 Hz to 50 MHz max limited by the bandwidth</p> <p><b>Skew</b> Preset time between trigger events</p> <p><b>Combination</b> Edge trigger on all channels with high, low or don't care level selection</p> <p><b>Band Gating</b> Enter or leave a band A Delayed by Time Gates B to 399 s B Gates A Delayed by N to 9999 counts Trigger after N events, 2 to 9999 counts Trigger every N events, 2 to 9999 counts &gt; or &lt; time to pass through A and B levels (CH1 only) Trigger on low level pulse</p> <p><b>Engineering Scaling</b> Individual channel and horizontal axis <b>Formula</b> ± Scale Factor x V/Div ± Zero Offset <b>Eng. Units</b> Four character user scaling entry</p>	<p><b>Trace Analysis</b> Standard deviation +, -, *, ÷, Invert Filter, and FFT (FFTs can be averaged 2 to 100 times), Averaging 2 to 5000</p>	<p><b>Trace Analysis</b> Standard deviation +, -, *, ÷, Invert Filter, and FFT (FFTs can be averaged 2 to 100 times), Averaging 2 to 5000</p>	<p><b>Trace Analysis</b> Standard deviation +, -, *, ÷, Invert Filter, and FFT (FFTs can be averaged 2 to 100 times), Averaging 2 to 5000</p>



## Specifications

### Sigma 30

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

<b>Vertical</b>	
<b>Bandwidth (-3 dB)</b>	DC Coupled: DC to 5 MHz AC Coupled: 4 Hz to 5 MHz 500 kHz
<b>Bandwidth Limits</b>	5 mV/div to 20 V/div
<b>Sensitivity Range</b>	in a 1-2-5 sequence
<b>Resolution</b>	12-bit (1 in 4096) 0.025 % of Graticule Full Scale Deflection
<b>Zoom</b>	2 to 50 in a 1-2-5 sequence
<b>Input Coupling</b>	AC-DC-GROUND
<b>Inputs</b>	4 channels: 1 M $\Omega$ , 28 pF, 400 V pk Single ended, switchable to differential mode using channel pairs
<b>Diff Mode CMRR</b>	-55 dB
<b>Diff Mode CMV</b>	Equal to measurement range
<b>Position Range</b>	$\pm 4$ divisions
<b>Accuracy</b>	$\pm 0.25$ % $\pm 3$ LSB
<b>Horizontal</b>	
<b>Timebase Range</b>	5 $\mu$ s/div to 100 secs/div (External clock to 10 MHz)
<b>Max. Sample Rate</b>	10 MS/s
<b>Glitch Detect</b>	100 ns
<b>Record Length</b>	200 k standard, 1 M option
<b>Segmentation</b>	2 to 5000 memory segments (100word min. segment size)
<b>Zoom</b>	x 2 to x 4000 (x 2 to x 20,000 with 1 MS)
<b>Time Accuracy</b>	$\pm 25$ ppm

### Sigma 75

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

<b>Vertical</b>	
<b>Bandwidth (-3 dB)</b>	DC Coupled: DC to 25 MHz AC Coupled: 4 Hz to 25 MHz 5 MHz /500 kHz
<b>Bandwidth Limits</b>	5 mV/div to 20 V/div
<b>Sensitivity Range</b>	in a 1-2-5 sequence
<b>Resolution</b>	8-bit (1 in 256) 0.42 % of Graticule Full Scale Deflection
<b>Zoom</b>	2 to 50 in a 1-2-5 sequence
<b>Input Coupling</b>	AC-DC-GROUND
<b>Inputs</b>	4 or 8 channels: 1 M $\Omega$ , 28 pF, 400 V pk Single- ended, switchable to differential mode using channel pairs
<b>Diff Mode CMRR</b>	-55 dB
<b>Diff Mode CMV</b>	Equal to measurement range
<b>Position Range</b>	$\pm 4$ divisions
<b>Accuracy</b>	$\pm 0.25$ % $\pm 1$ LSB
<b>Horizontal</b>	
<b>Timebase Range</b>	500 ns/div to 100 secs/div (External clock to 100 MHz)
<b>Max. Sample Rate</b>	100 MS/s
<b>Glitch Detect</b>	10 ns
<b>Record Length</b>	200 k standard, 1 MS optional
<b>Segmentation</b>	2 to 5000 memory segments (100word min. segment size)
<b>Zoom</b>	x 2 to x 20,000
<b>Timebase Accuracy</b>	$\pm 25$ 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.

<b>Vertical</b>	
<b>Bandwidth (-3 dB)</b>	DC Coupled: DC to 5 MHz AC Coupled: 4 Hz to 5 MHz DC coupled: DC to 25 MHz AC Coupled: 4 Hz to 25 MHz
<b>8-bit Mode</b>	500 kHz
<b>Bandwidth Limits</b>	5 MHz, 500 kHz
<b>12-bit Mode</b>	5 mV/div to 20 V/div
<b>8-bit Mode</b>	in a 1-2-5 sequence
<b>Sensitivity Range</b>	12-bit (1 in 4096), 0.025 % of Graticule FS Deflection
<b>Resolution: 12-bit Mode</b>	8-bit (1 in 256), 0.42 % of Graticule FS Deflection
<b>Resolution: 8-bit Mode</b>	2 to 50 in a 1-2-5 sequence
<b>Zoom</b>	2 to 50 in a 1-2-5 sequence
<b>Input Coupling</b>	AC-DC-GROUND
<b>Inputs</b>	4 or 8 channels: 1 M $\Omega$ , 28 pF, 400 V pk Single-ended, switchable to differential mode using channel pairs
<b>Diff Mode CMRR</b>	-55 dB
<b>Diff Mode CMV</b>	Equal to measurement range
<b>Position Range</b>	$\pm 4$ divisions
<b>Accuracy: 12-bit Mode</b>	$\pm 0.25$ % $\pm 3$ LSB
<b>Accuracy: 8-bit Mode</b>	$\pm 0.25$ % $\pm 1$ LSB
<b>Horizontal</b>	
<b>Timebase Range:</b>	5 $\mu$ s/div to 100 secs/div (External clock to 10 MHz)
<b>12-bit Mode</b>	500 ns/div to 100 secs/div (External clock to 100 MHz)
<b>8-bit Mode</b>	10 MS/s
<b>Max. Sample Rate:</b>	10 MS/s
<b>12-bit Mode</b>	100 MS/s
<b>8-bit Mode</b>	10 ns
<b>Glitch Detect</b>	1 MS per channel
<b>Record Length</b>	2 to 5000 memory segments (100 word min. segment size)
<b>Segmentation</b>	x 2 to x 20,000
<b>Zoom</b>	$\pm 25$ ppm
<b>Timebase Accuracy</b>	$\pm 25$ 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.

<b>Vertical</b>	
<b>Bandwidth (-3 dB)</b>	DC Coupled: DC to 25 MHz AC Coupled: 4 Hz to 25 MHz DC coupled: DC to 435 kHz AC Coupled: 4 Hz to 435 kHz
<b>14-bit Mode</b>	5 MHz, 500 kHz
<b>Bandwidth Limits</b>	435 kHz
<b>12-bit Mode</b>	5 mV/div to 20 V/div
<b>14-bit Mode</b>	in a 1-2-5 sequence
<b>Sensitivity Range</b>	12-bit (1 in 4096) 0.025 % of Graticule FS Deflection
<b>Resolution: 12-bit Mode</b>	14-bit (1 in 16384) 0.006 % of Graticule FS Deflection
<b>Resolution: 14-bit Mode</b>	2 to 50 in a 1-2-5 sequence
<b>Zoom</b>	2 to 50 in a 1-2-5 sequence
<b>Input Coupling</b>	AC-DC-GROUND
<b>Inputs</b>	4 or 8 channels: 1 M $\Omega$ , 28 pF, 400 V pk Single ended, switchable to differential mode using channel pairs
<b>Diff Mode CMRR</b>	-55 dB
<b>Diff Mode CMV</b>	Equal to measurement range
<b>Position Range</b>	$\pm 4$ divisions
<b>Accuracy: 12-bit Mode</b>	$\pm 0.25$ % $\pm 3$ LSB
<b>Accuracy: 14-bit Mode</b>	$\pm 0.25$ % $\pm 6$ LSB
<b>Horizontal</b>	
<b>Timebase Range:</b>	100 ns/div to 100 secs/div (External clock to 100 MHz)
<b>12-bit Mode</b>	50 $\mu$ s/div to 100 secs/div (External clock to 1 MHz)
<b>14-bit Mode</b>	100 MS/s
<b>Max. Sample Rate:</b>	100 MS/s
<b>12-bit Mode</b>	1 MS/s
<b>14-bit Mode</b>	10 ns
<b>Glitch Detect</b>	1 MS per channel
<b>Record Length</b>	2 to 5000 memory segments (100 word min. segment size)
<b>Segmentation</b>	x 2 to x 20,000
<b>Zoom</b>	$\pm 25$ ppm
<b>Timebase Accuracy</b>	$\pm 25$ ppm



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