TiePieSCOPE HS805

PC based measuring instrument
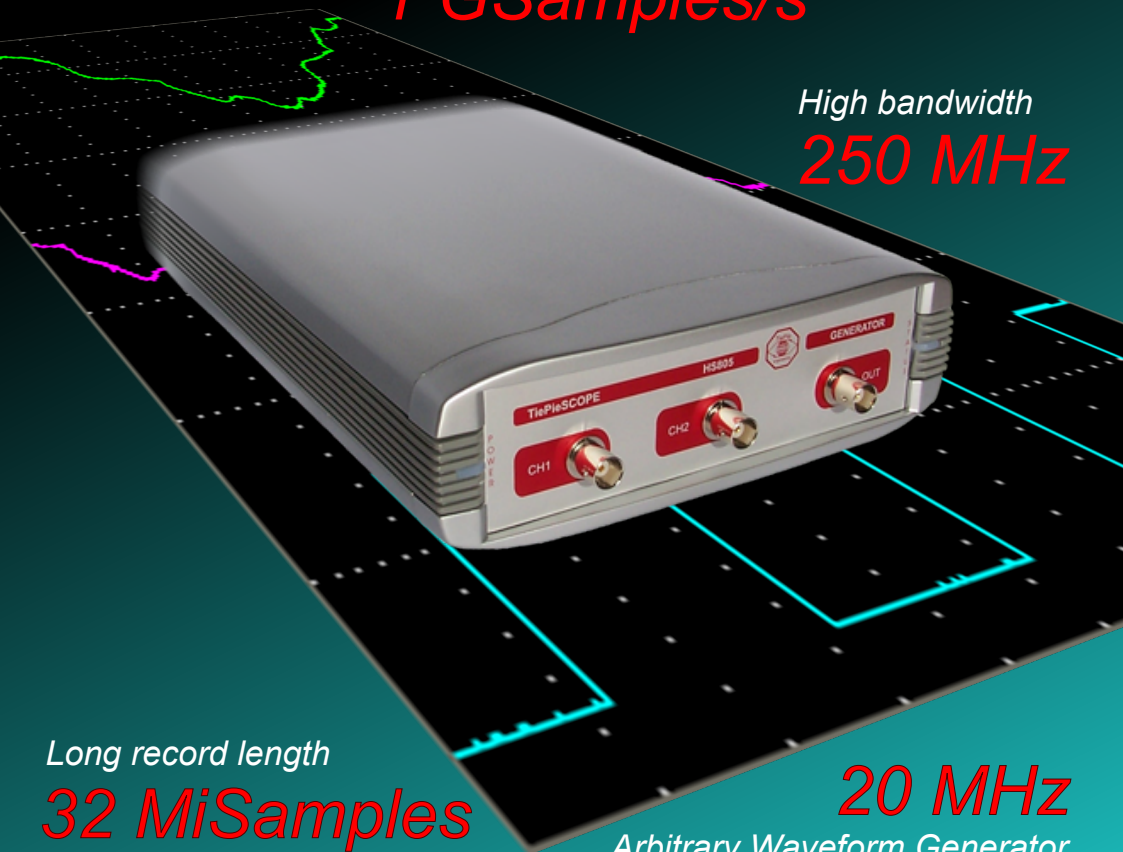
High sampling speed
1 GSamples/s

High bandwidth
250 MHz

Long record length
32 MiSamples

20 MHz
Arbitrary Waveform Generator

Plug In And Measure
- Oscilloscope
- Spectrum analyzer
- Voltmeter
- Y-t recorder

www.tiepie.nl

TiePieSCOPE HS805

1 GS/s high sampling rate, 250 MHz high bandwidth

Nowadays, when everything goes faster, the need for fast sampling oscilloscopes is higher than ever. TiePie engineering brings the TiePieSCOPE HS805, a PC oscilloscope that can sample at **1 Giga samples per second** on one channel, **500 Mega samples per second** simultaneously on two channels, real time. To display the measured signals accurately and without distortion, the TiePieSCOPE HS805 has a high **bandwidth of 250 MHz**.

32 MiS long record length

When measuring at high sample rates, a long record length is a must, otherwise the acquisition buffer is full before the signal is measured. A record length of 10k samples is just 10 microseconds at 1 GSamples per second. Therefore the TiePieSCOPE is equiped with a large memory buffer of **32 Mega samples per channel**. This enables long measurements at full speed.
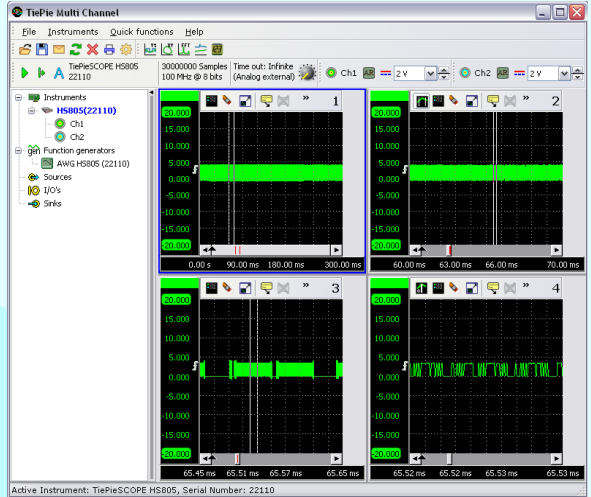
A 300 ms long USB signal, zoomed in at various factors. The lower right graph has a zoom factor of 30000. It still provides enough detail for accurate signal analysis.

20 MHz Arbitrary Waveform Generator
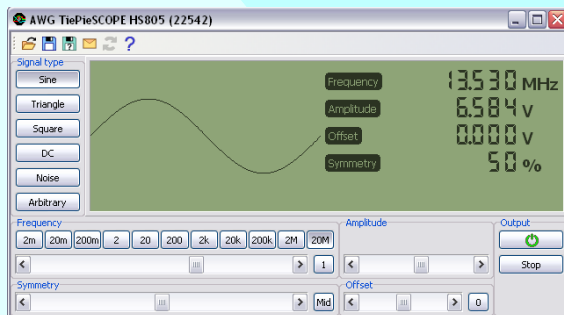
The TiePieSCOPE HS805 is equiped with an on-board Arbitrary Waveform Generator. This waveform generator allows to generate **signals up to 20 MHz**, with amplitudes up to 12 Volt peak value. Signal shapes include sine wave, square wave, triangular wave, noise and user defined arbitrary signal shapes. For arbitrary signals, **a waveform buffer of 32 Mega samples** is available. The maximum sampling clock for generating signals is 200 MS/s. The generator can also be used to generate previously measured signals.

Applications

Typical applications for the TiePieSCOPE HS805 with it's high sampling rate and long record length are debugging fast serial communications, like I^{2}C, ProfiBus and CAN bus signals. The high sampling rate enables capturing the fine details of the signal. The long record length makes sure that a complete block of the serial communication can be captured. The AWG can then be used to regenerate the signal, to simulate the original source in your lab.

Sophisticated software
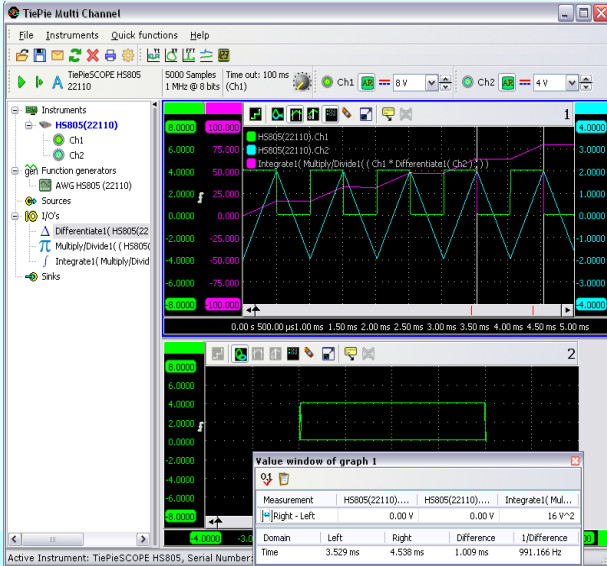
Determine the area of a XY graph, using multiplying, integrating and differentiating I/O's. The area is indicated in the Value window: 16 V^2.

The TiePieSCOPE H805 comes with sophisticated Multi Channel measurement software that turns your TiePieSCOPE HS805 into an oscilloscope, a multimeter, a spectrum analyzer and a Transient recorder.

Mathematical operations

Mathematical operations like e.g. adding, subtracting, multiplying, dividing, integrating, differentiating etc. are available in the form of processing blocks.

Besides the mathematical operations, there are also several processing blocks to perform other operations on the data, like determining minimum or maximum values, limiting to specified range, averaging, filtering, applying gain and offset, etc.

Combining these mathematical processing blocks gives unrivalled possibilities in constructing complex mathematical operations.

The results of these operations can be displayed in one or more graphs, can be displayed in numeric displays and can be written to disk in various common formats.

The software also provides an I^{2}C protocol analyzer and a serial protocol analyzer.

Spectrum analyzer

Use the spectrum analyzer to see the frequency spectrum of your signal next to the time domain signal. Various windowing functions and display functions are available to meet your requirements.

Streaming measurements

When even 32 MiSamples per channel is not enough, it is also possible to perform continuous, uninterrupted streaming measurements to measure as long as needed. Limited only by the available hard drive space, any long signal can be measured and stored for later analysis. Of course all mathematical operations are available in streaming mode as well.
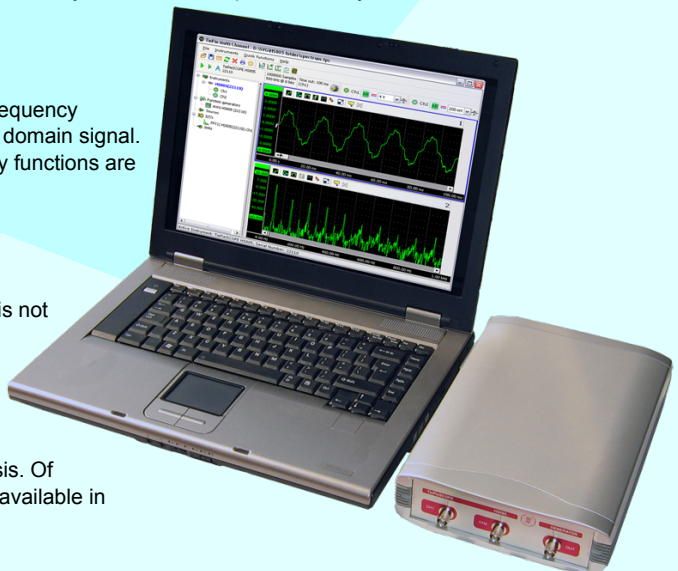
Acquisition system

Number of input channels	2 analog
Maximum sampling rate	1 GS/s (one channel)
	500 MS/s (two channels)
Accuracy	±0.01%
Memory	32 MiSamples per channel

Inputs

Resolution	8 bits
Amplitude accuracy	1 %
Ranges	0.2 V .. 80 V full scale in a 2 - 4 - 8 sequence
Coupling	AC/DC
Impedance	1 MOhm // 20 pF
Maximum input voltage (in all ranges)	200 V (DC + AC peak < 10 kHz)
Bandwidth (-3dB)	250 MHz

Trigger system

Source	CH1, CH2,
	AND, OR,
	Analog external, Digital external
Trigger kinds	rising slope, falling slope, inside window, outside window
Pre trigger	0 - 32MiSamples (0 - 100%, one sample resolution)
Analog external trigger	BNC
Ranges	200 mV .. 80 V full scale
Coupling	AC/DC
Bandwidth	20 MHz
Maximum input voltage (in all ranges)	200 V (DC + AC peak < 10 kHz)
Digital external trigger	extension connector
Range	0 .. 5 V (TTL)
Coupling	DC

Arbitrary Waveform Generator

Resolution	14 bits @ 200 MHz
Amplitude	-12 .. +12 V
Coupling	DC
Impedance	50 Ohm
Bandwidth	DC to 20 MHz
DC Level	-12 .. +12 V, 12 bit resolution
Maximum sampling rate	200 MHz
Sampling source	internal, 0.01%
Memory	32 MiSamples
Waveforms	Sine, Square, Triangle, DC, Noise, Arbitrary
Symmetry	0 .. 100 %

Power

Power adapter	External
Input	110 .. 240 V AC, 50 .. 60 Hz,
	0.85 A Max., 50 VA .. 80 VA

System requirements

PC I/O connection	USB 2.0 High Speed (480 Mbit/s)
	USB 1.1 Full Speed (12 Mbit/sec) compatible
Operating System	Windows 98/ME/2000/XP/Vista32

Physical

Dimension (h x w x l)	57 x 180 x 276 mm (2.3 x 7.1 x 10.9 inch)
Weight	1250 gram (2.8 lbs)

Kit contents

Instrument	TiePieSCOPE HS805
Probes	2 x 1:1 / 1:10 switchable, 250 MHz bandwidth
Power adapter	Universal power supply
Software	For Windows 98/ME/2000/XP/Vista/7 on CDROM
Manuals	Instrument manual and software manual

CE RoHS Compliant

TiePie engineering

Koperslagersstraat 37
8601 WL Sneek
The Netherlands

Tel.: +31 (0)515 415 416
Fax: +31 (0)515 418 819
E-mail: info@tiepie.nl

www.tiepie.nl