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Handyscope HS4 USB oscilloscope

TiePie Engineering from Scientech

Speed up your innovation with a USB oscilloscope

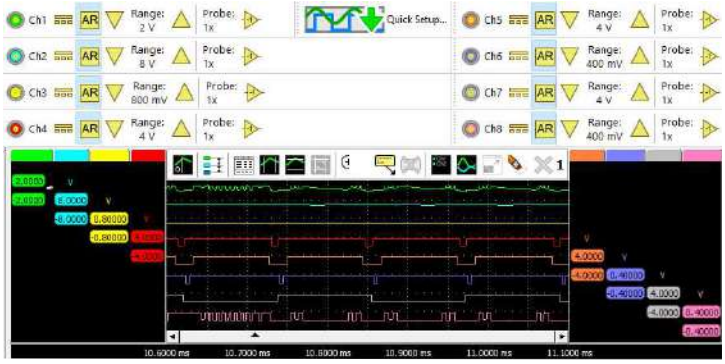
This professional powerful computer controlled USB oscilloscope features four input channels. The Handyscope HS4 oscilloscope features a user selectable 12 bit, 14 bit or 16 bit resolution (14 bit effective, SNR 95 dB), 200 mV to 80 V full scale input range and 128 Ksamples record length per channel. Four Handyscope HS4 oscilloscope models are available, with a maximum sampling rate of respectively 5 MSa/s, 10 MSa/s, 25 MSa/s or 50 MSa/s on all four channels simultaneously.

Fast Continuous streaming

Besides measuring in block mode, the Handyscope HS4 is also capable of performing continuous streaming measurements. This will create a continuous uninterrupted data stream to the computer. The data can then be displayed on the screen and/or saved to disk.

Combining multiple Handyscope HS4s

When one Handyscope HS4 does not offer enough input channels, the Handyscope HS4 can be coupled to one or more other instruments. This allows to make a combined instrument which will enable simultaneous measuring on all channels of all combined instruments.



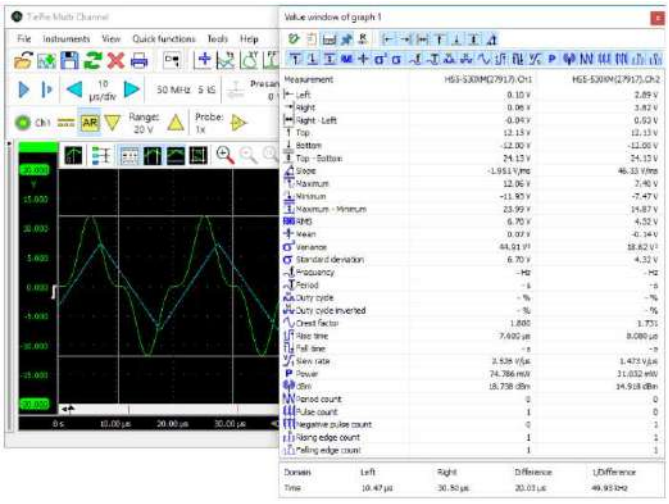
Software features

Versatile multi channel oscilloscope software

The Handyscope HS4 is delivered with the versatile multi channel oscilloscope software, which transforms the Handyscope HS4 into an oscilloscope, spectrum analyzer, data logger, multimeter and protocol analyzer.

Some of the powerful features of the multi channel oscilloscope software are indicated below, for a full description of the multi channel oscilloscope software, refer to the multi channel oscilloscope software pages.

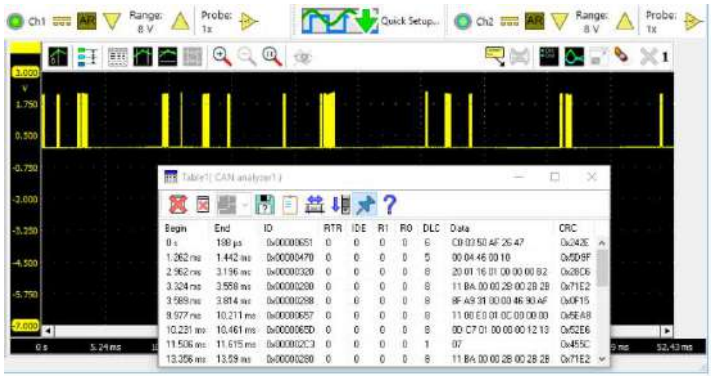
Many automatic measurements



The multi channel oscilloscope software features many automatic measurements, that can be performed on the measured signals of your Handyscope or on a selection of the measured signals. Using the automatic measurements in the oscilloscope, any detail of your signal is revealed. Two sets of cursors, both horizontal and vertical, can be used to indicate a part of the signal that needs to be examined thoroughly. The automatic measurements include e.g.: Mininum, Maximum, Top-Bottom, RMS, Mean, Variance, Standard deviation, Frequency.

The measurement results are shown in a special value window that can be positioned anywhere on your computer screen. A convenient toolbar allows you to enable or disable a measurement with a single click. The measurement results can be copied to the clipboard e.g. to use them in reports. When printing the graphs, the cursors and measurements results are also included.

Analyze fast serial communication protocols

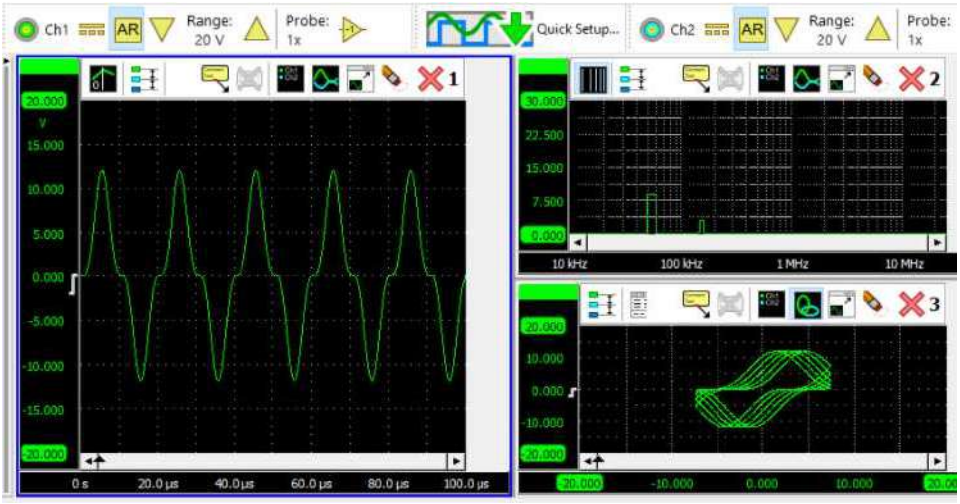


To analyze or debug your serial communications, simply measure the signal(s) transferring the protocol with your Handyscope and have them analyzed and decoded by one of the multi channel oscilloscope software protocol analyzers. The decoded information from the serial communications can be shown in tables, in graphs and in the multimeter.

A protocol analyzer is a useful tool when developing a hardware and/or software implementation of a communication bus. It can also be used when debugging device or bus failures.

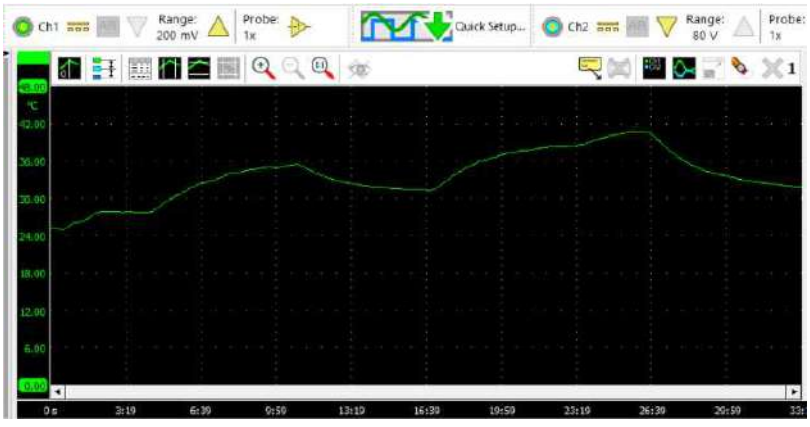
Flexible signal displays

The multi channel oscilloscope software scope, spectrum analyzer and datalogger offer an ultimately flexible way to display all aspects of the measured signals. They can have one or more graphs, each displaying one or more signals, where each graph can display different parts of a signal. Graphs can display the signal(s) of your Handyscope in Yt mode, in XY mode or as frequency spectrum, with or without interpolation. Colors of all items in a graph can be set to any required value. Graph dimensions can be adjusted to any required size, graphs can be located in one single window or in separate windows, which can be located anywhere on the desktop.



24/7 Data logging

Measuring long term signal changes with your Handyscope is done with the multi channel oscilloscope software Data logger. The data logger logs your signal, continuously uninterrupted at high speed, 24 hour a day, 7 days a week. Results are immediately shown on the screen and all data can be stored to disk. A convenient toolbar lets you navigate through the stored files to find the important moments in the measurement.



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Technical Specification

Acquisition system

Number of input channels	:	4 analog			
CH1, CH2, CH3, CH4	:	BNC			
Type	:	Single ended			
Resolution	:	12, 14, 16 bit user selectable			
Accuracy	:	0.25 % of full scale ± 1 LSB			
Ranges (Full scale)	:	±200mV	±2V	±20V	
		±400mV	±4V	±40V	
		±800mV	±8V	±80V	
Coupling	:	AC/DC			
Impedance	:	1 MO / 30 pF			
Maximum input voltage (in all range)	:	±200 V (DC + AC peak < 10 kHz)			
Maximum input voltage					
1:10 probe (in all ranges)	:	±600 V (DC + AC peak < 10 kHz)			
Bandwidth (-3dB)	:	DC to 50 MHz maximum			
AC coupling cut off frequency (-3dB)	:	1 Hz with 1x probe			
Maximum sampling rate	:	HS4-50	HS4-25	HS4-10	HS4-5
12 bit	:	500 kSa/s	250 kSa/s	100 kSa/s	50 kSa/s
14 bit	:	480.8 kSa/s	250 kSa/s	99.2 kSa/s	50 kSa/s
16 bit	:	195.3 kSa/s	195.3 kSa/s	97.7 kSa/s	48.8 kSa/s
Sampling clock source					
Internal	:	Quartz			
Accuracy	:	±0.01 %			
Stability	:	±100 ppm over -40 °C to +85 °C			
Time base aging	:	±5 ppm/year			
External	:	Extension connector			
Voltage	:	3.3 V TTL, 5 V TTL tolerant			
Frequency range	:	95 MHz to 105 MHz			
Memory	:	128 Kpts per channel			

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Trigger

System	:	Digital, 2 levels
Source	:	CH1, CH2, CH3, CH4, AND, OR, digital external
Trigger modes	:	Rising edge, falling edge, inside window, outside window
Level adjustment	:	0 to 100 % of full scale
Hysteresis adjustment	:	0 to 100 % of full scale
Resolution	:	0.025 % (12 bits)
Pre trigger	:	0 to 131071 samples, 1 sample resolution
Post trigger	:	0 to 131071 samples, 1 sample resolution
Trigger hold-off	:	0 to 1048576 Samples, 1 sample resolution
Digital external trigger		
Input	:	Extension connector
Range	:	0 to 3.3 V (5 V max)
Coupling	:	DC

Interface

Interface	:	USB 2.0 High Speed (480 Mbit/s); (USB 1.1 Full Speed (12 Mbit/s) and USB 3.0 compatible)

Power Requirements

Power from USB port	:	500 mA max (2.5 W max)
Power via external power input / extension connector	:	1500 mA max (7.5 W max)
Minimum voltage	:	4.5 V_{DC}
Maximum voltage (SN# >12941)	:	12 V_{DC}

Physical

Instrument height	:	25 mm (1 inch)
Instrument length	:	170 mm (6.7 inch)
Instrument width	:	140 mm (5.2 inch)
Cord length	:	1.8 m (70 inch)
Weight	:	480 g (17 ounce)

I/O connectors

Channel 1, 2, 3, 4	:	BNC
USB	:	fixed cable with USB 2.0 and USB 1.1 type A
Extension connector	:	D-sub 25 pins female

System requirements

PC I/O connection	:	USB 2.0 High Speed (480 Mbit/s); (USB 1.1 Full Speed (12 Mbit/s) and USB 3.0 compatible)
Operating System	:	Windows 10 and Linux (via LibTiePie SDK)

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Operating Environment

Ambient temperature	:	0 to 55°C
Relative humidity	:	10 to 90%, non condensing

Storage Environment

Ambient temperature	:	-20 to 70°C
Relative humidity	:	5 to 95%, non condensing

Certification and Compliances

CE mark compliance	:	yes
RoHS	:	yes

Package contents

The Handyscope HS4 is delivered with:

Instrument	:	Handyscope HS4
Probe	:	4x Oscilloscope Probe 1:1-1:10 - HP-3060
Accessories	:	external power cable for USB port
Software	:	for Windows 10, via website
Drivers	:	for Windows 10, via website
Software Development Kit	:	for Windows 10 and Linux, via website
Manuals	:	instrument manual and software user's manuals color printed and digital, via website

Related Products

Oscilloscope Probe
1:100 HP-9258

Differential Probe
SI-9002

Oscilloscope Probe
1:1 - HP-2022

Current clamp
TP-CC80

Current clamp
TP-CC600

Current clamp
TP-CC400

Accelerometer
TP-ACC20

Rubber Protector
TP-RP-HS

Milliohm Meter
TP-MM3000

Subject to Change

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