

## A 4 channel, 50 MHz USB oscilloscope from TiePie engineering.



The **Handyscope HS4** is a four channel single-ended USB oscilloscope with a maximum sampling speed of 50 MSa/s and 128 KSamples memory per channel. The **Handyscope HS4** is delivered with a complete measurement software package that offers all you need for your measurement applications.

### Key specifications

#### Oscilloscope / Spectrum analyzer / Voltmeter

12 bit resolution (14 and 16 bit enhanced resolution)
50 MSa/s sampling
500 kSa/s, 12 bit continuous streaming
50 MHz bandwidth
128 Kpoints memory per channel
0.2 % DC vertical accuracy
100 ppm timebase accuracy

### Models

The Handyscope HS4 is available in three different models that distinguish in maximum sampling rate:

Model	Max. sampling speed	Max. streaming speed
HS4-50	50 MSa/s	500 kSa/s
HS4-25	25 MSa/s	250 kSa/s
HS4-10	10 MSa/s	100 kSa/s

### Package contents

The Handyscope HS4 models are delivered with:

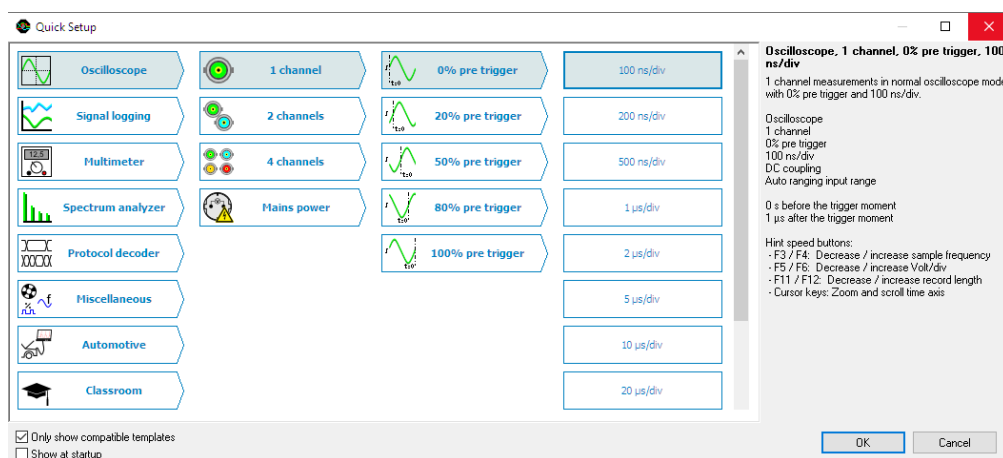
Amount	Item
1	Handyscope HS4
4	Oscilloscope probe HP-3250I
1	Instrument manual
1	Software manual

## Multi Channel oscilloscope software

The Handyscope HS4 is standard delivered with the [Multi Channel oscilloscope software](#), the world's most versatile measuring software package. Together with the Handyscope HS4, it can be used as Oscilloscope, Spectrum analyzer, Data logger, Multimeter and Protocol analyzer.



When knowledge or experience are insufficient to setup a measurement instrument correctly and quickly, using **measurement templates** is a must. The TiePie engineering Multi Channel oscilloscope software provides a large amount of ready to use measurement templates. Most measurement templates are designed to allow performing an advanced measurement in just a few mouse clicks.



You select the measurement template from a tree structure and the instrument will be fully set up. A measurement template contains all settings for a specific measurement as well as additional information regarding the selected template, like e.g. how the instrument and/or accessories need to be connected. Templates can also contain reference signals that show what to expect. Just a few mouse clicks allow to perform a complex measurement. No need to worry or even know about the complex and difficult settings of the instrument itself, you can focus completely on the test subject you are working on.

**Work efficiently and save your precious time using the unique measurement templates.**

Read more about the Multi Channel oscilloscope software at [www.tiepie.com/software](http://www.tiepie.com/software)

## Specifications

Acquisition system				
Number of input channels	4 analog, female BNC			
Type	Single-ended			
Resolution	User selectable via software			
Native	12 bit			
Enhanced	14, 16 bit			
DC Accuracy	0.2 % of full scale $\pm$ 1 LSB			
Bandwidth (-3dB)	50 MHz			
AC coupling cut off frequency (-3dB)	$\pm$ 1.5 Hz			
Noise				
200 mV range, 12 bit, 50 MSa/s	150 $\mu$ V <sub>RMS</sub>			
200 mV range, 16 bit, 195 kSa/s	45 $\mu$ V <sub>RMS</sub>			
Input ranges (full scale)	$\pm$ 200 mV	$\pm$ 2 V	$\pm$ 20 V	
	$\pm$ 400 mV	$\pm$ 4 V	$\pm$ 40 V	
	$\pm$ 800 mV	$\pm$ 8 V	$\pm$ 80 V	
Coupling	AC/DC			
Impedance	1 M $\Omega$ / 40 pF			
Maximum voltage	200 V (DC + AC peak < 10 kHz)			
Maximum voltage with 1:10 probe	600 V (DC + AC peak < 10 kHz)			
Maximum sampling rates	depending on model, on all channels simultaneously			
Model	HS4-50	HS4-25	HS4-10	
12 bit	50 MSa/s	25 MSa/s	10 MSa/s	
14 bit	3.125 MSa/s	3.125 MSa/s	3.125 MSa/s	
16 bit	195.3 kSa/s	195.3 kSa/s	195.3 kSa/s	
Maximum streaming rates	depending on model, on all channels simultaneously			
Model	HS4-50	HS4-25	HS4-10	
12 bit	500 kSa/s	250 kSa/s	100 kSa/s	
14 bit	480.8 kSa/s	250 kSa/s	99.2 kSa/s	
16 bit	195.3 kSa/s	195.3 kSa/s	97.7 kSa/s	
Sampling source				
Internal	Quartz			
Accuracy	$\pm$ 0.01 %			
Stability	$\pm$ 100 ppm over -40 °C to 85 °C			
Time base aging	$\pm$ 5 ppm per year			
External	LVTTL, on extension connector			
Input range	100 MHz $\pm$ 2 %			
Memory	128 Kpoints per channel			
Trigger				
System	Digital, 2 levels			
Source	CH1, CH2, CH3, CH4, digital external, OR			
Trigger modes	Rising / falling edge, inside / outside window			
Level adjustment	0 to 100 % of full scale			
Hysteresis adjustment	0 to 100 % of full scale			
Resolution	0.024 % (12 bits)/0.006 % (14/16 bits)			
Pre trigger	0 to 128 Kpoints (full record length), 1 sample resolution			
Digital external trigger				
Input	Extension connector			
Range	0 to 3.3 V (TTL)			
Coupling	DC			
I/O connectors				
Front				
CH1 ... CH4	Female BNC			
Rear				
USB	Fixed cable with USB type A plug, 1.8 m			
Extension connector	D-sub 25 pins female			
Power	3.5 mm power socket			
Interface				
Interface	USB 2.0 High Speed (480 Mbit/s) (USB 1.1 Full Speed (12 Mbit/s) and USB 3.0 compatible)			
Physical				
Instrument	Height	Length	Width	Height
	25 mm	170 mm	140 mm	40 g
Cord length	1.8 m			
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 / 11			
Environmental conditions				
	Operating		Storage	
Ambient temperature	0 °C to 55 °C		-20°C to 70 °C	
Relative humidity (non condensing)	10 % to 90 %		5 % to 95 %	

Power Requirements	
Power from USB port	500 mA max (2.5 W max)
Power via external power input	1500 mA max (7.5 W max)
Minimum voltage	4.5 VDC
Maximum voltage	14 VDC

Certifications and Compliances	
CE mark compliance	Yes
RoHS	Yes
EN 55011:2016/A1:2017	Yes
EN 55022:2011/C1:2011	Yes
IEC 61000-6-1:2019 EN	Yes
IEC 61000-6-3:2007/A1:2011/C11:2012	Yes

Probes	HP-3250I
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Attenuation settings	X1	X10
Bandwidth	6 MHz	250 MHz
Rise time	58 ns	1.4 ns
Input impedance	1 M $\Omega$ (scope impedance)	10 M $\Omega$ (incl. 1 M $\Omega$ scope impedance)
Input capacitance	56 pF + scope capacitance	13 pF
Compensation range	-	10 to 30 pF
Working voltage (DC + peak AC)	300 V, 150 V CAT II	600 V, 300 V CAT II

Package	
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Instrument	Handyscope HS4
Accessoires	4 x Oscilloscope probe HP-3250I external power cable for second USB port
Drivers	For Windows 10 / 11 via website
Software	For Windows 10 / 11 via website
Software Development Kit	For Windows 10 / 11 and Linux, via website
Manual	instrument and software manuals
Total package weight	Approx. 2 kg

Warranty	
Warranty	Two year standard, five years optional, covering all parts and labor, excluding probes

Customer service	
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TiePie engineering instruments are designed, manufactured and tested to provide high reliability. In the unlikely event you experience difficulties, the TiePie engineering instruments are fully warranted for two years. This warranty includes:

- No charge for return shipping
- Long-term 7-year support
- Upgrade to the latest software at no charge

Ordering information	
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Handyscope HS4 Model	Order code
50 MSa/s, 2 year warranty	HS4-50
25 MSa/s, 2 year warranty	HS4-25
10 MSa/s, 2 year warranty	HS4-10

Available option for the Handyscope HS4 is **W5**: With the extended warranty option, warranty is five years on parts and labor. Add **-W5** to the order code.



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