



# Handyscope HS4 DIFF, a differential USB oscilloscope

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

The **Handyscope HS4 DIFF** is a 4 channel differential USB oscilloscope with a maximum sampling speed of 50MS/s and 128 KSamples memory per channel. The differential input channels enable safely measuring, without risk of creating a short circuit through the oscilloscope.

The **Handyscope HS4 DIFF** is delivered with a complete measurement software package that offers all you need for your measurement applications

## Acquisition system

Number of input channels	4 analog
Ch1, Ch2, Ch3, Ch4	BNC
Type	Differential
Resolution	12, 14, 16 bit user selectable
Accuracy	0.3 % of full scale $\pm$ 1 LSB
Ranges	200 mV to 80 V full scale
Coupling	AC/DC
Impedance	2 MOhm / 40 pF
Maximum input voltage (in all ranges)	$\pm$ 200 V (DC + AC peak < 10 kHz) with 1:10 attenuator $\pm$ 300 V (DC + AC peak < 10 kHz)
Maximum Common Mode voltage	200 mV to 800 mV ranges : 2 V 2 V to 8 V ranges : 20 V 20 V to 80 V ranges : 200 V
Common Mode Rejection Ratio	-48 dB
Bandwidth (-3dB)	DC to 50 MHz maximum
AC coupling cut off frequency (-3dB)	1 Hz
Channel Isolation	500 V
Channel Separation	-80 dB
Maximum sampling rate	Depending on model, on all channels simultaneously
Model HS4-DIFF-50	
12 bit	50 MS/s
14 bit	3.125 MS/s
16 bit	195.3 kS/s

## Acquisition system

Maximum streaming rate	Depending on model, on all channels simultaneously
12 bit	500 kS/s
14 bit	480.8 kS/s
16 bit	195.3 kS/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	On extension connector
Voltage	3.3 V TTL, 5 V TTL tolerant
Frequency range	95 MHz to 105 MHz
Memory	128 KiSamples per channel
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 128 KiSamples, 1 sample resolution)
Post trigger	0 to 128 KiSamples, 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)
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## 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 <sub>DC</sub>
Maximum voltage	14 V <sub>DC</sub>

## 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	460 g (16 ounce)

## I/O connectors

Channel 1...4	Isolated BNC
USB	fixed cable with USB 2.0 and USB 1.1 type A connector
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 2000/XP/Vista/7/8/10 and Linux (via LibTiePie SDK)

## 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

## Certifications and Compliances

CE mark compliance

Yes

RoHS

Yes

## Package

Convenient carrying case

Instrument

Handyscope HS4 DIFF

Measure leads

[4 x Measure lead TP-C812B, BNC -> 4 mm banana jack](#)

Accessories

[4 x Differential attenuator TP-DA10](#)

external power cable for second USB port

Software

Windows 2000/XP/Vista/7/8/10 on CD

Drivers

Windows 2000/XP/Vista/7/8/10 on CD

Manual

instrument manual and software user's manuals

color printed on paper and digital on CD

Total package weight

Approx. 3 kg

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