OSCA02/OSCA02L

USB Oscilloscope/Data logger

Device Family

June 2019, Version 6.0 Data Sheet

Features:

- Hand-held portable, 153(L) x 93(W) x 23(H) mm, up to 210g.
- General Purpose I/O interface (TTL 3.3V).
- Open source hardware interface to support expansion modules.
- Open software API for third party development.
- USB 2.0 interface, USB powered.
- 72 hours long time data logger.
- Waveform recording and playback review.
- Support waveform image import as the comparison reference for real-time waveform. NEW
- Support Serial bus decoding (selected models).
- Support buffer waveform preview and mouse wheel operations.

APPLICATIONS:

- ✓ *General-purpose and precision testing.*
- ✓ *Embedded in industrial testing equipment for use.*
- ✓ *Embedded electronics courses for the educational market.*
- ✓ *Ripple and noise measurements for power supply characterization.*
- ✓ *Multi-sensor systems and Serial bus decoding.*
- ✓ *Car inspection and maintenance.*
- ✓ *Current/Voltage recording and analysis System for Solar Power Supply and Lighting System.*
- ✓ *Diagnosis device for field engineers.*
- ✓ *Basic equipment for DIY makers to develop their own modules.*

SPECIFICATIONS:

● Connector type :	2 channels with BNC sockets, 20 mm spacing.	
● Vertical resolution:	8 Bit.	
● Maximum sampling rate (S/s):	100M	
● Bandwidth (−3 dB):	35MHz	
● Input coupling:	AC/DC.	
● Input characteristics:	1MΩ || 25pF.	
● PC OS requirements:	Windows XP, Win 7, Win 8.1, Win10 (32 bit and 64 bit).	
● Overvoltage protection:	±60.0v (x1), ±600.0v (x10). (DC + AC peak)	
● Triggering type:	Rising/falling edge according to trigger level.	
● Triggering mode:	None, auto, normal, single.	
● pre-trigger capture:	50% of capture size.	
● Automatic measurements:	Maximum, minimum, average, RMS, frequency, period, positive pulse width, negative pulse width, duty cycle, rise time, peak-to-peak value.	
● Deep measurement:	With this function, the waveform jump points are automatically numbered and marked, and the time difference between the two adjacent numbers is automatically displayed.	
● Samples Interpolation:	Linear or sin(x)/x.	
● FFT:	1024 ~ 16K points.	
● FFT window function:	Rectangle, Hanning, Hamming, Blackman.	
● Math:	A+B, A-B, AxB, X-Y.	
● Acquisition Modes:	Normal mode / High Resolution mode / Peak detect mode.	
● Waveform recording and playback:	File format :	*.oscxxx.
	Record depth:	50 ~ 450 frames.
	File size:	6 MB ~ 20GB.
● Comparison reference	Support waveform image import and real-time waveform comparison reference. It can import waveform pictures, set gray level and transparency, move up and down, and zoom in and out horizontally and longitudinally.	
● Data logger Sampling Interval:	1 second to 1 hour.	
● Data logger Record Duration:	1 minute ~ 72 hours.	
● Temperature range:	Operating: 0 °C to 40 °C (20 °C to 30 °C for stated accuracy). Storage: −20 °C to +60 °C.	
● Reference Output:	1K Hz, 1.5 V square wave output with 50% duty cycle.	
● Size:	153(L) x 93(W) x 23(H) mm.	
● Languages (full support):	English, Chinese (simplified).	
● Compliance:	CE, FCC.	
● Net weight:	210 g.	
● Input sensitivity (10 vertical	50 mV/div to 2 V/div.	

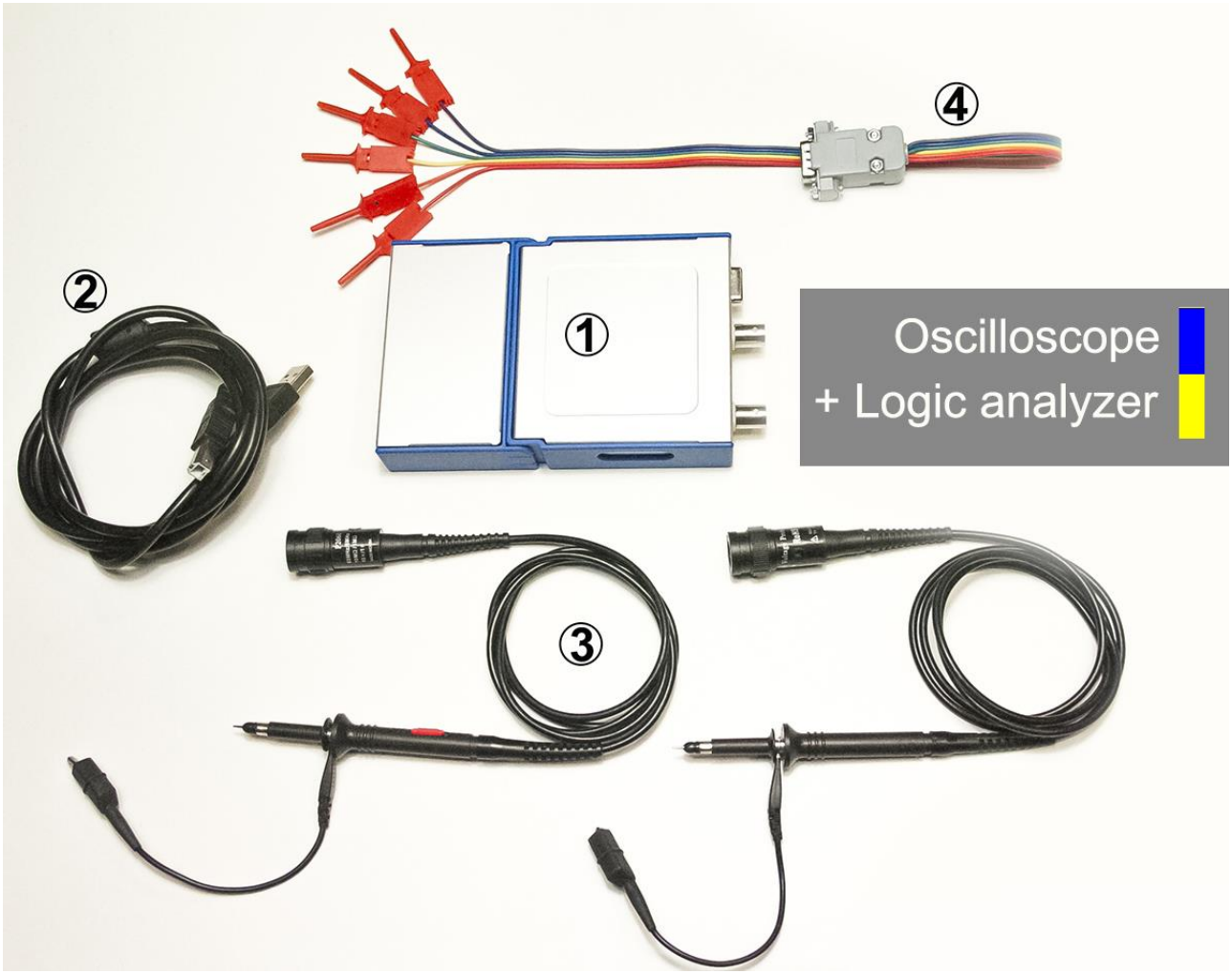
divisions):			
● Input ranges(probe x1):		±250 mV to ±5 V full scale, in 6 ranges.	
● Timebase selection (10 horizontal divisions):		5 ns/div ~ 2 s/div, in 21 ranges.	
● Typical noise (peak to peak voltage):	50 mv/div	5.8 mv	
	100 mv/div	8 mv	
	200 mv/div	22 mv	
	500 mv/div	38.8 mv	
	1 v/div	88.2 mv	
● Memory depth (byte /Ch):		64k	≤100 ms/div
		258k	200 ms/div
		645k	500 ms/div
		1M	1 s/div
		2M	2 s/div
		2M	2 s/div
● Trigger type:		Hardware	
● Trigger source:		Channel A	
● Power consumption:		5 v || (248~279) mA	
● Protocols decoding:		UART/RS-232, I²C	

AT A GLANCE

Model:	OSCA02	OSCA02L
Detail:	Support Windows XP, Win 7, Win 8.1, Win10 (32 bit and 64 bit).	OSC2002 + 4 channels Logic analyzer. Support Windows XP, Win 7, Win 8.1, Win10 (32 bit and 64 bit).
Input channels:	2	2
Maximum sampling rate (S/s):	100M	100M
Bandwidth (−3 dB):	35M Hz	35M Hz
FFT:	✓	✓
Data logger:	✓	✓
I/O extension:	✘	✘
Serial bus decoding:	✓	✓
Hardware trigger:	✓	✓

Ext trigger support:	✓	✓
Signal generator module support:	✘	✘
Logic analyzer module :	✘	✓
Android Phone/ Tablet support	✘	✘

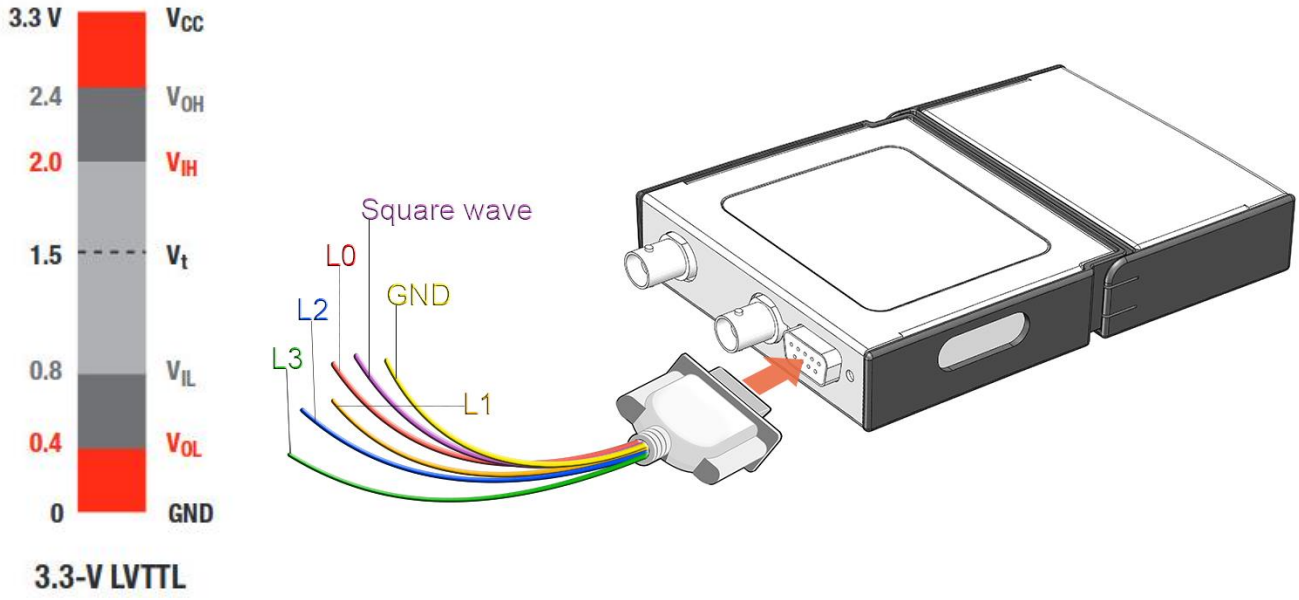
Expansion modules & Accessories:



Model	Android phone support	Signal generator module	Logic analyzer module	Bill of materials
OSCA02	✘	✘	✘	①+②+③
OSCA02L	✘	✘	✓	①+②+③+④

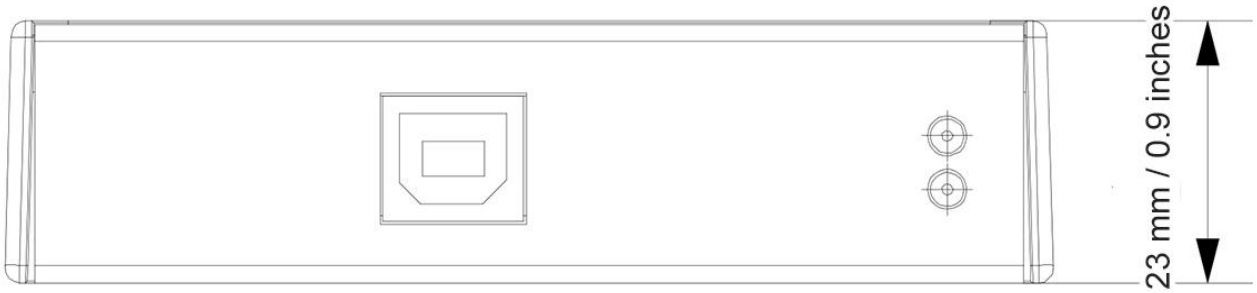
	type	quantity	model	details
①	Oscilloscope host device	1	OSCxxx	/
②	USB cable	1	U2100	USB2.0 compliant, length: 1m (or whatever length it is), USB Type A Male to USB Type B Male
③	Passive voltage probe, 60 MHz x1/x10	2	P2060	10x: 60M Hz,10MΩ,600 V CAT II
				1x: 6M Hz,1MΩ,300 V CAT II
④	Logic analyzer module	1	L02	4 channels, TTL level, consistent with the performance of the host device.

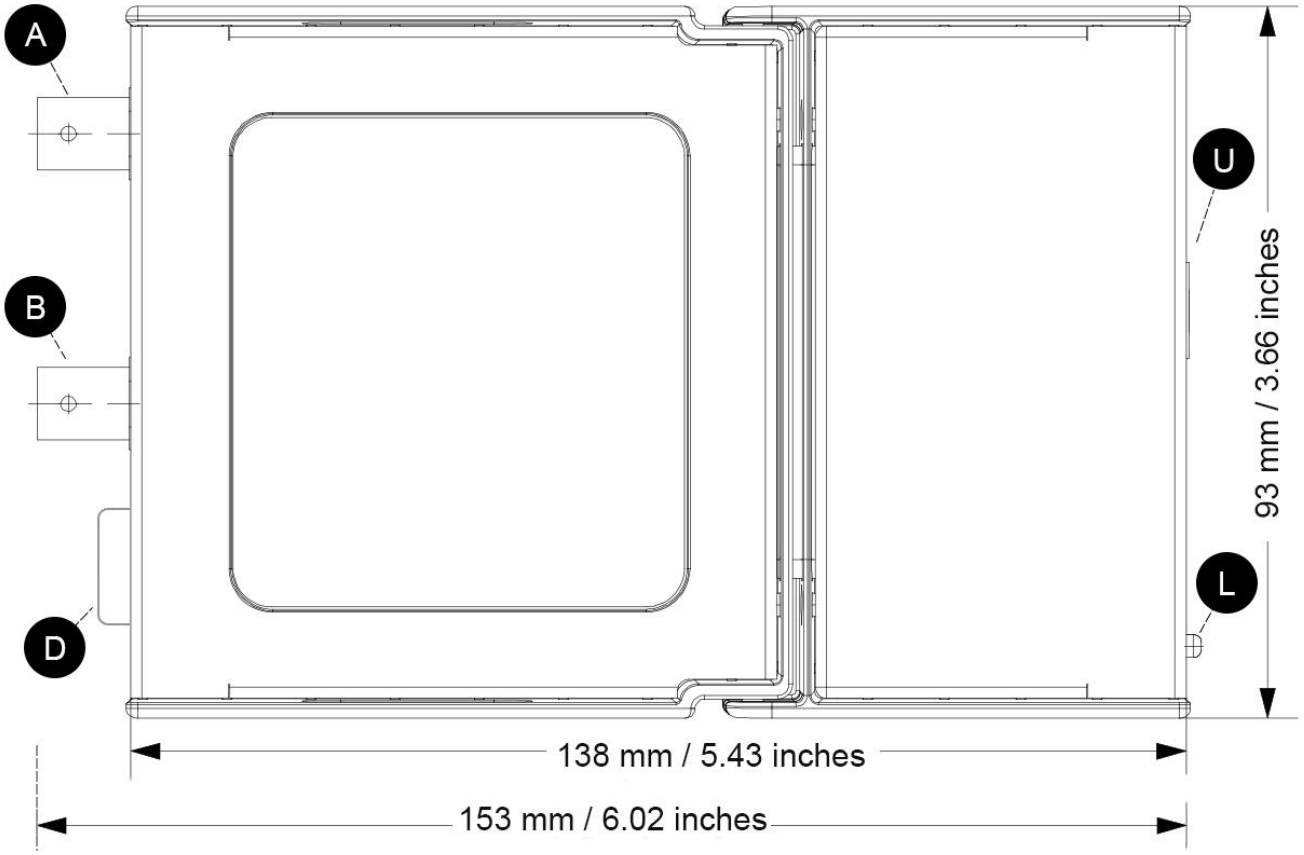
This ④ is standard or optional, depending on the host you purchased. The host OSCA02L you purchased supports the feature of the module and provide it as standard.



The input voltage between 2V and 3.3V is considered to be high and the input voltage between 0.8V and 0V is considered to be low for the four channels input L0~L3 of the logic analyzer shown above.

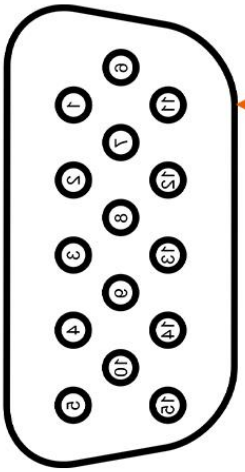
INTERFACES:


23 mm / 0.9 inches

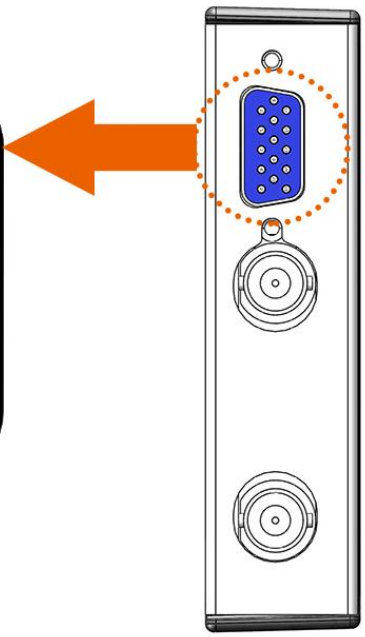
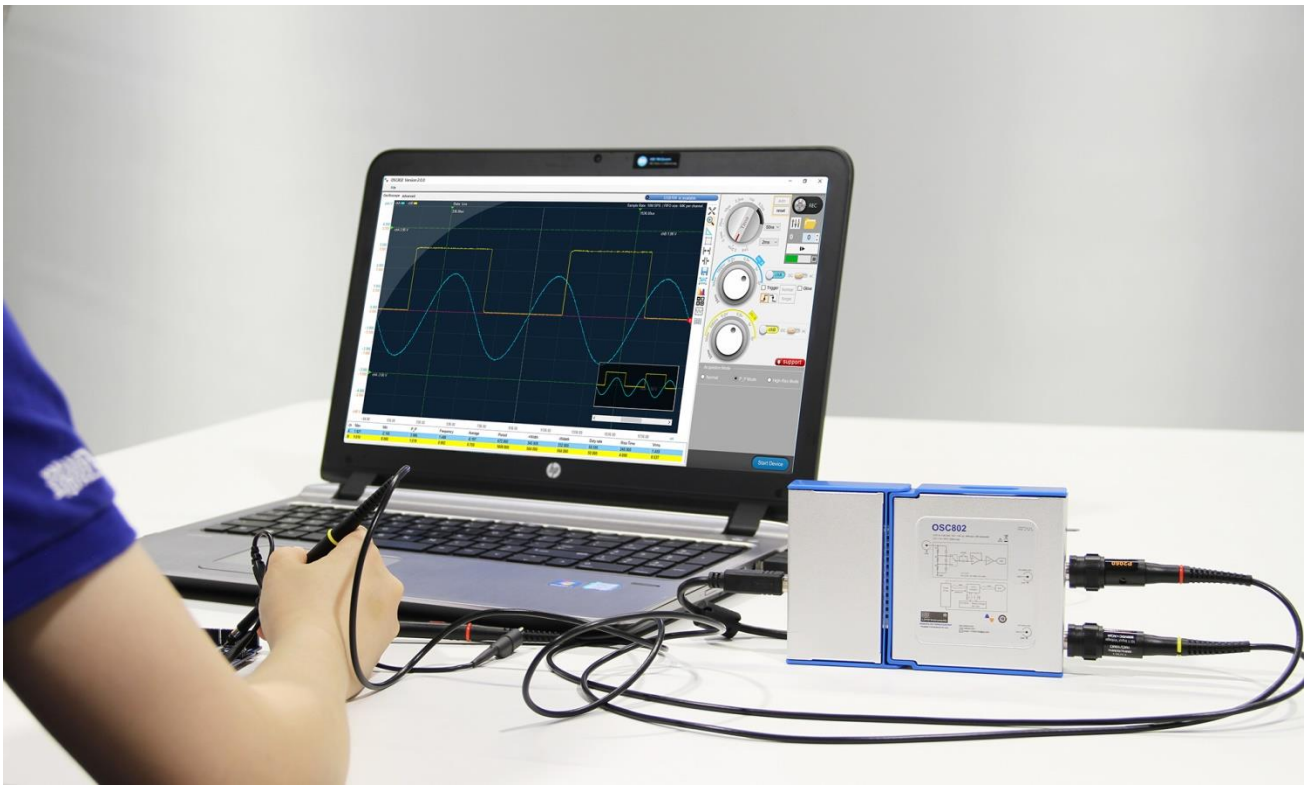

A
B
D
U
L
93 mm / 3.66 inches
138 mm / 5.43 inches
153 mm / 6.02 inches

	Description:
A	Input channel A.
B	Input channel B.
L	Power LED (red), Status LED (green).
U	USB 2.0 interface, Type B female.
D	DE-15 interface for expansion modules.

1: L3
2: IO1/Lctrl
3: LO2/Ext trigger
4: IO3
5: chB input
6: square wave(1k)
7: L1
8: DGND
9: IO4/L0
10: DGND
11: L2
12: 3.3V
13: -5V
14: 5V
15: AGND



DE-15 female



Windows software