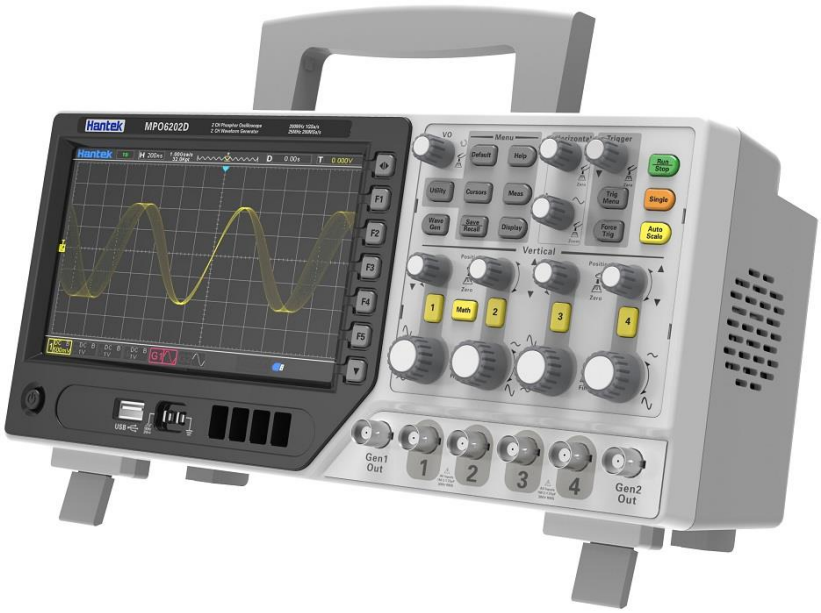
Oscilloscope DPO6004B(C)/MPO6004D Series



The waveform capture rate of DPO6000/MPO6000 Fluorescent oscilloscope is up to 400,000 FPS.It has 256 grade color and color temperature display.Standard equipped with up to 16 kinds of trigger functions, 5 kinds of serial decoding functions.It supplies 200 MHz, 100 MHz and 80 MHz bandwidth, its memory depth is up to 64M,16 channels logic analyzer plug and use, all standard equipped with 2 channels waveform generator, standard equipped with touch screen. it is a useful commissioning instrument for various fields such as communication, aerospace, defense, embedded systems, computers, research and education.

★Six in one oscilloscope:4 channels oscilloscope+16 channels logic analyzer+2 channels waveform generator+digital voltmeter+serial protocol analyzer+FFT spectral analysis.

★60 000 wfms/s (dots display)/400,000 wfms/s (dots display quick acquisition mode)waveform capture rate.

★Segmented acquisition function,support to capture up to 80,000 sections.256 grade color display.

★Up to 16 kinds of trigger functions, including 5 kinds of protocol triggers.Supply 5 serial decoding option.

★1 GSa/s real-time sample rate of the analog channels; 64 Mpts standardmemory depth.

★2-channe signal source,13 kinds of waveforms inside,4 sets of arbitrary waveforms,200M sample rate,8Kpts waveform length.

★1 GSa/s real-time sample rate of the digital channels.

★200 MHz, 100 MHz and 80 MHz analog channel bandwidth.

★Low base noise, 500uV/div to 10 V/div ultra-wide vertical dynamic range.

★7 inch WVGA capacitive touch screen,(800*480) TFT , with ultra-wide screen, vivid picture, lowpower consumption and long service life.

★Auto measurement of 42 kinds of waveform parameters (with statistics).

★Bode diagram function(the oscilloscopes with signal source function can use).

★Multiple waveform math operation functions【MATH】.Event search function.

★Standard interfaces: USB Device, USB Host, LAN,Optional interfaces: HDMI， UART

★Conform to LXI CORE 2011 DEVICE class instrument standards; enable quick,economic and efficient creation and reconfiguration of test system.Supports remote command control.

Parameters

Oscilloscope function		
Acquisition	Real-time sample rate	1 GSa/s（single channel） 500 MSa/s（two channels）
		250 MSa/s（three/four channels）；
		Note：digital channel 12， 34 open at the same time,it is considered as one channel
	Peak detection	Analog channel 4ns
		Note：digital channels don’t support
	Average mode	Analog channel
		All channels reach N time samples at the same time， N can be selected from 2、4、8、16、32、 64、128、256、512 and 1024.
		Note：digital channels don’t support
	High resolution	Up to 12bit
		Note：digital channels don’t support
	Minimum test pulse width	8ns
	Memory depth	Single channel 64M
		Two channels 32M
		Three， four channels 16M
Input	Channel quantity	4 analog channels
		Note：data channels can’t be opened
		3 analog channels
		Note：digital channel LA1/LA2/LA3/LA4/LA1LA2/LA3LA4
		2 analog channels
		Note：digital channels infinitize
		1 analog channel
		Note：digital channels infinitize
		0 analog channel

		Note：digital channels infinitize		
	Input coupling	DC、AC or GND		
		Note：digital channels don’t support		
	Input impedance，DC coupling	Analog channel		
		25pF±3 pF，1MΩ±2%		
		Digital channel		
		(300KΩ±2%)，(8 pF±3 pF)		
	Supported probe attenuation factor	Analog channel 1X、10X、100X、1000X		
	Voltage classes	300V CAT II		
	Maximum input voltage	Analog channel 300VRMS (10X)		
		Digital channel -25V~25V		
Horizontal	Waveform interpolation	(sin x)/x		
	Maximum record length	Single channel maximum 64M		
		Two channels maximum32M		
		three/four channels maximum 16M		
	Horizontal scale range	DSO6084 DSO6104		
		2ns/div~100s/div 1，2，5 step by step		
	Time base mode	Y-T、X-Y、Roll		
	X-Y number	Channel 1,2 1 XY channel、channel3 4 1 XY channel		
	Zero offset	±0.5 div× minimum time base gear		
	Sample Rate and	±25ppm		
	Delay Time Accuracy			
	Clock drifting	≤±5 ppm/year		
	Delta Time Measurement	single，“acquisition”mode		
	Accuracy			
	(Full Bandwidth)	±（1 sample interval+100ppm×reading+0.6ns）		
		＞16 times averages		
		±（1 sample interval+100ppm×reading+0.4ns）		
		Sample interval=sec/div÷200		
Vertical	Bandwidth（-3db）	6084	6104	6204
		80MHz	100MHz	200MHz
	Vertical resolution	Analog channel 8bit		

		Digital channel 1bit		
	Vertical scale range	nput BNC position is 500μV/div~10V/div		
	Position range	500μV/div to 120mV/div，±1V		
		122mV/div to 1.2V/div，±10V		
		1.22V/div to 10V/div，±50V		
	Optional analog bandwidth limitation	Typical 20MHz		
	Bass response（-3db）	In BNC position is≤10Hz		
	Rising time in BNC position，typical	6084	6104	6204
		≤4.4ns	≤3.5ns	≤1.8ns
	Vertical gain accuracy	In “normal” or “average” acquisition mode，the accuracy o f 10V/div to 10mV/div is ±3%		
		In “normal” or “average” acquisition mode，the accuracy of 5mV/div to 500uV/div is ±4%.		
	DC offset accuracy	±0.1 div±2 mV±1% offset value		
	The isolation of channels	DC maximum bandwidth：>40 dB		
Note: Bandwidth reduced to 6MHz when using a 1X probe				
Trigger	Trigger level range	±5 divisions from the center of the screen		
	Trigger mode	auto、general、single		
	Level	CH1~CH4	±4 divisions from the center of the screen	
	Holdoff range	8ns~10s		
	Trigger level accuracy	CH1~CH4	0.2 div×volts/div within ±4 divisions from the center of the screen	
	Edge trigger — Slope	Rising edge，falling edge，rising or falling edge		
	Edge trigger — Signal source	CH1~CH4,		
		D1.0~D1.3,		
		D2.0~D2.3,		
		D3.0~D3.3,		
		D4.0~D4.3		
	Pulse width trigger — Polarity	Positive polarity，negative polarity		
	Pulse width trigger — Condition(When)	<，>，!=，=		
	Pulse width trigger — Signal source	CH1~CH4,		
		D1.0~D1.3,		
		D2.0~D2.3,		

			D3.0~D3.3,
			D4.0~D4.3
		Pulse width range	8ns ~ 10s
	Video trigger	Signal standard	NTSC， PAL
		Signal source	CH1~CH4
		Synchronization	Scanning line、line number、odd field、even field、all field
	Slope trigger	Slope	rise，fal
		condition(When)	<， >， !=， =
		Signal source	CH1 ~ CH4
		Time range	8ns ~ 10s
	Overtime trigger	Signal source	CH1~CH4,
			D1.0~D1.3,
			D2.0~D2.3,
			D3.0~D3.3,
			D4.0~D4.3
		Polarity	Positive polarity，negative polarity
		Time range	8ns ~ 10s
	Window trigger	Signal source	CH1~CH4LA1~LA4
	Pattern trigger	Pattern	0:low level；1:high level；X:ignore；
		Level（signal source）	CH1~CH4
	Interval trigger	Slope	rise，fall
		condition(When)	<， >， !=， =
		Signal source	CH1~CH4,
			D1.0~D1.3,
			D2.0~D2.3,
			D3.0~D3.3,
			D4.0~D4.3
		Time rangeTime range	8ns ~ 10s
	Delay trigger	Edge type	Rising edge，falling edge
		Signal source	CH1~CH4
		condition(When)	<， >， !=， =

		Time range	8ns ~ 10s
	Set up hold trigger	Edge type	Rising edge，falling edge
		Signal source	CH1~CH4
		condition(When)	<，>，!=，=
		Time range	8ns ~ 10s
	Runt trigger	Polarity	Positive polarity，negative polarity
		Condition(When)	<，>，!=，=
		Signal source	CH1~CH4
		Time range	8ns ~ 10s
	UART trigger	condition(When)	start、stop、data、odd-even check、reception error
		Signal source(RX/TX)	CH1~CH4,
			D1.0~D1.3,
			D2.0~D2.3,
			D3.0~D3.3,
			D4.0~D4.3
		Data format	Hex（hexadecimal）
		Data length	1 byte
		Data bit width	5 bit，6 bit，7 bit，8 bit
		Odd-even check	none、odd、even
		Free level	high、low
		Baud rate (optional)	110/300/600/1200/2400/4800/9600/14400/19200/38400/57600 /115200/230400/380400/460400 bit/s
		Baud rate(user-defined)	300bit/s~334000bit/s
	LIN trigger	condition(When)	Interval field、synchronization field、ID field、synchronization error 、identifier、IDand data
		Signal source	CH1~CH4,
			D1.0~D1.3,
			D2.0~D2.3,
			D3.0~D3.3,
			D4.0~D4.3
		Data format	Hex（hexadecimal）

		Baud rate(optional)	110/300/600/1200/2400/4800/9600/14400/19200/38400/57600 /115200/230400/380400/460400 bit/s
		Baud rate(user-defined)	300bit/s~334000bit/s
	CAN trigger	condition(When)	Start bit、remote frame ID、data frame ID、frame ID、remote frame data、data frame data、wrong frame、all errors、answer error、overload frame
		Signal source	CH1~CH4
		Data format	Hex（hexadecimal）
		Baud rate(optional)	10000, 20000, 33300, 500000, 62500, 83300, 100000, 125000, 250000, 500000, 800000, 1000000
		Baud rate(user-defined)	5kbit/s~1Mbit/s
	SPI trigger	Signal source	CH1~CH4,
			D1.0~D1.3,
			D2.0~D2.3,
			D3.0~D3.3,
			D4.0~D4.3
		Data format	Hex（hexadecimal）
		Data bit width	4, 8, 16, 24, 32
	IIC trigger	Signal source (SDA/SCL)	CH1~CH4,
			D1.0~D1.3,
			D2.0~D2.3,
			D3.0~D3.3,
			D4.0~D4.3
		Data format	Hex（hexadecimal）
		Data index	0~7
		opportunity(condition)	Start bit、stop bit、no response、address、data、restart
Measurement	cursor		Voltage difference between cursors ΔV
			Time difference between cursors ΔT
			Reciprocal of ΔT, in Hertz（1/ΔT）

	Auto measurement	frequency、period、mean、peak-to-peak、RMS、minimum、mixmum、rising time、falling time、+ width、- width、base、top、middle、amplitude、overshoot、preshoot、rising edge phase difference、falling edge phase difference、+ duty、- duty、period mean、PRMS、FOVshoot、ROVshoot、BWIDTH、FRF、FFR、LRR、LRF、LFR、LFF	
	DVM	Data source	CH1，CH2，CH3，CH4
		Measurement type	DC effective value
			AC effective value
			DC
		Frequency meter	hardware 6 bits frequency meter
Arbitrary waveform generator			
Arbitrary waveform generator(for oscilloscopes with signal source channels)	Channel number	2channels	
	Sample rate	200MSa/s	
	Vertical resolution	12 bits	
	Maximum frequency	25 MHz	
	Standard waveforms	sin、square、pulse、triangular，noise、DC	
		Sinc、index、semi-distortion、lorentz，dual tone multiple frequency，gauss，ECG	
	Arbitrary waveform	Arb1，Arb2，Arb3，Arb4	
	Sin	Frequency range	0.1Hz~25MHz
	square/pulse	Frequency range	0.1Hz~10MHz
	triangular wave	Frequency range	0.1Hz~1MHz
	Sampling wave	Frequency range	0.1Hz~1MHz
	Index	Frequency range	0.1Hz~5MHz
	Semi-distortion	Frequency range	0.1Hz~1MHz
	lorentz	Frequency range	0.1Hz~1MHz
	Dual tone multiple frequency	Frequency range	0.1Hz~1MHz
	Gauss	Frequency range	0.1Hz~1MHz
	ECG	Frequency range	0.1Hz~1MHz
	Arbitrary wave	Frequency range	0.1 Hz to 10 MHz
	Waveform length	8KSa	
	Frequency	accuracy	100 ppm（<10 kHz） 50 ppm（>10 kHz）

		resolution	0.1 Hz or 4 bits，take the greater one
	Amplitude	Output range	10mV~7Vp-p(high impedance)
			5mV~3.5Vp-p(50Ω)
	DC offset	range	±3.5 V，high impedance
			±1.75 V，50 Ω
		resolution	100 μV or 3 bits，take the greater one
		accuracy	2%（1 kHz）
	Output impedance	50 Ω	
Logic analyzer			
Logic analyzer	Input impedance,DC coupling	Digital channel	
		(300KΩ±2%)，(8 pF±3 pF)	
	Threshold value	4 channels in 1 group adjustable threshold value	
	Threshold option	TTL（1.4 V）	
		5.0 V CMOS（+2.5 V）	
		3.3 V CMOS（+1.65 V）	
		2.5 V CMOS（+1.25 V）	
		1.8 V CMOS（+0.9 V）	
		ECL（-1.3 V）	
		PECL（+3.7 V）	
		LVDS（+1.2 V）	
		0V	
		User-defined	
	Threshold range	±7.0V，10mV step by step	
	Threshold accuracy	±(100mV+3% threshold setting)	
	Dynamic range	±5.0V+ threshold	
	Minimum voltage swing	500 mVpp	
	Vertical resolution	1 bit	
General specifications			
Display	Display type	7"TFT diagonal liquid crystal	
	Display resolution	800（horizontal）*480（vertical）pixels	

	Display colour		16 million colours（24 bits true colour）	
	Persistence time		minimum、1 s、5 s、10 s、30S、infinite	
	Display type		dot、vector	
	Display mode		Color temperature，gray scale	
	Display brightness		adjustable	
	Grid type		adjustable	
	Grid brightness		adjustable	
Interface	Standard interface		USB Host，USB Device，LAN，EDU signal WIFI	
			Aux（trigger output/PassFail ）--only EDU with this interface	
	Optional interface		PassFail	
			UART	
			HDMI	
General specifications	Probe compensator output			
	Output voltage，typical		about 2Vpp input≥1MΩ load	
	frequency、typical		1kHz	
	Power supply		100-120VACRMS(±10%)，45Hz to 440Hz，CAT Ⅱ	
			120-240VACRMS(±10%)，45Hz to 66Hz，CAT Ⅱ	
	Power consumption		<30W	
	Fuse		T，3.15A，250V，5x20mm	
	Operating temperature		0~50 °C (32~122 °F)	
	Storage temperature		-40~+71 °C (-40~159.8 °F)	
	Humidity		≤+104°F(≤+40°C): ≤90% relative humidity	
			106°F~122°F (+41°C ~50°C): ≤60% relative humidity	
	Cooling method		convection	
	Altitude		Operating and nonoperating	3，000m（10，000 feet）
	Mechanical shock		Random vibration	0.31 g_{RMS} from 50Hz to 500Hz,
				10 minutes on each axis
			Nonoperating	2.46g_{RMS} from 5Hz to 500Hz,
				10 minutes on each axis
			Operating	50g，11ms，half-sine wave
	Mechanical	Size	318 x 140 x 150mm(length x width x height)	

		Weight	2900g