

XDS3000 Dual-Channel Series Oscilloscopes Technical Specifications

Unless otherwise specified, the technical specifications applied are for XDS3000 dual-channel series only, and Probes attenuation set as 10X. Only if the oscilloscope fulfills the following two conditions at first, these specification standards can be reached.

- This instrument should run for at least 30 minutes continuously under the specified operating temperature.
- If change of the operating temperature is up to or exceeds 5°C, do a "Self-calibration" procedure.

All specification standards can be fulfilled, except one(s) marked with the word "Typical".

Oscilloscope

Performance Characteristics	Instruction		
Bandwidth	XDS3062A	60 MHz	
	XDS3102(A) XDS3112	100 MHz	
	XDS3102AP	8 bits mode	100 MHz
		12 bits mode	
		14 bits mode	25 MHz
	XDS3202E	200 MHz	
	XDS3202A	8 bits mode	200 MHz
		12 bits mode	150 MHz
		14 bits mode	20 MHz
XDS3202	200 MHz		
XDS3302	300 MHz		
Vertical Resolution (A/D)	XDS3062A	12 bits	
	XDS3102A	12 bits	
	XDS3102AP	14 bits	
	XDS3102	8 bits	
	XDS3202E	8 bits	
	XDS3202A	14 bits	
	XDS3112 XDS3202	8 bits	
	XDS3302	8 bits	
Channel	2 + 1 (External)		
Waveform Refresh Rate	XDS3102 XDS3102A XDS3202E	56,000 wfms/s	
	XDS3112 XDS3202 XDS3302	68,000 wfms/s	

Performance Characteristics		Instruction			
		XDS3062A XDS3102AP XDS3202A	75,000 wfms/s		
Multi-level Gray Scale Display & Color Temperature Display (Use gray scale to indicate frequency of occurrence, where frequently occurring waveform are bright.)		XDS3062A XDS3102A	Not support		
		XDS3102AP XDS3102 XDS3112 XDS3202E XDS3202A XDS3202 XDS3302	Support		
Magnifier Function (The magnifier window can display the magnified wave of the wave selection.)		XDS3062A XDS3102A XDS3102 XDS3112 XDS3202E XDS3202 XDS3302	Not support		
		XDS3102AP XDS3202A	Support (the touchscreen should be configured)		
Acquisition	Mode	Normal, Peak detect, Averaging			
	Sample rate (real time)	XDS3062A XDS3102A	Dual CH	500 MS/s	
			Single CH	8 bits mode	1 GS/s
		12 bits mode		500 MS/s	
		XDS3102	Dual CH	500 MS/s	
			Single CH	1 GS/s	
		XDS3202E	Dual CH	500 MS/s	
			Single CH	1 GS/s	
		XDS3102AP XDS3202A	Dual CH	8 bits mode	1 GS/s
				12 bits mode	500 MS/s
				14 bits mode	100 MS/s
		XDS3112 XDS3202	Single CH	8 bits mode	1 GS/s
				12 bits mode	500 MS/s
				14 bits mode	100 MS/s
XDS3302	Dual CH	1.25 GS/s			
	Single CH	2.5 GS/s			

Performance Characteristics		Instruction			
Input	Input coupling	DC, AC, Ground			
	Input impedance	XDS3062A XDS3102(A) XDS3202E	1 MΩ±2%, in parallel with 15 pF±5 pF		
		XDS3102AP XDS3112 XDS3202(A) XDS3302	1 MΩ±2%, in parallel with 15 pF±5 pF; 50Ω ± 2%		
	Probe attenuation factor	0.001X - 1000X, step by 1 – 2 - 5			
	Max input voltage	1MΩ: ≤300 Vrms; 50Ω: ≤5 Vrms (For certain models)			
	Bandwidth limit	20 MHz, full bandwidth			
	Channel to channel isolation	50Hz: 100 : 1 10MHz: 40 : 1			
	Time delay between channel (typical)	150ps			
	Horizontal System	Sampling rate range	XDS3062A XDS3102A	Dual CH	0.05 S/s~500 MS/s
Single CH				8 bits mode	0.05 S/s~1 GS/s
				12 bits mode	0.05 S/s~500 MS/s
XDS3102			Dual CH	0.05 S/s~500 MS/s	
			Single CH	0.05 S/s~1 GS/s	
XDS3202E			Dual CH	0.05 S/s~500 MS/s	
			Single CH	0.05 S/s~1 GS/s	
XDS3102AP XDS3202A			Dual CH	8 bits mode	0.05 S/s~1 GS/s
				12 bits mode	0.05 S/s~500 MS/s
				14 bits mode	0.05 S/s~100 MS/s
			Single CH	8 bits mode	0.05 S/s~1 GS/s
				12 bits mode	0.05 S/s~500 MS/s
				14 bits mode	0.05 S/s~100 MS/s
XDS3112 XDS3202			Dual CH	0.05 S/s~1 GS/s	
	Single CH	0.05 S/s~2 GS/s			

Performance Characteristics		Instruction		
		XDS3302	Dual CH	0.05 S/s~1.25 GS/s
			Single CH	0.05 S/s~2.5 GS/s
	Interpolation	(Sinx)/x, x		
	Max Record length	40M		
	Scanning speed (S/div)	XDS3062A	2ns/div - 1000s/div, step by 1 - 2 - 5	
		XDS3102(A)		
		XDS3102AP		
XDS3112		1ns/div - 1000s/div, step by 1 - 2 - 5		
XDS3202E XDS3202(A) XDS3302				
Sampling rate / relay time accuracy	± 1ppm (Typical, Ta = +25°C)			
Interval(ΔT) accuracy (DC - 100MHz)	Single: ± (1 interval time+1 ppm×reading+0.6 ns); Average>16: ± (1 interval time +1 ppm×reading+0.4 ns)			
Vertical system	Sensitivity	1 mV/div~10 V/div		
	Displacement	XDS3062A XDS3102(A) XDS3102AP XDS3202A	±2 V (1 mV/div - 50 mV/div); ±20 V (100 mV/div - 1 V/div); ±200 V (2 V/div - 10 V/div)	
		XDS3112 XDS3202E XDS3202 XDS3302	±2 V (1 mV/div - 50 mV/div); ±20 V (100 mV/div - 500 mV/div); ±250 V (1 V/div - 10 V/div)	
	Analog bandwidth	60 MHz, 100 MHz, 200 MHz, 300 MHz		
	Single bandwidth	Full bandwidth		
	Low Frequency	≥ 10 Hz (at input, AC coupling, -3 dB)		
	Rise time (at input, Typical)	XDS3062A	≤ 5.8 ns	
		XDS3102A XDS3112	≤ 3.5 ns	
		XDS3102AP	8 bits mode	≤ 3.5 ns
			12 bits mode	≤ 14 ns
XDS3102		≤ 3.5 ns		
XDS3202E		≤ 1.75 ns		
XDS3202A		8 bits mode	≤ 1.75 ns	
	12 bits mode	≤ 2.33 ns		
	14 bits mode	≤ 17.5 ns		

Performance Characteristics		Instruction		
		XDS3202	≤ 1.75 ns	
		XDS3302	≤ 1.17 ns	
	DC gain accuracy	XDS3062A	1 mV	3%
		XDS3102A	2 mV	2%
		XDS3102AP XDS3202A	≥ 5 mV	1.5%
		XDS3102 XDS3112 XDS3202E XDS3202 XDS3302	1 mV ≥ 2 mV	3% 2%
DC accuracy (average)	Delta Volts between any two averages of ≥16 waveforms acquired with the same scope setup and ambient conditions (ΔV): $\pm(3\% \text{ rdg} + 0.05 \text{ div})$			
Waveform inverted ON/OFF				
Measurement	Cursor	ΔV , ΔT , $\Delta T \& \Delta V$ between cursors, auto cursor		
	Automatic	Period, Frequency, Mean, PK-PK, RMS, Max, Min, Top, Base, Amplitude, Overshoot, Preshoot, Rise Time, Fall Time, +Pulse Width, -Pulse Width, +Duty Cycle, -Duty Cycle, Delay A→B Φ , Delay A→B Ψ , Cycle RMS, Cursor RMS, Screen Duty, Phase, +Pulse Count, FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF, -Pulse Count, Rise Edge Count, Fall Edge Count, Area, and Cycle Area		
	Waveform Math	+, -, *, / ,FFT, FFTrms, Intg, Diff, Sqrt, User Defined Function, digital filter (low pass, high pass, band pass, band reject)		
	Decoding Type (optional)	RS232, I2C, SPI, CAN		
	Waveform storage	100 waveforms		
	Lissajous figure	Bandwidth	Full bandwidth	
	Phase difference	±3 degrees		
Communication port	Standard	USB, USB Host (USB storage) ; Trig Out(P/F); LAN port		
	Optional	VGA port and AV port		
Counter	Support			

Trigger

Performance Characteristics		Instruction					
Trigger level range	Internal	±5 div from the screen center					
	EXT	±2 V					
	EXT/5	±10V					
Trigger level Accuracy (typical)	Internal	±0.3 div					
	EXT	± (10 mV + 6% of Set Value)					
	EXT/5	± (50 mV +6% of Set Value)					
Trigger displacement	According to Record length and time base						
Trigger Holdoff range	100 ns – 10 s						
50% level setting (typical)	Input signal frequency ≥ 50 Hz						
Edge trigger	slope	Rising, Falling					
Video Trigger	Modulation	Support standard NTSC, PAL and SECAM broadcast systems					
	Line number range	1-525 (NTSC) and 1-625 (PAL/SECAM)					
Pulse trigger	Trigger condition	Positive pulse: >, <, = Negative pulse: >, <, =					
	Pulse Width range	30 ns to 10 s For XDS3102AP/XDS3202A, the range is <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>8 bits mode</td> <td>2 ns to 10 s</td> </tr> <tr> <td>12 bits mode</td> <td>4 ns to 10 s</td> </tr> <tr> <td>14 bits mode</td> <td>20 ns to 10 s</td> </tr> </table>	8 bits mode	2 ns to 10 s	12 bits mode	4 ns to 10 s	14 bits mode
8 bits mode	2 ns to 10 s						
12 bits mode	4 ns to 10 s						
14 bits mode	20 ns to 10 s						
Slope Trigger	Trigger condition	Positive pulse: >, <, = Negative pulse: >, <, =					
	Time setting	30 ns to 10 s For XDS3102AP/XDS3202A, the range is <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>8 bits mode</td> <td>2 ns to 10 s</td> </tr> <tr> <td>12 bits mode</td> <td>4 ns to 10 s</td> </tr> <tr> <td>14 bits mode</td> <td>20 ns to 10 s</td> </tr> </table>	8 bits mode	2 ns to 10 s	12 bits mode	4 ns to 10 s	14 bits mode
8 bits mode	2 ns to 10 s						
12 bits mode	4 ns to 10 s						
14 bits mode	20 ns to 10 s						
Runt Trigger	Polarity	Positive, Negative					
	Pulse Width Condition	>, =, <					
	Pulse Width Range	30 ns to 10 s For XDS3102AP/XDS3202A, the range is <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>8 bits mode</td> <td>2 ns to 10 s</td> </tr> <tr> <td>12 bits mode</td> <td>4 ns to 10 s</td> </tr> <tr> <td>14 bits mode</td> <td>20 ns to 10 s</td> </tr> </table>	8 bits mode	2 ns to 10 s	12 bits mode	4 ns to 10 s	14 bits mode
8 bits mode	2 ns to 10 s						
12 bits mode	4 ns to 10 s						
14 bits mode	20 ns to 10 s						
Windows Trigger	Polarity	Positive, Negative					
	Trigger Position	Enter, Exit, Time					

	Windows Time	30 ns to 10 s For XDS3102AP/XDS3202A, the range is <table border="1"> <tr> <td>8 bits mode</td> <td>2 ns to 10 s</td> </tr> <tr> <td>12 bits mode</td> <td>4 ns to 10 s</td> </tr> <tr> <td>14 bits mode</td> <td>20 ns to 10 s</td> </tr> </table>	8 bits mode	2 ns to 10 s	12 bits mode	4 ns to 10 s	14 bits mode	20 ns to 10 s
8 bits mode	2 ns to 10 s							
12 bits mode	4 ns to 10 s							
14 bits mode	20 ns to 10 s							
Timeout Trigger	Edge Type	Rising, Falling						
	Idle Time	30 ns to 10 s For XDS3102AP/XDS3202A, the range is <table border="1"> <tr> <td>8 bits mode</td> <td>2 ns to 10 s</td> </tr> <tr> <td>12 bits mode</td> <td>4 ns to 10 s</td> </tr> <tr> <td>14 bits mode</td> <td>20 ns to 10 s</td> </tr> </table>	8 bits mode	2 ns to 10 s	12 bits mode	4 ns to 10 s	14 bits mode	20 ns to 10 s
8 bits mode	2 ns to 10 s							
12 bits mode	4 ns to 10 s							
14 bits mode	20 ns to 10 s							
Nth Edge Trigger	Edge Type	Rising, Falling						
	Idle Time	30 ns to 10 s						
	Edge Number	1 to 128						
Logic Trigger	Logic Mode	AND, OR, XNOR, XOR						
	Input Mode	H, L, X, Rising, Falling						
	Output Mode	Goes True, Goes False, Is True >, Is True <, Is True =						
RS232 Trigger	Polarity	Normal, Inverted						
	Trigger Condition	Start, Error, Check Error, Data						
	Baud Rate	Common, Custom						
	Data Bits	5 bit, 6 bit, 7 bit, 8 bit						
I2C Trigger	Trigger Condition	Start, Restart, Stop, ACK Lost, Address, Data, Addr/Data						
	Address Bits	7 bit, 8 bit, 10 bit						
	Address Range	0 to 127, 0 to 255, 0 to 1023						
	Byte Length	1 to 5						
SPI Trigger	Trigger Condition	Timeout						
	Timeout Value	30 ns to 10 s						
	Data Bits	4 bit to 32 bit						
	Data Line Setting	H, L, X						
CAN Trigger (optional)	Signal Type	CAN_H, CAN_L, TX, RX						
	Trigger Condition	Start of Frame, Type of Frame, Identifier, Data, ID & Data, End of Frame, Missing Ack, Bit Stuffing Error						
	Baud Rate	Common, Custom						
	Sample Point	5% to 95%						
	Frame Type	Data, Remote, Error, Overload						

Waveform Generator (Optional)

Performance Characteristics	Instruction
Max Frequency Output	25 MHz
Sample rate	125 MSa/s

Performance Characteristics	Instruction
Channel	1-CH or 2-CH (optional) Note: Only 2-CH optional AG available for XDS3202(A), XDS3302.
Vertical Resolution	14 bits
Amplitude Range	2 mVpp - 6 Vpp
Waveform length	8K
Standard Waveforms	Sine, Square, Ramp, and Pulse

Multimeter (Optional)

Performance Characteristics	Instruction
Full scale reading	3¾ digits (Max 4000 – count)
Diode	0 V - 1 V
Input impedance	10 MΩ
On/Off measurement	<50(±30)Ω beeping
Capacitance	51.2nF - 100uF: ±(3%±3 digit)
Voltage	DCV: 400mV, 4V, 40V, 400V, 1000V: ±(1%±1digit) Max. input: DC 1000V ACV: 400mV, 4V, 40V, 400V: ±(1%±3digit) 750V: ±(1.5%±3digit) Frequency: 40Hz - 400Hz, Max. input: AC 750V (virtual value)
Current	DCA: 40mA, 400mA: ±(1.5%±1 digit) 4A, 10A: ±(3%±3digit) ACA: 40mA: ±(1.5%±3digit) 400mA: ±(2%±1digit) 4A, 10A: ±(3%±3digit)
Impedance	400Ω: ±(1%±3digit) 4KΩ~4MΩ: ±(1%±1digit) 40MΩ: ±(1.5%±3digit)

General Technical Specifications

Display

Display Type	8" Colored LCD (Liquid Crystal Display)
Display Resolution	800 (Horizontal) × 600 (Vertical) Pixels
Display Colors	65536 colors, TFT screen

Output of the Probe Compensator

Output Voltage (Typical)	About 5 V, with the Peak-to-Peak voltage $\geq 1 \text{ M}\Omega$.
Frequency (Typical)	Square wave of 1 KHz

Power

Mains Voltage	100V - 240 VACRMS, 50/60 Hz, CAT II	
Power Consumption	XDS3062A XDS3102(A) XDS3102AP XDS3112 XDS3202E XDS3202(A) XDS3302	< 24 W
Fuse	2 A, T class, 250 V	
Battery (optional)	3.7V, 13200mAh	
	<ul style="list-style-type: none"> ● On XDS3062A, XDS3102(A), the battery can last approximately 3.5 hours after charge fully. ● On XDS3202(E), XDS3302, the battery can last approximately 2.5 hours after charge fully. 	

Environment

Temperature	Working temperature: 0 °C - 40 °C Storage temperature: -20 °C - 60 °C
Relative Humidity	$\leq 90\%$
Height	Operating: 3,000 m Non-operating: 15,000 m
Cooling Method	Fan cooling

Mechanical Specifications

Dimension	340 mm× 177 mm×90 mm (L*H*W)
Weight	Approx. 2.6 kg (without accessories)

Interval Period of Adjustment:

One year is recommended for the calibration interval period.



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※: The illustrations, interface, icons and characters in the user manual may be slightly different from the actual product. Please refer to the actual product.