

Digitizing Oscilloscopes

TDS Series Selection Guide: See page 60 for Footnote Explanations

	TDS 210*13	TDS 220*13	TDS 340A	TDS 360	TDS 380	TDS 420A	TDS 430A	TDS 460A	
SIGNAL ACQUISITION SYSTEM									
Bandwidth	60 MHz	100 MHz	100 MHz	200 MHz	400 MHz	200 MHz	400 MHz	400 MHz	
Channels	2	2	2	2	2	4	2	4	
Sample Rate:	1-CH 2-CH 3- and 4-CH	1 GS/s 1 GS/s	500 MS/s 500 MS/s	1GS/s 1GS/s	2GS/s 2GS/s	100 MS/s 100 MS/s 100 MS/s	100 MS/s 100 MS/s	100 MS/s 100 MS/s 100 MS/s	
Record Length:	Standard Optional	2.5 K pts. -	1 K pts. -	1 K pts. -	1 K pts. -	30 K pts. 120 K pts.	30 K pts. 120 K pts.	30 K pts. 120 K pts.	
Vert. Resolution:	Normal w/ Averaging w/ HiRes	8-Bits 8-Bits	8-Bits 11-Bits	8-Bits 11-Bits	8-Bits 11-Bits	8-Bits 11-Bits ≥12-Bits	8-Bits 11-Bits ≥12-Bits	8-Bits 11-Bits ≥12-Bits	
Vert. Sensitivity (/div)	2 mV to 5 V	2 mV to 5 V		2 mV to 10 V			1 mV to 10 V		
Vertical Accuracy	±3%	±3%	±2%	±2%	±2%	±1.5%	±1.5%	±1.5%	
Max Input Voltage (1MΩ)	±300 V	±300 V	±400 V	±400 V	±400 V	±400 V	±400 V	±400 V	
Linear Dynamic Range	±5 div	±5 div	±5 div	±5 div	±5 div	±5 div	±5 div	±5 div	
BW Limit	20 MHz	20 MHz	20 MHz	20 MHz	20 MHz	20, 100 MHz	20, 100 MHz	20, 100 MHz	
Time Base:	Range Accuracy	5 ns to 5s 100 ppm	5 ns to 5s 100 ppm	5 ns to 5 s 100 ppm	2.5 ns to 5 s 100 ppm	1 ns to 5 s 100 ppm 50 ppm	1 ns to 20 s 50 ppm	1 ns to 20 s 50 ppm	
Peak Detection	10 ns	10 ns	10 ns	10 ns	10 ns	10 ns	10 ns	10 ns	
FastFrame™*4	-	-	-	-	-	-	-	-	
Roll Mode*5	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	
Channel Deskew	-	-	-	-	-	-	-	-	
InstaVu™ Acq. Mode	-	-	-	-	-	-	-	-	
Trigger Conditioning	HF, LF, Noise Reject			HF, LF, Noise Reject			HF, LF, Noise Reject		
Types:	Edge Pattern/State Setup & Hold Pulse Width Glitch Runt Pulse Slew Rate Time Out Comm External Video*6	Std. Std. - - - - - - - Std. Std.	Std. Std. - - - - - - - Std. Std.	Std. Std. - - - - - - - Std. Std.	Std. Std. - - - - - - - Std. Std.	Std. Std. - - - - - - - Std. Std.	Std. Std. - - - - - - - Std. Std.	Std. Std. - - - - - - - Std. Std.	
Modes: Delay by Time/Event	By Time only	By Time only	By Time only	By Time only	By Time only	By Time only	By Time only	By Time only	
Auto. Measurements	5	5	21	21	21	25	25	25	
Math	+ , - , inv	+ , - , inv	+ , - , x	+ , - , x	+ , - , x		+ , - , x , inv		
Envelope	-	-	Std.	Std.	Std.	Std.	Std.	Std.	
Average	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	
Interpolation*7	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	
FFT, Int., Diff.	-	-	Std.*8	Std.*8	Std.*8	Opt.	Opt.	Opt.	
Limit Test	-	-	-	-	-	Std.	Std.	Std.	
Display Monitor	Mono	Mono	Mono	Mono	Mono	Mono	Mono	Mono	
Display Modes: Var. Persist.	Two Level	Two Level	Two Level	Two Level	Two Level	Gray Scale	Gray Scale	Gray Scale	
Inf. Persist. Vectors.									
Dots, YT, XY	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	
Waveform Capture Rate*9	180 wfms/s	180 wfms/s	86 wfms/s	86 wfms/s	86 wfms/s	200 wfms/s	200 wfms/s	200 wfms/s	
GENERAL									
Data Ports:	VGA Out GPIB RS232 Centronics	- Opt. Opt. Opt.	- Opt. Opt. Opt.	- Opt. Opt. Opt.	- Opt. Opt. Opt.	- Opt. Opt. Opt.	Std. Std. Opt.*11 Opt.*11	Std. Std. Opt.*11 Opt.*11	Std. Std. Opt.*11 Opt.*11
Hardcopy/Export Formats*12	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	
Disk Drive (3.5 in.)	-	-	Std.	Std.	Std.	Std.	Std.	Std.	
On-line Help	-	Std.	-	-	-	Std.	Std.	Std.	
Standard Probes	2 ea P6112 100MHz, 10X Passive	2 ea P6112 100MHz, 10X Passive	2 ea. P6109B	2 ea. P6111B	2 ea. P6114B	4 ea. P6138A 400MHz, 10X Passive	2 ea. P6138A 400MHz, 10X Passive	4 ea. P6138A 400MHz, 10X Passive	

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TDS 510A	TDS 520C	TDS 540C	TDS 620B	TDS 644B	TDS 680B	TDS 684B	TDS 724C	TDS 754C	TDS 784C	TDS 820
500 MHz	500 MHz	500 MHz	500 MHz	500 MHz	1 GHz	1 GHz	500 MHz	500 MHz	1 GHz	6-8 GHz* ¹¹
4	2+2	4	2+2	4	2+2	4	2+2	4	4	2
500 MS/s	1 GS/s	2 GS/s	2.5 GS/s	2.5 GS/s	5 GS/s	5 GS/s	1 GS/s	2 GS/s	4 GS/s	50kS/s
500 MS/s	500 MS/s	1 GS/s	2.5 GS/s	2.5 GS/s	5 GS/s	5 GS/s	500 MS/S	2 GS/s	2 GS/s	50kS/s
250 MS/s	-	500 MS/s	-	2.5 GS/s	-	5 GS/s	-	1 GS/s	1 GS/s	-
50 K pts	50 K pts.	50 K pts.	15 K pts.	15 K pts.	15 K pts.	15 K pts.	50 K pts.	50 K pts.	50 K pts.	15 K pts.
-	4M pts.* ²	8M pts.* ²	-	-	-	-	4M pts.* ²	8M pts.* ³	8M pts.* ³	-
8-Bits	8-Bits	8-Bits	8-Bits	8-Bits	8-Bits	8-Bits	8-Bits	8-Bits	8-Bits	14-Bits
11-Bits	11-Bits	11-Bits	11-Bits	11-Bits	11-Bits	11-Bits	11-Bits	11-Bits	11-Bits	-
≥13-Bits	≥13-Bits	≥13-Bits	-	-	-	-	≥13-Bits	≥13-Bits	≥13-Bits	-
	1 mV to 10 V			1 mV to 10 V				1 mV to 10 V		2mV to 200mV* ¹¹
±1%	±1%	±1%	±1.5%	±1.5%	±1.5%	±1.5%	±1%	±1%	±1%	±0.7%
±400 V	±400 V	±400 V	±400 V	±400 V	±400 V	±400 V	±400 V	±400 V	±400 V	±6 V* ¹¹
±5 div	±5 div	±5 div	±5 div	±5 div	±5 div	±5 div	±5 div	±5 div	±5 div	±5 div
	20, 100 MHz			20, 250 MHz				20, 250 MHz		-
500 ps to 10 s				200 ps to 10 s			500 ps to 10 s	500 ps to 10 s	200 ps to 10 ms	20 ps to 2 ms
25 ppm				100 ppm			25 ppm	25 ppm	25 ppm	0.1% +15 ps
2 ns	1 ns	1 ns	1 ns	1 ns	1 ns	1 ns	1 ns	1 ns	1 ns	-
-	372 frames	372 frames	-	-	-	-	372 frames	372 frames	372 frames	-
-	-	-	-	-	-	-	-	-	-	-
-	±25 ns	±25 ns	±25 ns	±25 ns	±25 ns	±25 ns	±25 ns	±25 ns	±25 ns	-
-	Std.	Std.	-	-	-	-	Std.	Std.	Std.	-
	HF, LF, Noise Reject			HF, LF, Noise Reject				HF, LF, Noise Reject		-
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
4 inputs	4 inputs	4 inputs	4 inputs	4 inputs	4 inputs	4 inputs	4 inputs	4 inputs	4 inputs	-
-	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	-
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	-
1 ns	1 ns	1 ns	2 ns	2 ns	2 ns	2 ns	1 ns	1 ns	1 ns	-
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	-
-	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	-
-	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	-
-	Opt.	Opt.	-	-	-	-	Opt.	Opt.	Opt.	-
Opt.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Std.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	-
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	-
25	29	29	25	25	25	25	29	29	29	27
	+ , - , x , ÷ , inv			+ , - , x , ÷ , inv				+ , - , x , ÷ , inv		+ , - , x , ÷ , inv
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Opt.	Opt.	Opt.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Opt.
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Mono	Mono	Mono	Mono	Color	Mono	Color	Color	Color	Color	Mono
	Gray Scale		Gray Scale	Color Grade	Gray Scale	Color Grade		Color Grade		Gray Scale
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
150 wfms/s	≥180,000* ¹⁰	≥400,000* ¹⁰	145 wfms/s	145 wfms/s	145 wfms/s	145 wfms/s	≥180,000 wfms/s* ¹⁰	≥400,000 wfms/s* ¹⁰	≥400,000 wfms/s* ¹⁰	35 wfms/s
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	-
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Opt.* ¹¹	Opt.* ¹¹	Opt.* ¹¹	Std.* ¹¹	Std.* ¹¹	Std.* ¹¹	Std.* ¹¹	Std.* ¹¹	Std.* ¹¹	Std.* ¹¹	Opt.* ¹¹
Opt.	Opt.	Opt.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Opt.
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	-
Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
4 ea.	2 ea.	4 ea.	2 ea.	4 ea.	None	None	2 ea.	4 ea.	None	2 ea. P6207
	P6139A 500MHz,10X Passive		P6139A	P6243			P6139A 500MHz,10X Passive			4GHz,10X FET

* to ** See page 60.