

Pulse Width Range	8 ns to 10 s 4ns - 10s, B,E
Window Trigger (Option)	2 level threshold trigger
Window Type	Rising, Falling, Rising/Falling
Trigger Position	Enter, Exit, Time
Window Time	8 ns to 10 s 4ns - 10s, B,E
Nth Edge Trigger (Option)	in-between trigger, B,E
Edge Type	Rising, Falling
Idle Time	16 ns to 10 s 4ns - 10s, B,E
Edge Number	1 to 65535
Slope Trigger	
Slope Condition	Positive Slope (greater than, lower than, within specific interval) Negative Slope (greater than, lower than, within specific interval)
Time Setting	8 ns to 10 s 4ns - 10s, B,E
Video Trigger	HDTV 720p, 1080i, 1080p on B,E
Signal Standard	NTSC, PAL/SECAM, 480P, 576P
Pattern Trigger	logic trigger
Pattern Setting	H, L, X, Rising, Falling no 'timer' trigger, B,E
Delay Trigger (Option)	between 2 channels, B,E
Edge Type	Rising, Falling
Delay Type	>, <, <>, ><
Delay Time	8 ns to 10 s 4ns - 10s, B,E
TimeOut Trigger (Option)	logic
Edge Type	Rising, Falling, Rising/Falling
Timeout time	16 ns to 10 s
Duration Trigger (Option)	4 ch logic
Pattern	H, L, X
Trigger Condition	>, <, <>
Duration Time	8 ns to 10 s
Setup/Hold Trigger (Option)	logic transition
Edge Type	Rising, Falling
Data Type	H, L, X
Setup Time	8 ns to 1 s
Hold Time	8 ns to 1 s
RS232/UART Trigger (Option)	
Polarity	Normal, Invert
Trigger Condition	Start, Error, Check Error, Data
Baud Rate	2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps, 230400bps, 460800bps, 921600bps, 1Mbps and User

Data Bits	5 bit, 6 bit, 7 bit, 8 bit
I2C Trigger (Option)	
Trigger Condition	Start, Restart, Stop, Missing ACK, Address, Data, A&D
Address Bits	7 bits, 8 bits, 10 bits
Address Range	0x0 to 0x7F, 0x0 to 0xFF, 0x0 to 1023
Byte Length	1 to 5
SPI Trigger (Option)	
Trigger Condition	Timeout, CS
Timeout Value	16 ns to 10 s
Data Bits	4 bit to 32 bit
Data Line Setting	H, L, X

Measure

Cursor	Manual Mode	Voltage Deviation between Cursors (ΔV) Time Deviation between Cursors (ΔT) Reciprocal of ΔT (Hz) ($1/\Delta T$)
	Track Mode	Voltage and Time Values of the Waveform Point
	Auto Mode	Allow to display cursors during auto measurement
Auto Measurement	Analog channel: Period, Frequency, Rise Time, Fall Time, Positive Pulse Width, Negative Pulse Width, Positive Duty Cycle, Negative Duty Cycle, t_{Vmax} , t_{Vmin} , Positive Rate, Negative Rate, Delay 1 \rightarrow 2 f , Delay 1 \rightarrow 2 t , Phase 1 \rightarrow 2 f , Phase 1 \rightarrow 2 t , Maximum, Minimum, Peak-Peak Value, Top Value, Bottom Value, Amplitude, Upper Value, Middle Value, Lower Value, Average, Mean Square Root, Overshoot, Pre-shoot, Area, Period Area, Variance Digital channel: Frequency, Period, Positive Pulse Width, Negative Pulse Width, Positive Duty Cycle, Negative Duty Cycle, Delay 1 \rightarrow 2 f , Delay 1 \rightarrow 2 t , Phase 1 \rightarrow 2 f , Phase 1 \rightarrow 2 t B,E does auto also on static buffer	
Number of Measurements	Display 5 measurements at the same time. 8 at time, B,E	
Measurement Range	Screen or cursor	buffer, B,E
Measurement Statistic	Average, Max, Min, Standard Deviation, Number of Measurements	
Frequency Counter	Hardware 6 bit frequency counter (channels are selectable)	

Math Operation

Waveform Operation	A+B, A-B, A×B, A/B, FFT, A&&B, A B, A^B, !A, intg, Diff, Sqrt, Lg, Ln, Exp, Abs B,E user defined same functions but with variables
FFT Window Function	Rectangle, Hanning, Blackman, Hamming, Flat Top, Triangle
FFT Display	Half, Full
FFT Vertical Scale	dB/dBm, Vrms
Number of Buses for Decoding	2
Decoding Type	Parallel (standard), RS232/UART (option), I2C (option), SPI (option) X

Display

Screen Type	7.0 inch (203 mm) TFT LCD display 7, B, 8 E
Display Resolution	800 Horizontal ×RGB×480 Vertical Pixel
Display Color	160,000 Color (TBD) not specified in B,E
Persistence Time	Min, 100 ms, 200 ms, 500 ms, 1 s, 5 s, 10 s, Infinite
Display Type	Dots, Vectors

I/O

Standard Ports	USB HOST, USB Device, LAN, Aux Output (TrigOut/PassFail), GPIB (use USB HOST interface to expand)
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E: real time clock

Signal Source (MSO1000Z-S/DS1000Z-S) not applicable

Channels	2	
Sample Rate	200 MSa/s	
Vertical Resolution	14 bits	
Max. Frequency	25 MHz	
Standard Waveform	Sine, Square, Pulse, Ramp, Noise, DC	
Built-in Waveform	Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, Lorentz, Haversine	
Sine	Frequency Range	0.1 Hz to 25 MHz
	Flatness	±0.5 dB (relative to 1 kHz)
	Harmonic Distortion	-40 dBc
	Stray	-40 dBc

not applicable		
	(Non-harmonic)	
	Total Harmonic Distortion	1%
	S/N Ratio	40 dB
Square/Pulse	Frequency Range	0.1 Hz to 15 MHz
	Rise/Fall Time	<15 ns
	Overshoot	<5%
	Duty Cycle	10% to 90%
	Duty Cycle Resolution	1% or 10 ns (the larger of the two)
	Min. Pulse Width	20 ns
	Pulse Width Resolution	10 ns or 5 bits (the larger of the two)
	Jitter	500 ps
Ramp	Frequency Range	0.1 Hz to 100 kHz
	Linearity	1%
	Symmetry	0 to 100%
Noise ^[1]	Bandwidth	25 MHz
Built-in Waveform	Frequency Range	0.1 Hz to 1 MHz
Arbitrary Waveform	Frequency Range	0.1 Hz to 10 MHz
	Waveform Length	2 to 16k points
Frequency	Accuracy	100 ppm (lower than 10 kHz) 50 ppm (higher than 10 kHz)
	Resolution	0.1 Hz or 4 bits, the larger of the two
Amplitude	Output Range	20 mVpp to 5 Vpp, HighZ 10 mVpp to 2.5 Vpp, 50 Ω
	Resolution	100 μ V or 3 bits, the larger of the two
	Accuracy	2% (1 kHz)
DC Offset	Range	± 2.5 V, HighZ ± 1.25 V, 50 Ω
	Resolution	100 μ V or 3 bits, the larger of the two
	Accuracy	2% (1 kHz)

General Specifications

Probe Compensation Output		
Output Voltage ^[1]	About 3 V, peak-peak	B,E: 2Vpp, variable square wave at 1kHz-200kHz
Frequency ^[1]	1 kHz	
Power		
Power Voltage	100 V-240 V, 45 Hz-440 Hz	B,E: 100 - 240VAC, 50 - 60Hz, auto selection. 30 Watts.
Power	Maximum 50 W	
Fuse	2 A, T degree, 250 V	not specified, B,E
Environment	B,E: Temperature: 0°C to 50°C. Relative Humidity ≤ 80% at 40°C or below; ≤ 45% at 41°C ~ 50°C	
Temperature	Operating: 0 °C to +50 °C	
Range	Non-operating: -40 °C to +70 °C	
Cooling Method	Fan cooling	
Humidity Range	0 °C to +30 °C: ≤95% Relative Humidity	
	+30 °C to +40 °C: ≤75% Relative Humidity	
	+40 °C to +50 °C: ≤45% Relative Humidity	
Altitude	Operating: under 3,000 meters	B,E: Altitude: < 2000m
	Non-operating: under 15,000 meters	not specified
Physical Characteristics		
Size ^[4]	Width×Height×Depth = 313.1 mm× 160.8 mm×122.4 mm	
Weight ^[4]	Package Excluded	3.2 kg±0.2 kg
	Package Included	3.8 kg±0.5 kg
Calibration Interval ✓		
The recommended calibration interval is one year.		
Regulatory Information X B,E: not NRTL agency certified, CE ONLY		
Electromagnetic Compatibility	2004/108/EC Execution standard EN 61326-1:2006 EN 61326-2-1:2006	
Safety	UL 61010-1:2004; CAN/CSA-C22.2 NO. 61010-1-2004; EN 61010-1:2001; IEC 61010-1:2001	

Note^[1]: Typical.

Note^[2]: Maximum value. 50ns, single-channel mode, dots display, auto memory depth.

Note^[3]: Supporting legs and handle folded, knob height included.

Note^[4]: Standard configuration.