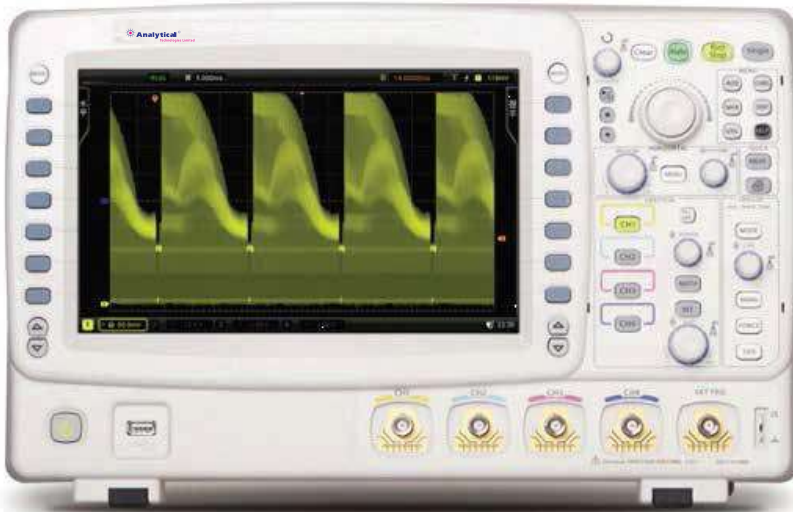# Digital Oscilloscope
DO-3600 series

- Bandwidth: 4GHz, 600MHz
- Sample Rate: up to 40 GS/s
- Channels: 2 or 4
- Memory: Auto
- Waveform capture rate: Up to 180,000 waveforms per second,
- Real Time Wavefrom Record, Replay & Analysis(Std. up to 200,000 frames)
- Innovative "Ultra Vision" technology
- A variety of trigger functions and Automatic measurements with statistics
- Support serial bus trigger(Std.) and decoding(Opt.)
- Dedicated data search knob "Wave Finder"
- Battery Option (China Only)
- Complete Connectivity: USB, LAN(LXI-C), VGA, AUX, GPIB(Option)
- Built-in 1 GBytes Flash Memory
- 10.1 inch WVGA(800 x 480) Display

DO-3600 series adopt many today's new technologies to achieve high performance, abundant features in the same class. It's designed to aim at the requirements of the largest digital oscilloscope market segment from the communications, semiconductor, computing, aerospace defense, instrumentation, research/education, industrial electronics, consumer electronics and automotive industries with its innovetive technology, industry leading specifications, powerful trigger functions and broad analysis capabilities.

▶▶▶ **Other accessories**

ARM option

Optional USB-GPIB adapter for remote control

Rack mount kit option

All the specifications are guaranteed except the parameters marked with "Typical" and The oscilloscope needs to operate for more than 30 minutes under the specified operation temperature.

Sample	
Sample Mode	Real-time Sample, Equivalent Sample
Real Time	5 GSa/s (single-channel)
Sample Rate	2.5 Gsa/s (dual-channel)
Equivalent	100 Gsa/s
Sample Rate	
Peak Detect	200 ps (single-channel)
	400 ps (dual-channel)
Averaging	After all the channels finish N samples at the
	same time, N can be 2, 4, 8, 16, 32, 64, 128,
	256, 512, 1024, 2048, 4096 or 8192.
High Resolution	12 bits of resolution when ≥5 μs/div @ 5 GSa/s
	(or ≥10 μs/div @ 2.5 GSa/s).
Memory Depth	single-channel: Auto, 14k pts, 140k pts, 1.4M
	pts, 14M pts and 140M pts are available
	dual-channel: Auto, 7k pts, 70k pts, 700k pts,
	7M pts and 70M pts are available

Input	
Number of	DS6XX4: four channels
Channels	DS6XX2: two channels
Input Coupling	DC, AC or GND
Input Impedance	(1 MΩ±1%) || (14 pF±3 pF)
	or 50 Ω±1.5%
Probe	0.01X-1000X,1-2-5 step
Attenuation	
Coefficient	
Maximum Input	Maximum Input Voltage of the Analog Channel
Voltage (1MΩ)	CAT I 300 Vrms, CAT II 100 Vrms,
	Transient Overvoltage 1000V pk
	with RP2200 10:1 probe: CAT II 300 Vrms
	with RP3300 10:1 probe: CAT II 300 Vrms
	with RP3500 10:1 probe: CAT II 300 Vrms
	with RP5600 10:1 probe: CAT II 300 Vrms

Horizontal	
Timebase Scale	DS606X: 1 ns/div to 1000 s/div
	DS610X: 500 ps/div to 1000 s/div
Time Base Accuracy	≤ ± 4 ppm
Time Base Drift	≤ ± 2 ppm/Year
Delay Range	Pre-trigger (negative delay): ≥1 screen width
	Post-trigger (positive delay): 1 s to 100,000 s
Timebase Mode	Y-T, X-Y, Roll, Time Delayed
Number of XYs	2 simultaneously (four channels model)
Waveform Capture	150,000 wfms (vector display);
Rate[1]	180,000 wfms (dots display)

Vertical		
Bandwidth (-3dB)	DS606X: DC to 600 MHz	
	DS610X: DC to 1 GHz	
Single-shot Bandwidth	DS606X: DC to 600 MHz	
	DS610X: DC to 1 GHz (each channel)	
Vertical Resolution	8bits, two channels sample at the	
	same time	
Vertical Scale	2 mV/div to 5 V/div (1 MΩ)	
	2 mV/div to 1 V/div (50 Ω)	
Offset Range	2 mV/div to 124 mV/div: ± 1.2V (50 Ω)	
	126 mV/div to 1 V/div: ± 12V (50 Ω)	
	2 mV/div to 225 mV/div: ± 2V (1MΩ)	
	230 mV/div to 5 V/div: ± 40V (1MΩ)	
Bandwidth Limit[2]	20 MHz or 250 MHz	
Low Frequency Response	≤5 Hz (on BNC)	
(AC Coupling -3dB)		
Calculated Rise Time[2]	DS606X: 600 ps	
	DS610X: 400 ps	
DC Gain Accuracy	±2% full scale	
DC Offset Accuracy	200 mV/div to 5 V/div:	
	0.1 div ± 2 mV±0.5% offset value	
	2 mV/div to 195 mV/div:	
	0.1 div ± 2 mV±1.5% offset value	
ESD Tolerance	±2 kV	
Channel to Channel	DC to maximum band width: >40 dB	
Isolation		

Trigger		
Trigger Level Range	Internal	± 6 div from center screen
	EXT	± 0.8 V
Trigger mode	Auto, Normal, Single	
Holdoff Range	100 ns to 10 s	
High Frequency Rejection[2]	50 kHz	
Low Frequency Rejection[2]	5 kHz	
Edge Trigger		
Edge Type	Rising, Falling, Rising&Falling	
Pulse Trigger		
Pulse Condition	Positive Pulse Width (greater than,	
	lower than, within specific interval)	
	Negative Pulse Width (greater than,	
	lower than, within specific interval)	
Pulse Width Range	4 ns to 4 s	
Slope Trigger		
Slope Condition	Positive Slope (greater than, lower than,	
	within specific interval)	
	Negative Slope (greater than, lower than,	
Time Setting	10 ns to 1 swithin specific interval)	

Video Trigger	
Signal Standard	Support standard NTSC, PAL and SECAM
Line Frequency	broadcasting standards
Range	upport 480P,576P,720P,1080P and 1080I high
	definition standards

Pattern Trigger	
Pattern Setting	H, L, X, Rising Edge, Falling Edge

RS232/UART Trigger	
Trigger Condition	Start, Error, Check Error, Data
Polarity	Normal,Invert
Baud Rate	2400bps, 4800bps, 9600bps, 19200bps,
	38400bps, 57600bps, 115200bps, User
Data Bits	5 bit, 6 bit, 7 bit, 8 bit

I2C Trigger	
Trigger Condition	Start, Restart, Stop, Missing ACK, Address,
	Data, A&D
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	CS, Timeout
Timeout Value	100ns to 1s
Data Bits	4 bit to 32 bit
Data Line Setting	H, L, X
Clock Edge	Rising Edge, Falling Edge

CAN Trigger	
Signal Type	Rx, Tx, CAN_H, CAN_L, Differential
Trigger Condition	SOF, EOF, Frame Type, Frame Error
Baud Rate	10 kbps, 20 kbps, 33.3 kbps, 50 kbps, 62.5
	kbps, 83.3 kbps, 100 kbps, 125 kbps, 250
	kbps, 500 kbps, 800 kbps, 1 Mbps, User
Sample Point	5% to 95%
Frame Type	Data, Remote, Error, OverLoad
Error Type	Bit Fail,Answer Error,Check Error,Format
	Error,Random Error

FlexRay Trigger	
Baud Rate	2.5Mb/s, 5Mb/s, 10Mb/s
Trigger Condition	Frame, Symbol, Error, TSS

USB Trigger	
Signal Speed	Low Speed, Full Speed
Trigger condition	SOP, EOP, RC, Suspended, ExitSuspend

Measure		
Cursor	Manual Mode	Voltage Deviation between
		Cursors (△V)
		Time Deviation between
		Cursors (△T)
		Reciprocal of △T (Hz) (1/△T)
	Track Mode	Voltage and Time Values of
		the Waveform Point
	Auto Mode	Allow to display cursors
		during auto measurement
Auto Measurement	Measurements of Maximum, Minimum,	
	Peak-Peak Value, Top Value, Bottom	
	Value, Amplitude, Average, Mean Square	
	Root, Overshoot, Pre-shoot, Area,	
	PeriodArea,Frequency, Period, Rise Time,	
	Fall Time, Positive Pulse Width, Negative	
	Pulse Width, Positive Duty Cycle, Negative	
	Duty Cycle, Delay A~B⌐, Delay A~B⌐, Phase	
	A~B⌐, Phase A~B⌐	
Number of	Display 5 measurements at the same time	
Measurements		
Measurement Range	Screen or cursor	
Measurement	Average, Max, Min, Standard Deviation,	
Statistic	Number of Measurements	

Frequency Counter	Hardware 6 bits frequency counter
	(channels are selectable)

Math Operation	
Waveform Operation	A+B, A-B, A×B, A/B, FFT, Editable Advanced
	Operation, Logic Operation
FFT Window Function	Rectangle, Hanning, Blackman, Hamming
FFT Display	Split, Full Screen
FFT Vertical Scale	dB,Vrms
Logic Operation	AND, OR, NOT, XOR
Math Function	Intg, Diff, Log, Exp, Sqrt, Sine, Cosine, Tangent
Number of Buses for	2
Decoding	
Decoding Type	Parallel (standard), RS232/UART (option), I2C/
	SPI(option), CAN (option), FlexRay (option)

Display	
Display Type	10.1 inches (257 mm) TFT LCD display
Display Resolution	800 Horizontal ×RGB×480 Vertical Pixel
Display Color	160,000 Color
Persistence Time	Minimum, 50 ms, 100 ms, 200 ms, 500ms,
	1 s, 2 s, 5 s, 10 s, 20 s, Infinite
Display Type	Dots, Vectors
Real-time Clock	Time and Date (user adjustable)

I/O	
Standard Ports	USB DEVICE, two USB HOST ports, LAN,
	VGA Output, 10 MHz Input/Output, Aux output
	(TrigOut,Fast, GND, PassFail, Calibration)
Printer Compatibility	PictBridge

General Specifications

Probe Compensation Output		
Output Voltage[2]	About 3 V, peak-peak	
Frequency[2]	1 kHz	

Power		
Power Voltage	100-120 V/50Hz/60Hz/400Hz	
	100-240 V/50 Hz/60Hz	
Power	Maximum 150W	
Fuse	3 A, T Degree, 250 V	

Environment		
Temperature Range	Operation: 0℃to +50℃	
	Non-Operation: -20℃ to +70℃	
Cooling Method	fan cooling	
Humidity Range	Under +35℃: ≤90% Relative Humidity	
	+35℃ to +50℃: ≤60% Relative Humidity	
Altitude	Operation: under 3,000 meters	
	Non-Operation: under 15,000 meters	

Physical Characteristics		
Size[3]	Width×Height×Depth =	
	399.0 mm×255.3 mm×123.8 mm	
Weight[4]	Package Excluded	5.3 kg± 0.2 kg
	Package Included	10.8 kg± 1.0 kg

Calibration Interval	
The recommended calibration interval period is one year.	

Regulatory Information	
Electromagnetic	2004/108/EC
Compatibility	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]:Maximum value. In single-channel mode, sine signal with 10 ns horizontal scale,
       4 div input amplitude and 10 MHz frequency, edge trigger.
Note[2]:Typical.
Note[3]:Tilt tabs and handle folded, knob height included, front panel cover excluded.
Note[4]:DS6104 model, standard configuration.

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