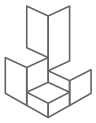
WS8101A/WS8102A/WS8104A-DST

100MHz Single, Dual & Four Channel Arbitrary Function Generators

The Tabor Wave Standard DST is a Series of Single, Dual & Four Channel Arbitrary / Function Generators with a 100MHz bandwidth and the functionality of a function generator, arbitrary generator and pulse generator, all in one, easy to use, high performance unit. It is a compact stand alone bench top unit that will satisfy all of the industry and education standard testing needs for years to come.

100MHz sine waves
50MHz square waves

Triangle, ramp, sinc, gaussian, exponential, noise, pulse generation with variable edge DC and Arbitrary waveforms



Powerful sequence generator links and loops segments

200MS/s, 16 Bit, 1Mpts arbitrary waveforms

AM, FM, FSK, Sweep and PSK modulation

16 Bit LVDS parallel digital output

Up to 12Vp-p into 50Ω,
24Vp-p into open circuit

Ethernet, USB and GPIB interfaces & 3.8" color LCD

AM, FM, FSK, PM & Sweep

Standard Waveforms

The WS810xA-DST has 11 built in functions for quick and easy wave generation. Front panel operations allows for easy selection of wave form and editing of all wave parameters. All of the standard waves can reach up to 25MHz with Sine and Square going as high as 100MHz and 50MHz respectively.

User Defined Waveforms

For more advanced users the series with its 16-bit vertical resolution offers a standard 1Mpts memory depth at 200MS/s for designing real-life waveforms. With the ability to control and edit the value of each and every point, any wave is possible. The memory can be divided into segments for storing all of the user defined waveforms.

Modulation Waveforms

Agility and modulation capabilities open the door to diverse applications. In addition to the capability of generating any shape and style of waveform with the arbitrary waveform generation power, the series can also do standard modulation schemes such as FM, AM, FSK, sweep and PSK, without sacrificing the power of the instrument control and output run modes.

Accuracy and Stability

As standard, the instrument is equipped with an internal frequency reference that has 1ppm accuracy and stability over a period of 1 year. An external frequency reference is provided on the rear panel for applications requiring greater accuracy or stability, supported by the instrument's up to 14 digits resolution from remote.

Easy to Use

User-friendly 3.8" color LCD display facilitates browsing through menus, updating parameters and displaying detailed and critical information for your waveform output. Combined with numeric keypad, cursor position control and a dial, the front panel controls simplify the often complex operation of an arbitrary function generator.

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Specifications

CONFIGURATION

Output Channels:	1, 2 or 4, semi-independent

STANDARD WAVEFORMS

Frequency Range:	
Sine:	1µHz to 100MHz
Square:	1µHz to 50MHz
All Others:	1µHz to 25MHz
SINE	
Start Phase:	0-360°
Phase Resolution:	0.01°
Harmonics Distortion @1Vp-p (Typ.):	
1MHz to 5MHz:	<-60dBc
5MHz to 10MHz:	<-57dBc
10MHz to 25MHz:	<-55dBc
25MHz to 50MHz:	<-50dBc
50MHz to 100MHz:	<-45dBc
Non-Harmonics Distortion @1Vp-p (Typ.):	
1MHz to 25MHz:	<-70dBc
25MHz to 50MHz:	<-65dBc
50MHz to 100MHz:	<-60dBc
THD:	0.1% (DC to 100kHz)
Flatness (1kHz):	
DC to 1MHz:	1%
1MHz to 10MHz:	3%
10MHz to 25MHz:	5%
25MHz to 80MHz:	10%
Phase Noise (8 points Sine, Max. SCLK, Typ.)	
100Hz Offset:	-80dBc/Hz
1kHz Offset:	-89dBc/Hz
10kHz Offset:	-92dBc/Hz
100kHz Offset:	-112dBc/Hz
1MHz Offset:	-140dBc/Hz
TRIANGLE	
Start Phase:	0-360°
Phase Resolution:	0.01°
Timing Ranges:	0%-99.9% of period
SQUARE	
Duty Cycle Range:	0% to 99.9%
Resolution:	0.1%
Rise/Fall Time:	<3ns
Overshoot (typ.):	<5%
Jitter (rms):	<100ps
RAMP	
Timing Ranges:	0%-99.9% of period
SINC (Sine(x)/x)	
"0 Crossings":	4-100
GAUSSIAN	
Time Constant:	10-200
EXPONENTIAL PULSE	
Type:	Rise or Decay, selectable
Time Constant:	-100 to 100
REPETITIVE NOISE	
Type:	Repetitive
Bandwidth:	25MHz
DC	
Range:	
WS8101/2:	-6V to 6V
WS8104:	-6V to 6V

Pulse

Pulse Mode:	Single or double, programmable
Polarity:	Normal, inverted or complement
Period:	20ns to 1000s
Parameters Ratio:	1,000,000 to 1
Resolution:	5ns
Pulse Width:	10ns to 1000s
Accuracy:	<2% (typ.)
Rise/Fall Time:	
Fast:	<4ns
Linear:	5ns to 1000s
High Time, Delay &	
Double Pulse Delay:	5ns to 1000s
Impedance:	50Ω
Amplitude Window:	10mVp-p to 12Vp-p (1)
Low Level:	-6V to +5.994V (1)
High Level:	-5.994V to +6V (1)

(1) Double into option impedance

ARBITRARY WAVEFORMS

Sample Rate:	1.5S/s to 200MS/s
Vertical Resolution:	16 bits
Waveform Memory:	1Mpts
Min. Segment Size:	16 points
Resolution:	4 points
No. of Segments:	1 to 1k
Waveform Granularity:	1 point

SEQUENCED WAVEFORMS

Sequencer Steps:	1 to 1k
Segment Duration:	600ns min.
Segment Loops:	1 to 1M
Advanced Modes:	Automatic, Stepped, Single, Mixed
Advance Source:	External, internal or software

MODULATION

Carrier Waveform:	Sine wave
Carrier Frequency:	1µHz to 100MHz
Source:	Internal
AM	
Envelope Waveform:	Sine, square, triangle, ramp
Envelope Freq.:	1mHz to 100kHz
Modulation Depth:	0% to 100%
FM	
Modulating Shape:	Sine, square, triangle, ramp
Modulating Freq.:	1mHz to 100kHz
Peak Deviation:	Up to 100MHz
ASK / FSK / PSK	
Baud Rate:	1bits/sec to 10Mbits/sec
Data Bits Length:	2 to 4,000
SWEEP	
Sweep Step:	Linear or log
Sweep Direction:	Up or Down
Sweep Time:	1µs to 500s
Frequency:	10/100MHz

COMMON CHARACTERISTICS

FREQUENCY	
Resolution:	
Display:	11 digits (limited by 1µHz)
Remote:	14 digits (limited by 1µHz)
Accuracy/Stability:	Same as reference
ACCURACY REFERENCE CLOCK	
Internal:	1ppm/year aging rate
External (10MHz):	TTL, 50% or Sine, 50Ω 0dBm
AMPLITUDE	
Range:	10mV to 12Vp-p into 50Ω (1)
Resolution:	4 digits
Accuracy (1kHz):	±(1% + 50mV), typ.
Rise/Fall Time:	<3ns, typ.
Overshoot:	5%, typ.
OFFSET	
Range:	0 to ±5.994V, into 50Ω (1)
Resolution:	1mV
Accuracy:	±(1%+1% of Amplitude +5mV)

FILTERS

Type:	25MHz/50MHz/60MHz/120MHz

RUN MODES

Type:	Continuous, Triggered, Gated, Burst

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Specifications

OUTPUTS

MAIN OUTPUTS	
Connectors:	Front panel BNC
Type:	Single-ended
Impedance:	50Ω ±1%
Protection:	Short Circuit to Ground, 10s max
SYNC OUTPUT	
Connector:	Front panel BNC
Source:	Common
Type:	Single ended
Waveform Type:	BIT (4 points wide)
Impedance:	50Ω
Amplitude:	TTL
Variable Position Control:	
Range:	0 to segment length
Resolution:	4 points
DIGITAL PATTERN OUTPUTS (WS8101/2 ONLY)	
Connector:	Rear panel SCSI-2, 68-pin
Pattern Width:	16-bits, differential
Source:	Channel 1 only
Output Level:	LVDS
Pattern Length:	
Dedicated Memory:	1 to 128k
Arbitrary Memory:	16 to 1M
Update Frequency:	100µpps to 200Mpps

INPUTS

TRIGGER INPUT	
Connector:	Rear panel BNC
Input Impedance:	10kΩ
Polarity:	Positive or negative, selectable
Level:	±5V
Sensitivity:	100mV
Damage Level:	±12V
Min. Pulse Width:	10ns
EXTERNAL REFERENCE INPUT	
Connector:	Rear panel SMB
Input Frequency:	10MHz
Impedance & Level:	10kΩ ±2%, TTL, 50% ±2%
Level:	±5V

TRIGGER CHARACTERISTICS

Trigger Delay:	[(0; 200ns to 20s) + system delay]
Delay Resolution:	20ns
Delay Error:	6 SCLK + 150ns
EXTERNAL	
Source:	Rear panel BNC, common
Slope:	Positive/Negative, selectable
Damage Level:	±12V
Input Frequency:	DC to 2.5MHz
Trigger Level:	-5V to 5V
Resolution:	1mV
Sensitivity:	100mV
Min. Pulse Width:	10ns
System Delay:	6 SCLK + 150ns
Trigger Jitter:	±1 SCLK period
INTERNAL / TIMER	
Range:	200ns to 20s
Resolution:	20ns
Error:	3 SCLK + 20ns
MANUAL	
Source:	Soft trigger command from the front panel or remote

INTER-CHANNEL DEPENDENCY

Separate controls:	Output on/off, amplitude, offset, standard waveforms, user waveforms, user waveform , sequence table
Common Controls:	Sample clock (Arb), frequency (Std), period (Pulse) reference source, trigger modes, trigger advance source, SYNC OUT.
LEADING EDGE OFFSET	
Jitter:	0ps
Offset Range:	0 to ±1M points
Reference:	Each CH. in reference to CH 1
Resolution and Accuracy:	
Channels 1/2	1 point
Channels 3/4	4 points
Initial Skew:	<1ns
Error	1 SCLK

GENERAL

Voltage:	85 to 265VAC, 48-63 Hz
Power Consumption:	60W max.
Display Type:	Color LCD
Size:	3.8”
Resolution:	320 x 240 pixels
Interfaces:	
USB:	1 x Rear, USB device, (A)
LAN:	1 x Rear, 100/10 BASE-T
GPIB:	1 x Rear, IEEE-488.2
Dimensions (WxHxD):	
With Feet:	212 x 102 x 415 mm
Without Feet:	212 x 88 x 415 mm
Weight:	
Without Package:	3.5 Kg
Shipping Weight:	5 Kg
Temperature:	
Operating:	0°C to +40°C
Storage:	-40°C to +70°C
Warm up time:	30 minutes
Humidity:	85% , non-condensing
Safety:	CE Marked, IEC61010-1-1:2008
EMC:	IEC 61326-1:2006
Calibration:	2 years
Warranty:	1 year

ORDERING INFORMATION

MODEL	DESCRIPTION
WS8101A-DST	100MHz Single Channel Arbitrary Function Generator
WS8102A-DST	100MHz Dual Channel Arbitrary Function Generator
WS8104A-DST	100MHz Four Channel Arbitrary Function Generator
ACCESSORIES	
S-Rack Mount:	19" Single Rack Mount Kit
D-Rack Mount:	19" Dual Rack Mount Kit
Case Kit:	Professional Carrying Bag

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