

# 2.1GS/s Single-Channel Arbitrary Waveform Generator



**PRELIMINARY**



## MODEL WX2181

- Single Channel 2.1GS/s waveform generator
- 1GHz sine and 500MHz square waves
- 12 Bit amplitude resolution
- 16M waveform memory, 32M memory, optional
- 2 selectable output paths:
  - 2 Vp-p into 50Ω with 600MHz bandwidth, Differential DC output
  - ±5 dBm into 50Ω with >1 GHz bandwidth, RF AC output
- AM, FM, FSK, PSK, (n)PSK, (n)QAM and Sweep modulations
- Smart trigger allows: trigger hold-off, detect <=> pulse width, as well as wait-for-waveform-end or abort waveform and restart

- Advanced sequencing scenarios define stepping, looping, and conditional jumps of waveforms or waveform sequences, including fast dynamic segments and sequences hop connector control
- Two differential markers with programmable positions, width and levels
- Two instrument synchronization
- User friendly 4" color LCD display
- Remote control through LAN, USB and GPIB
- Waveforms and instrument settings can be uploaded and stored on disk-on-key or 4GB internal flash memory
- LXI Class C compliant

The WX2181, 2.1GS/s Single Channel Arbitrary Waveform Generator, offers unrivaled performance, even when compared to instruments designed to generate fewer types of signals or higher sampling rates. Its affordable footprint saves space and cost without compromising bandwidth and signal integrity.

### Universal Waveform Source

Aside from its natural ability to generate arbitrary shapes with waveform granularity of 1 point, the WX2181 can also be used as a full-featured standard, modulation or pulse generator to solve various applications. Equipped with 2.1GS/s 12-bit clock and 16M points (32M optional) memory, the WX2181 can generate literally any waveform, short or long, at frequencies up to 1GHz with 8 digits of resolution, resulting in the highest precision signal creation and regeneration without compromising signal fidelity or system integrity.

### DC or AC Coupled Outputs

Have a requirement for different output paths in your lab? Great! The WX2181 offers two output amplifiers: Single or Differential ended, 2Vp-p into 50 ohms with 600MHz bandwidth,

DC coupled path for applications demanding optimized transitions and aberrations. Alternatively, you can choose a Single-ended 5 dBm AC coupled path for applications requiring bandwidth and flatness for frequencies as high as 1 GHz.

### Powerful Segmentation and Sequencing

Solving almost every complex application, powerful segmentation and sequencing produces a nearly endless variety of complex waveforms. The waveform memory can be divided into multiple waveform segments and sequenced in user-selectable fashion to create complex waveforms that have repeatable segments, jump and nest, saving you precious memory space. The WX2181 also allows you to generate up to 1000 sequence scenarios and sequence between them to generate an even higher level of flexibility in waveform creation.

### Dynamic Segment / Sequence Control

Working in the real-time world and need fast waveform switching? The WX2181 has a rear panel control designed specifically for that. Having the dynamic control feature, in effect,

can serve as replacement of the sequence table where the real-time application can decide when and for how long a waveform will be generated. For much more complex applications, this same input may serve as a dynamic switch for complete sequences, creating real-life scenarios for real-time applications.

### Smart Trigger

Until now, you've been forced to trigger on a specific event. Tabor's all-new SmartTrigger feature was designed to enhance the trigger capability and facilitate wider flexibility of a specific pulse event. It allows triggering on either a pulse having a larger pulse width than a programmed time value (<time), a pulse having a smaller pulse width than a programmed time value (>time), or even on a pulse having a pulse width between two limits (<>time). In addition, the SmartTrigger has a hold-off function, in which the output is held idle after the first trigger and starts a waveform cycle only with the first valid trigger after a hold-off interval has lapsed, allowing you to solve endless "negotiation" scenarios.

Visit our website at [www.taborelec.com](http://www.taborelec.com)

  
**TABOR ELECTRONICS Inc.**  
Since 1971

# 2.1 GS/s Single-Channel Arbitrary Waveform Generator



## Model WX2181



### Programmable Differential Markers

The WX2181 is equipped with two programmable differential markers. Differential simply means outstanding signal integrity for high frequencies, whereas the programmability allows you to set position, width, delay and amplitude for any required peripheral triggering need. While bench usage enables setting only one marker position, you can set multiple markers and program different marker properties for each transition instance remotely, allowing various triggering profiles.

### 4-Channel Capability

Need more than one or two channels to drive your application? With the WX2181 you can reach up to 4 synchronized channels system using a Master-Slave arrangement, allowing users to benefit from the same high quality performance feven formulti-channel needs.

### Automated External Self-Calibration

Usually, calibration cycles in the industry range from one to three years where instruments are sent to a service center, opened to allow access to trimmers, calibrated and certified for repeated usage. In contrast, the innovative advanced technology implemented in these systems allows calibration from ANY interface, USB, GPIB or LAN. Calibration factors are stored in a flash memory eliminating the need to open instrument covers.

### Easy to Use

Large and user-friendly 4" back-lit color LCD display facilitates browsing though menus, updating parameters and displaying detailed and critical information for your waveform output. Combined with numeric keypad, ten quick-link function & run modes buttons, cursor position control and a dial, the front panel controls simplify the often complex operation of an arbitrary waveform generator.

### High Speed Access

Access speed is an increasingly important requirement for test systems. Included with the instrument is a variety of interfaces including: Ethernet 10/100/1000, USB 2.0 and GPIB so one may select the interface most compatible to indiviSingle requirements. Using any of the external interfaces, controlling instrument functions and features as well as downloading waveforms and sequences is fast, time saving and easily tailored to every system, from simple benchtop instrumentation to full-featured ATE system. IVI drivers and factory support speed-up system integration, minimizing time-to-market and significantly reducing system development costs.

### Multiple Environments to Write Your Code

Model 2181 comes with a complete set of drivers, allowing you to write your application in various environments such as: Labview, CVI, C++, VB, and MATLAB. You may also link the supplied dll to other Windows based API's or, use low-level SCPI commands (Standard Commands for Programmable Instruments) to program the instrument, regardless if your application is written for Windows, Linux or Macintosh operating systems.

### MODULAR

Tabor's MODULAR software package supplies wireless design and manufacturing engineers with virtually all their test stimulus needs at baseband or IF/RF levels, whether required signals are analog or digital. With none of the limitations of traditional generators, Tabor's WaveXciter series allow any signal, simple or composed, clean or noisy, ideal or impaired, to be downloaded and played back.

### ArbConnection

The ArbConnection software provides you with full control of instrument functions, modes and features. ArbConnection is a powerful editorial tool that allows you to easily design any type of waveform. Whether it is the built in wave, pulse or Serial data composers, or the built in equation editor with which you can create your own exotic functions, ArbConnection makes virtually any application possible.

# Specification 2.1 GS/s Single-Channel Arbitrary Waveform Generator



## Model WX2181



### Service and Support

Beyond providing precision Test & Measurement instruments, Tabor Electronics provides unparalleled service and support, and is continuously finding new ways to bring added value to its customers.

Our after-sales services are comprehensive. They include all types of repair and calibration, and a single point of contact that you can turn to whenever you need assistance. As part of our extensive support, we offer individualized, personal attention Help Desk, both online and offline, via e-mail, phone or fax.

Tabor Electronics maintains a complete repair and calibration lab as well as a standards laboratory in Israel and USA. Service is also available at regional authorized repair/calibration facilities.

Contact Tabor Electronics for the address of service facilities nearest you.

### Applications

For expert technical assistance with your specific needs and objectives, contact your local sales representative or our in-house applications engineers.

### Manuals, Drivers, and Software Support

Every instrument comes equipped with a dedicated manual, developer libraries, I/O drivers, and software. However, if your specific manual is lost or outdated, Tabor Electronics makes it possible to log-on to its Download Center and get the latest data "in a click".

### Product Demonstrations

If your application requires that you evaluate an instrument before you purchase it, a hands-on demonstration can be arranged by contacting your local Tabor Electronics representative or the Sales Department at our Corporate Headquarters.

### Five-year Warranty

Every instrument from the WaveXciter series comes with a five-year warranty. Each one has full test results, calibration certificate, and CD containing product's manual and complete software package. Our obligation under this warranty is to repair or replace any instrument or part thereof which, within five years after shipment, proves defective upon examination. To exercise this warranty, write or call your local Tabor representative, or contact Tabor Headquarters and you will be given prompt assistance and shipping instructions.

# Specification 2.1 GS/s Single-Channel Arbitrary Waveform Generator



## Model WX2181



### STANDARD WAVEFORMS

<b>Type:</b>	Sine, triangle, square, ramp, pulse, sinc, exponential rise, exponential decay, gaussian, noise and dc.
<b>Frequency Range:</b>	Sine 10 kHz to 1 GHz Square, Pulse 10 kHz to 500 MHz All others 10 kHz to 250 MHz
<b>Waveform Control:</b>	All the waveform parameters can be adjusted to specific requirements. The waveform is re-computed with each parameter change.

### ARBITRARY WAVEFORMS

<b>Sample Rate:</b>	10 MS/s to 2.1 GS/s
<b>Vertical Resolution:</b>	12 bits
<b>Waveform Memory:</b>	16 M points standard, 32 M points optional
<b>Min. Segment Size:</b>	256 points
<b>Resolution:</b>	32 points size increments
<b>No. of Segments:</b>	1 to 16k
<b>Waveform Granularity:</b>	1 point
<b>Dynamic control:</b>	Software command or rear panel segment control port
<b>Jump Timing:</b>	Coherent or asynchronous

### SEQUENCED WAVEFORMS

<b>Operation:</b>	Segments are grouped in a sequence table that links, loops and jumps to next in user-defined scenarios. Sequence steps are advanced on trigger events or remote commands. Each channel has its own sequence scenario
<b>Multi Sequence:</b>	1 to 1,000 unique scenarios
<b>Sequencer Steps:</b>	1 to 16k steps.
<b>Segment Duration:</b>	32 ns minimum step duration
<b>Segment Loops:</b>	1 to 1M cycles, each segment
<b>Sequence Loops:</b>	1 to 1M ("Once" mode only)
<b>Step Advance Modes:</b>	Continuous, once (x "N") and stepped

### SEQUENCED SEQUENCES

<b>Operation:</b>	Enables the grouping of sequences into scenarios in a way that is similar to how segments are grouped in a sequence table. Each channel has its own advance sequencing generator
<b>Sequence Scenarios:</b>	1 Scenario
<b>Dynamic Control:</b>	Software command or rear

<b>Table Length:</b>	panel sequence control port 1 to 1k steps
<b>Advance Control:</b>	Continuous, once and stepped
<b>Sequence Loops:</b>	1 to 1,000,000 cycles

### MODULATION

#### COMMON CHARACTERISTICS

<b>Carrier Waveform:</b>	Sine
<b>Carrier Frequency:</b>	10 kHz to 1 GHz
<b>Modulation Source:</b>	Internal
<b>Resolution:</b>	TBD
<b>Accuracy:</b>	TBD

#### FM

<b>Modulation Shape:</b>	Sine, square, triangle and ramp
<b>Modulating Frequency:</b>	1 mHz to 100 kHz
<b>Modulation Freq.:</b>	TBD
<b>Deviation Range:</b>	TBD

#### FSK / FREQUENCY HOPPING

<b>Hop Table Size:</b>	2 to TBD
<b>Hop Type:</b>	Fast or Linear
<b>Dwell Time Mode:</b>	Fixed or programmable per step
<b>Dwell Time:</b>	TBD
<b>Dwell Time Resolution:</b>	TBD

#### SWEEP

<b>Sweep Type:</b>	Linear, log or Arb
<b>Sweep Direction:</b>	Up or down
<b>Sweep Time:</b>	TBD

#### AM

<b>Modulation Shape:</b>	Sine, square, triangle and ramp
<b>Modulation Freq.:</b>	TBD
<b>Modulation Depth:</b>	0.1 to 100%

#### ASK / AMPLITUDE HOPPING

<b>Hop Table Size:</b>	2 to TBD
<b>Hop Type:</b>	Fast or Linear
<b>Dwell Time Mode:</b>	Fixed or programmable per step
<b>Dwell Time:</b>	TBD
<b>Dwell Time Resolution:</b>	TBD
<b>Resolution:</b>	Maximum amplitude/4096

#### (n)PSK and (n)QAM

<b>Modulation Type:</b>	PSK, BPSK, QPSK, OQPSK, PI/4 DQPSK, 8PSK, 16PSK, 16QAM, 64QAM, 256QAM and User Defined
<b>Symbol Rate Range:</b>	TBD
<b>Carrier Control:</b>	On/Off
<b>Symbol Period Accuracy:</b>	TBD
<b>Table Size:</b>	2 to TBD

### WIRELESS SIGNAL GENERATION

#### EVM (Error Vector Magnitude)

	0.1 MS/s	1 MS/s	5 MS/s
10 MHz	TBD%	TBD%	TBD%
250 MHz	TBD%	TBD%	TBD%
500 MHz	TBD%	TBD%	TBD%

#### Test conditions:

Sample Clock Frequency = 2.1 GS/s  
Sample Clock = TBD  
Modulation = QPSK  
Baseband Filter = Raised Cosine  
Alfa = 0.35

#### ACLR (Adjacent Channel Leakage Power Ratio)

	0.1 MS/s	1 MS/s	5 MS/s
10 MHz	TBD dB	TBD dB	TBD dB
250 MHz	TBD dB	TBD dB	TBD dB
500 MHz	TBD dB	TBD dB	TBD dB

#### Test conditions:

Sample Clock Frequency = 2.1 GS/s  
Sample Clock = TBD  
BW = Symbol Rate;  
Offset = 1.35 x Symbol Rate

### DIGITAL PULSE GENERATOR

<b>Pulse State:</b>	On/Off
<b>Pulse Mode:</b>	Single or double, programmable
<b>Polarity:</b>	Normal, inverted or complemented
<b>Period:</b>	2 ns to 1.6 Sec
<b>Resolution:</b>	500 ps
<b>Pulse Width:</b>	1 ns to 1.6 Sec
<b>Rise/Fall Time</b>	
<b>Fast:</b>	<b>700 ps (typical &gt;600 ps)</b>
<b>Linear:</b>	1 ns to 1.6 Sec
<b>Delay:</b>	1 ns to 1.6 Sec
<b>Double Pulse Delay:</b>	1 ns to 1.6 Sec
<b>Amplitude Window:</b>	
<b>Range</b>	50mVp-p to 2Vp-p
Low Level	-2V to +1.95V
High Level	-1.95V to +2V

#### NOTES:

- All pulse parameters, except rise and fall times, may be freely programmed within the selected pulse period provided that the ratio between the period and the smallest incremental unit does not exceed the ratio of 16,000,000 to 1.
- Rise and fall times, may be freely programmed provided that the ratio between the rise/fall time and the smallest incremental unit does not exceed the ratio of 1,000,000 to 1.
- The sum of all pulse parameters must not exceed the pulse period setting.

# Specification 2.1 GS/s Single-Channel Arbitrary Waveform Generator



## Model WX2181



### COMMON CHARACTERISTICS

#### FREQUENCY

<b>Resolution:</b>	8 digits
<b>Accuracy and Stability:</b>	Same as reference
<b>Reference Clock:</b>	
Internal	1 ppm from 19°C to 29°C; 1 ppm/°C below 19°C or above 29°C; 1 ppm/year aging rate
External	Same as accuracy and stability of the external reference.

#### OUTPUTS

##### MAIN OUTPUTS

<b>Coupling:</b>	DC-coupled, or AC-coupled
<b>Connectors:</b>	Front panel SMAs
<b>Impedance:</b>	50Ω nominal, each output
<b>Protection:</b>	Protected against temporary short to case ground

##### DC-COUPLED

<b>Type:</b>	Single-ended or differential
<b>Amplitude Range:</b>	
Single-ended	50 mVp-p to 2 Vp-p
Differential	100 mVp-p to 4 Vp-p (Double into high impedance)
<b>Resolution:</b>	3 digits
<b>Accuracy:</b>	±(3% +5 mV), offset = 0 V
<b>Rise/Fall Time:</b>	600 ps, typical (10% to 90%)
<b>Overshoot:</b>	5%, typical
<b>Harmonic Distortion:</b>	-52dBc at 1 Vp-p
<b>Non Harmonic Distortion:</b>	-76dBc at 1 Vp-p, DC to 600MHz
<b>Phase Noise:</b>	>90 dBc/Hz at 1Vp-p, 10kHz offset
<b>Offset Control:</b>	Common mode, specified into 50Ω, levels double into high Z
<b>Offset Range:</b>	-1.5 V to + 1.5 V
<b>Offset Resolution:</b>	3 digits
<b>Offset Accuracy:</b>	±(5% +5 mV)

##### RF, AC-COUPLED

<b>Type:</b>	Single-ended
<b>Amplitude Range:</b>	-5 dBm to 5 dBm, double into high impedance
<b>Resolution:</b>	3 digits
<b>Accuracy:</b>	(3% +0.5dBm)
<b>Bandwidth:</b>	1 GHz
<b>Flatness:</b>	±1dB, typical
<b>Harmonic distortion:</b>	-50 dBc at 0 dBm
<b>Non Harmonic Distortion:</b>	-65 dBc at 0 dBm, DC to 600MHz
<b>Phase Noise:</b>	>90 dBc/Hz at 1Vp-p, 10kHz offset

### MARKER OUTPUTS

<b>Number of Markers:</b>	Two markers per channel
<b>Type:</b>	Differential (+) and (-) outputs
<b>Connectors:</b>	SMB
<b>Skew between Markers:</b>	100 ps, typical
<b>Impedance:</b>	50Ω
<b>Amplitude Voltage:</b>	
Window	0V to 1.25 V, single-ended; 0V to 2.5 V, differential
Low level	0 V to 0.8 V, single-ended; 0 V to 1.6 V, differential
High level	0.5 V to 1.25 V, single-ended; 0 V to 2.5 V, differential

<b>Resolution:</b>	10 mV
<b>Accuracy:</b>	10% of setting
<b>Width control:</b>	4 SCLK to segment length
<b>Position control:</b>	0 to segment length in 4 points increments
<b>Initial delay:</b>	3.5 ns, typical (Output to marker)

<b>Variable delay:</b>	
Control	Separate for each channel
Range	0 to 3 ns
Resolution	10 ps
Accuracy	±(10% of setting +20 ps)
<b>Rise/Fall Time:</b>	1.0 ns, typical

### SYNC OUTPUT

<b>Connector:</b>	Front panel SMA
<b>Source:</b>	Channel 1 or channel 2
<b>Type:</b>	Single ended
<b>Waveform Type:</b>	Pulse (32 points width), WCOM
<b>Impedance:</b>	50Ω
<b>Amplitude:</b>	1 V, doubles into high impedance
<b>Variable Position Control:</b>	
Range	0 to segment length
Resolution	32 points
Rise/Fall Time	2 ns, typical
<b>Variable Width control:</b>	
Range	32 points to segment length
Resolution	32 points

### INPUTS

#### TRIGGER INPUT

<b>Connector:</b>	Rear panel SMA
<b>Input Impedance:</b>	10 kΩ
<b>Polarity:</b>	Positive, negative, or both
<b>Damage Level:</b>	±20 Vdc
<b>Frequency Range:</b>	0 to 15 MHz
<b>Trigger Level Control:</b>	
Range	-5 V to 5 V
Resolution	12 bit (2.5 mV)
Accuracy	±(5% of setting + 2.5 mV)
Sensitivity	0.2 Vp-p
<b>Pulse Width:</b>	10 ns, minimum

### EVENT INPUT

<b>Operation:</b>	Used for branching in or out from a sequence loop. Also used for enabling or disabling the output in armed mode.
<b>Connector:</b>	Rear panel BNC
<b>Input Impedance:</b>	10 kΩ
<b>Polarity:</b>	Positive, negative or either
<b>Damage Level:</b>	±20 Vdc
<b>Frequency Range:</b>	0 to 15 MHz
<b>Trigger Level Control:</b>	
Range	-5 V to 5 V
Resolution	12 bit (2.5 mV)
Accuracy	±(5% of setting + 2.5 mV)
Sensitivity	0.2 Vp-p minimum
<b>Pulse Width:</b>	10 ns, minimum

### SEQUENCE / SEGMENT CONTROL INPUT

<b>Connectors:</b>	Rear panel D-sub, 8 bit lines
<b>Input Impedance:</b>	10 kΩ
<b>Input Level:</b>	TTL

### EXTERNAL REFERENCE INPUT

<b>Connector:</b>	Rear panel BNC
<b>Input Frequency:</b>	10 MHz to 100 MHz
<b>Input Impedance:</b>	50Ω
<b>Input Voltage Swing:</b>	-5dBm to 5dBm
<b>Damage Level:</b>	10dBm

### EXTERNAL SAMPLE CLOCK INPUT

<b>Connector:</b>	Rear panel SMA
<b>Input Impedance:</b>	50Ω
<b>Input Voltage Swing:</b>	0dBm to 10dBm
<b>Input Frequency:</b>	2.0 GHz
<b>Clock Divider:</b>	1/1, 1/2, 1/4, ... 1/256, separate for each channel
<b>Damage Level:</b>	15dBm

### RUN MODES

<b>Continuous</b>	A selected output function shape is output continuously.
<b>Self armed</b>	No start commands are required to generate waveforms.
<b>Armed</b>	The output dwells on a dc level and waits for an enable command and then the output waveform is output continuously; An abort command turns off the waveform.
<b>Triggered</b>	A trigger signal activates a single- shot or counted burst of output waveforms and then the instrument waits for the next trigger signal.
<b>Normal mode</b>	The first trigger signal activates the output; consecutive triggers are ignored for the duration of the output waveform.

# Specification 2.1 GS/s Single-Channel Arbitrary Waveform Generator



## Model WX2181



**Override mode** The first trigger signal activates the output; consecutive triggers restart the output waveform regardless if the current waveform has been completed or not.

**Gated** A waveform is output when a gate signal is asserted. The waveform is repeated until the gate signal is de-asserted. Last period is always completed.

### TRIGGER CHARACTERISTICS

#### EXTERNAL

**Source:** Channel 1, channel 2, or both  
**Connector:** SMA  
**Input Impedance:** 10 k $\Omega$   
**Polarity:** Positive, negative, or both  
**Damage Level:**  $\pm 20$  Vdc  
**Frequency Range:** 0 to 15 MHz  
**Trigger Level Control:**  
 Range -5 V to 5 V  
 Resolution 12 bit (2.5 mV)  
 Accuracy  $\pm(5\%$  of setting + 2.5 mV)  
 Sensitivity 0.2 Vp-p  
**Pulse Width:** 10 ns, minimum  
**System Delay:** 200 sample clock periods + 50ns, typical (Trigger to Output)  
 Separate for each channel  
**Trigger Delay:**  
 Range 0 to 8,000,000 sclk periods  
 Resolution 8 points  
 Accuracy Same as sample clock accuracy  
**Smart Trigger:** Detects a unique pulse width range  
 Conditioned trigger < pulse width, > pulse width or <-> pulse width  
 Pulse Width Range 50 ns to 2 second  
 Resolution 2 ns  
 Accuracy  $\pm(5\%$  of setting +20 ns)  
**Trigger Holdoff:** Ignores triggers for a holdoff duration  
 Holdoff range 100 ns to 2 second  
 Resolution 2 ns  
 Accuracy  $\pm(5\%$  of setting +20 ns)  
**Trigger jitter:** 8 sampling periods

#### INTERNAL

**Source:** Common or separate  
**Modes:**  
 Timer Waveform start to waveform start  
 Delayed Waveform stop to waveform start  
**Timer:**  
 Range 100 ns to 2 s  
 Resolution 3 digits  
 Accuracy 100 ppm  
**Delay**  
 Range 152 to 8,000,000 sclk periods  
 Resolution Even numbers, divisible by 8

### MANUAL

**Source:** Soft trigger command through the front panel or external interface

### TWO INSTRUMENTS SYNCHRONIZATION

**Operation:** TBD  
**Initial Skew:** TBD  
**Offset Control:** TBD  
**Clock Source:** Master sample clock generator  
**Trigger Source:** Master trigger input

### GENERAL

**Voltage Range:** 100 VAC to 240 VAC  
**Frequency Range:** 50 Hz to 60 Hz  
**Power Consumption:** 150 VA  
**Display Type:** TFT LCD, back-lit  
 Size 4 "  
 Resolution 320 x 240 pixels  
**Interfaces:**  
 USB 2.0 1 x front, USB host, (A type);  
 1 x rear, USB device, (B type)  
 LAN 1000/100/10 BASE-T  
 GPIB IEEE 488.2 standard interface  
 Segment control 2 x D-sub, 9 pin  
**Dimensions:**  
 With feet 315 x 102 x 395 mm (WxHxD)  
 Without feet 315 x 88 x 395 mm (WxHxD)  
**Weight:**  
 Without package 4.5 kg  
 Shipping weight 6 kg  
**Operating temperature:** 0°C to 40°C  
**Storage temperature:** -40°C to 70°C  
**Humidity:** 85% RH, non condensing  
**Safety:** CE Marked, IEC61010-1  
**EMC:** IEC 61326-1:2006  
**Calibration:** 2 years  
**Warranty:** 5 years standard

### ORDERING INFORMATION

MODEL	WW2181
2.1GS/s Single-Channel ArbitraryWaveform Generator	
OPTIONS	
<b>Option 1:</b>	32M Memory
ACCESSORIES	
<b>S-Rack mount:</b>	19" Single Rack Mounting Kit
<b>Case Kit:</b>	Professional Carrying Bag

**Note:** Options and Accessories must be specified at the time of your purchase.