

ET33X Two-channel Function/ Arbitrary Waveform Generator

ET3X two-channel function/arbitrary waveform generator is equipped with direct digital synthesis (DDS) technology which enables output signal to be stable and accurate.

Key Features

- 3.5-inch 480×320 TFT LCD with clear graphic interface
- Chinese / English menu available
- Press key for help and information
- File management supporting USB flash disk and local storage
- Two-channel output with the highest output frequency is ET3315X Model is 15MHz, ET3325X Model is 25MHz, ET3340X Model is 40MHz, ET3360X Model is 60MHz.
- Sampling rate: 200MSa/S, vertical resolution: 13 bit and storage depth: 8k
- 5 basic waveforms and 32 arbitrary waveforms in-built
- Pulse wave output set in edge time
- Internal/external AM, FM, PM, ASK, FSK and PSK modulation function
- Output of linear/logarithmic frequency sweep and burst waveform
- Frequency meter of high precision of 100MHz and 32-bit counter
- With RS232 interface, USB Device, USB Host interface supporting USB flash disk storage (USB Host Optional)
- Multi-functional arbitrary waveform editing software equipped

General Technical Specifications

- Supply voltage: $220V \pm 10\%$, 45~65Hz, Or $110V \pm 10\%$, 45~65Hz
- Power consumption: < 15W
- Types: 3.5-inch TFT LCD screen, Resolution 480×320 , 16M color
- Environment: Operation $10^{\circ}\text{C} \sim +40^{\circ}\text{C}$ 、Non-operation $-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- Humidity range: Within the range of $0 \sim 40^{\circ}\text{C}$, $\leq 90\%$ relative humidity
- Interface: RS232, USB Device; USB Host (optional)
- Display: 3.5 inch TFT LCD screen, 480 x 320 resolution
- Size: 265 * 105 * 305 mm (width x height x deep)
- Weight: 2.6 kg

Accessories

Standard accessories:

- 1 piece of 30A51 three-wire power line;
- 1 piece of 33A52 BNC coaxial cable;
- 1 CD-ROM
- 1 User guide.

Optional accessories:

- BNC alligator clip line (33P01);
- Cabinet installation suit (32P02);
- RS232 serial line (32P04);
- USB data line (32P05).

Technical Specifications**Model :ET3325X****Frequency Characteristics**

Sine:1μHz ~ 25MHz

Square:1μHz ~ 15MHz

Triangle:1μHz ~ 15MHz

Pulse:100μHz ~ 6MHz

Arbitrary :1μHz ~ 6MHz

Noise (-3dB) 7MHz Bandwidth

Frequency Resolution 1μHz

Frequency Accuracy ±5ppm

Frequency Stability ±1ppm/3hour

Frequency Characteristics

Waveform Types: Sine, square, triangle, pulse, noise and arbitrary waves (including DC).

There are 32 kinds of arbitrary waves and 50 kinds of user-defined waves.

Waveform Length 8192 points

Waveform Sampling Rate 200 MSa/s

Waveform Vertical Resolution 13 bits

Sine Wave CharacteristicsSine Wave Harmonic Distortion $\geq 45\text{dBc}(<1\text{MHz})$; $\geq 40\text{dBc}(1\text{MHz}\sim 20\text{MHz})$ Total Harmonic Distortion $<0.8\%(20\text{Hz} \sim 20\text{kHz}, 0\text{dBm})$ **Square Wave Signal Characteristics**

Square Wave Rise/Fall

Overshoot $<5\%$ Duty Cycle freq $<100\text{kHz}$: 1%~99%;100kHz \leq freq $<5\text{MHz}$: 20% ~ 80%;5MHz \leq freq: 40% ~ 60%(0.1% resolution)

Frequency Characteristics				
MODEL	ET3315X	ET3325X	ET3340X	ET3360X
Sine	1μHz ~ 15MHz	1μHz ~ 25MHz	1μHz ~ 40MHz	1μHz ~ 60MHz
Square	1μHz ~ 15MHz	1μHz ~ 15MHz	1μHz ~ 15MHz	1μHz ~ 15MHz
Triangle	1μHz ~ 15MHz	1μHz ~ 15MHz	1μHz ~ 15MHz	1μHz ~ 15MHz
Pulse	100μHz ~ 6MHz	100μHz ~ 6MHz	100μHz ~ 6MHz	100μHz ~ 6MHz
Arbitrary	1μHz ~ 6MHz	1μHz ~ 6MHz	1μHz ~ 6MHz	1μHz ~ 6MHz

Noise （-3dB）	7MHz Bandwidth		
Frequency Resolution	1μHz		
Frequency Accuracy	± 5ppm		
Frequency Stability	± 1ppm/3hour		
Frequency Characteristics			
Waveform Types	Sine, square, triangle, pulse, noise and arbitrary waves (including DC). There are 32 kinds of arbitrary waves and 50 kinds of user-defined waves.		
Waveform Length	8192 points		
Waveform Sampling Rate	200 MSa/s		
Waveform Vertical Resolution	13 bits		
Sine Wave Characteristics			
Sine Wave	Harmonic Distortion	≥45dBc(<1MHz); ≥40dBc(1MHz~20MHz)	
	Total Harmonic Distortion	<0.8%(20Hz ~ 20kHz, 0dBm)	
Square Wave Signal Characteristics			
Square Wave	Rise/Fall	<20ns	
	Overshoot	<5%	
	Duty Cycle	freq<100kHz: 1%~99%; 100kHz≤freq<5MHz: 20% ~ 80%; 5MHz≤freq: 40% ~ 60%(0.1% resolution)	
Pulse Wave Characteristics			
Pulse Wave	Pulse Width	Min 20ns; 1ns resolution	
	Edge Transition Time	Min 20ns;	
	Overshoot	<5%	
	Jitter	6ns+0.1% Period	
Ramp Wave Characteristics			
Ramp Wave	Linearity Degree	≥98%(0.01Hz~10kHz)	
	Symmetry	0.0 ~ 100.0%(resolution 0.1%)	
Output Characteristics			
Amplitude			
Amplitude Range	freq<10MHz	10MHz≤freq<30MHz	30MHz≤freq
	2mVpp ~ 20Vpp	2mVpp ~10Vpp	2mVpp ~5Vpp
Amplitude Resolution	1mV		
Amplitude Stability	± 1% set value± 1mVpp（1kHz Sine, 0 offset, >10mVpp）		
Amplitude Flatness (relative to 1K Sine, 1 Vpp)	± 0.4dB <10MHz ; ± 1.0dB ≥10MHz。		

Output Impedance	50 Ω ±10%（Typical）	
Protection	All the signal output terminal can be shorted within 60s	
DC Offset		
	Output Amplitude>0.1V	2mV<Output Amplitude≤0.1V
Offset Adjusting Range	±10Vpk, ac + dc	±0.250Vpk, ac + dc
Offset Resolution	1mV	
Phase characteristics		
Phase Adjusting Range	0~359.9°	
Phase Resolution	0.1°	
External Measurement Function		
Frequency Meter	Frequency measurement range	1Hz ~ 100MHz
	Measurement accuracy	Gate time continuously adjusted between0.01s~10s
Counter Function	Counting region	0 ~ 4294967295
	Control mode	Manual operation
Input Signal Voltage Range	2Vpp~20Vpp	
Coupled Mode	AC or DC	
Pulse Width Measurement	1ns (resolution), 20s (MAX measuring time)	
Period Measurement	1ns (resolution), 20s (MAX measuring time)	
SYNC Output		
Output Channel	CH1 or CH2, default CH1	
Level	TTL	
Impedance	50 Ω	
Rise/Fall Time	< 25ns	
Maximum Frequency	25MHz	
AM Modulation		
Output Channel	CH1 or CH2, default CH1	
Carrier Wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)	
Source	Internal/External	
Modulation Wave	Sine, square, triangle and ramp	
Modulation Frequency	2mHz~20kHz	
Modulation Depth	0%~120%	
FM Modulation		
Output Channel	CH1 or CH2, default CH1	

Carrier Wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)
Source	Internal/External
Modulation Wave	Sine, square, triangle and ramp
Modulation Frequency	2mHz~20kHz
Frequency Offset	0~Maximum carrier frequency
PM Modulation	
Output Channel	CH1 or CH2, default CH1
Carrier Wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)
Source	Internal/External
Modulation Wave	Sine, square, triangle and ramp
Modulation Frequency	2mHz~20kHz
Phase Offset	0° ~ 360°
ASK Modulation	
Output Channel	CH1 or CH2, default CH1
Carrier Wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)
Source	Internal/External
Modulation Wave	Square wave of 50% duty ratio
Keying Frequency	2mHz~1MHz
Modulation Amplitude	0~Carrier Amplitude
FSK Modulation	
Output Channel	CH1 or CH2, default CH1
Carrier Wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)
Source	Internal/External
Modulation Wave	Square wave of 50% duty ratio
Keying Frequency	2mHz~1MHz
Hop Frequency	Carrier frequency range
PSK Modulation	
Output Channel	CH1 or CH2, default CH1
Carrier Wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)
Source	Internal/External
Modulation Wave	Square wave of 50% duty ratio
Keying Frequency	2mHz~1MHz
Modulation Phase	0° ~ 360°
Frequency Sweep	
Output Channel	CH1 or CH2, default CH1
Types	Linearity/Logarithm
Sweep Frequency Time	1ms ~ 500.000s
Start/Stop Frequency	1μHz~Maximum carrier frequency

Sweep Direction	Forward, Backward
Trigger Source	Manual operating, internal, external
Burst Characteristics	
Output Channel	CH1 or CH2, default CH1
Carrier Wave	Sine, square, ramp, pulse and arbitrary waveforms (excluding DC)
Pulse Count	1~65535 or infinite, gated
Start/Stop Phase	0~360°
Internal Period	1μs~500s
Gating Source	External
Trigger Source	Internal, external, manual operating
Trigger Input	
Signal Range	2Vpp~20Vpp
Coupling	AC or DC
Pulse Width	>100ns
Reaction Time	<500ns (Burst)
	<10μs (Sweep)
Modulation Input	
Impedance	1M Ω
Signal range	± 2.5V ac+dc