FeelTech FY3200S Series Fully Numerical Control Dual Channel Function-Arbitrary Waveform Generator User Manual

Contents

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Introduction of the instrument

This manual applies to each mode of FY3200S series DDS Function Signal Generator. In the series, the last two digits “xx” represent the upper limit frequency value (MHz) of Sine Wave for each mode. For example, FY3225S “25” means the upper limit frequency of Sine Wave is 25MHz. The instrument adopts large scale CMOS integrated circuit and high speed microprocessor. The internal circuit adopts active crystal oscillator as benchmark. So the signal stability is greatly strengthened. Surface mounting technology improves interference immunity and operational life span. It has Dual-channel DDS signal output, includes Sine wave, Square wave, Triangle wave, Sawtooth wave and user-defined waveform. The amplitude, offset and phase can be controlled. Meanwhile, it has TTL electric level output, External frequency measurement, counter and sweep functions including Linear sweep and Logarithmic sweep. Both the sweep frequency and time can be set arbitrarily. It’s the ideal instrument for electronic engineering, laboratories, production lines, teaching and scientific research.

Excellent technical indexes and function features:

- Sampling rate up to 250 MSa/s.
- Built-in arbitrary waveform with 250 MSa/s sampling rate.
- 4 downloadable 2048 dots arbitrary waveform memories
- With 12 bit wide waveform generator, the output waveform can be more delicate with low distortion.
- Fully numerical control. It can display and numerical control amplitude, offset, frequency, duty cycle of current signal output and phase difference of two channels. And dual-channel arbitrary integer multiples of the frequency output when no phase error signal phase drift;
- Each function can be adjusted by host computer.
- Preinstalled 17 common waveforms.
- High frequency accuracy: magnitude 10 6
- High resolution: Full range frequency resolution can be 10 mHz.
- Both main and subsidiary wave duty cycle are adjustable separately (0.1%~99.9% .
- All range continuously adjustable, digital directly setting.
- High waveform accuracy: The output waveform synthesized by function calculation is of high accuracy and low distortion.
- Arbitrary waveform: User can load arbitrary waveform according to the need.

- Sweep Function: Linear sweep and Logarithmic sweep. Starting and stop points can be set optionally.
- Save function: 20 sets of parameters defined by the users can be saved and loaded anytime.
- Operation mode: Button and knob controlled with LCD1602 display, digital set directly or knob adjusted continuously.
- Highly reliable: Large scale integrated circuit, Surface mounting technology, reliable and durable.
- Frequency measurement: Frequency of internal / external signal can be measured through built-in 100MHz frequency meter.
- Follow function: Built-in parameter follow function covering frequency, amplitude, offset, duty cycle, waveform etc. for user's convenience.
- Trigger output function: User can choose manual trigger, external trigger or CH2 trigger to control the main output to output waveforms of specified periodicity. This periodicity can also be defined by the user.
- FSK frequency shift keying and ASK amplitude shift keying signal output.

Technical Specification

Unless specified, all specifications can be guaranteed if the following two conditions are met.

- The generator has passed self-inspection.
- The generator has been working continuously for at least 30 minutes under the specified temperature (18℃~28℃).

All the specifications are guaranteed unless those marked with "typical"

Frequency						
Model	**FY3200S -6MHz**	**FY3200S -12MHz**	**FY3200S -20MHz**	**FY3200S -24MHz**		**FY3200S -25MHz**
Sine	0~6MHz	0~12MHz	0~20MHz	0~24MHz	0~25MHz	
Square	0~6MHz	0~6MHz	0~6MHz	0~6MHz	0~6MHz	
Ramp/Triangle	0~6MHz	0~6MHz	0~6MHz	0~6MHz	0~6MHz	
Pulse	0~6MHz	0~6MHz	0~6MHz	0~6MHz	0~6MHz	
TTL/CMOS	0~6MHz	0~6MHz	0~6MHz	0~6MHz	0~6MHz	
Arbitrary wave	0~6MHz	0~6MHz	0~6MHz	0~6MHz	0~6MHz	

Resolution	0.01Hz(10mHz)	
Accuracy	± 5×10-6	
Stability	±1×10-6/ 3 Hours	
Phase Range	0~359°	
Phase Resolution	1°	
Waveform Characteristics		
Waveforms	Sine, Square, Triangle (Ramp), Arbitrary, Sawtooth, Pulse, Noise, etc.	
Waveform Length	2048Points	
Sampling Rate	250MSa/s	
Vertical Resolution	12 Bits	
Sine	Harmonic Suppression	≥45dBc(<1MHz);≥40dBc(1MHz~20MHz);
	Total Harmonic Distortion	<0.8% (20Hz~20kHz,0dBm)
Square	Rise/Fall Time	≤20ns
	Overshoot	≤7.5%
	Duty Cycle	0.1%~99.9%
Sawtooth	Linearity	≥98% (0.01Hz~10kHz)

Output characteristics	
Amplitude (50Ω)	10mVpp~20Vpp (No load)

Amplitude Resolution	10mV
Amplitude Stability	±0.5%/ 5 Hours
Amplitude flatness	±5%(<10MHz) ±10%(>10MHz);
Waveform Output	
Impedance	50Ω±10% Typical
Protection	All channels can work more than 60 seconds when the load is short-circuited.
Dc Offset	
Offset Range	±10V
Offset Resolution	0.01V
TTL Output	Dual-channel TTL electric level synchronize with CH1 and CH2. Phase differences are adjustable.
Electrical Level Amplitude	>3Vpp
Fan-out	>20 TTL Load
Rise/Fall Time	≤20ns
CMOS Output	
Low Electric Level	<0.3V

High Electric Level	1V~10V	
Rise/Fall Time	≤20ns	
External Measurement		
Frequency Meter	Range	1Hz~100MHz (Gate Time 1S)
Counter	Range	0-4294967295
Voltage Input Range	2Vpp~20Vpp	
Sweep	Only CH1 available	
Sweep Type	Linear or Logarithm	
Sweep Objects	Frequency	
Sweep Time	1S~999S/Step	
Sweep Range	Starting position and Finishing position can be set arbitrarily.	
General Specifications		
Display	Mode	LCD1602 in English
Save & Load	Amount	20

	Position	01 to20 (SAVE P_ON FREQ for default value)
Interface	Type	USB to Serial interface.
	Communicating Speed	9600bps
Power	Voltage Range	AC85V~AC260V
Buzzer	Can be turned on/off by setting.	
Environment	Temp. 0~40℃ Humidity 80%	
Dimension	200mm Length X190mm Width X90mm Height	
Weight	Net Weight: 750g Gross Weight: 900g	

Documents / Resources

	FeelTech FY3200S Series Fully Numerical Control Dual Channel Function-Arbitrary Waveform Generator [pdf] User Manual FY3200S Series Fully Numerical Control Dual Channel Function-Arbitrary Waveform Generator, FY3200S Series, Fully Numerical Control Dual Channel Function-Arbitrary Waveform Generator, Dual Channel Function-Arbitrary Waveform Generator, Function-Arbitrary Waveform Generator, Waveform Generator, Generator