



MFG-3000CH Series DDS Function Generator

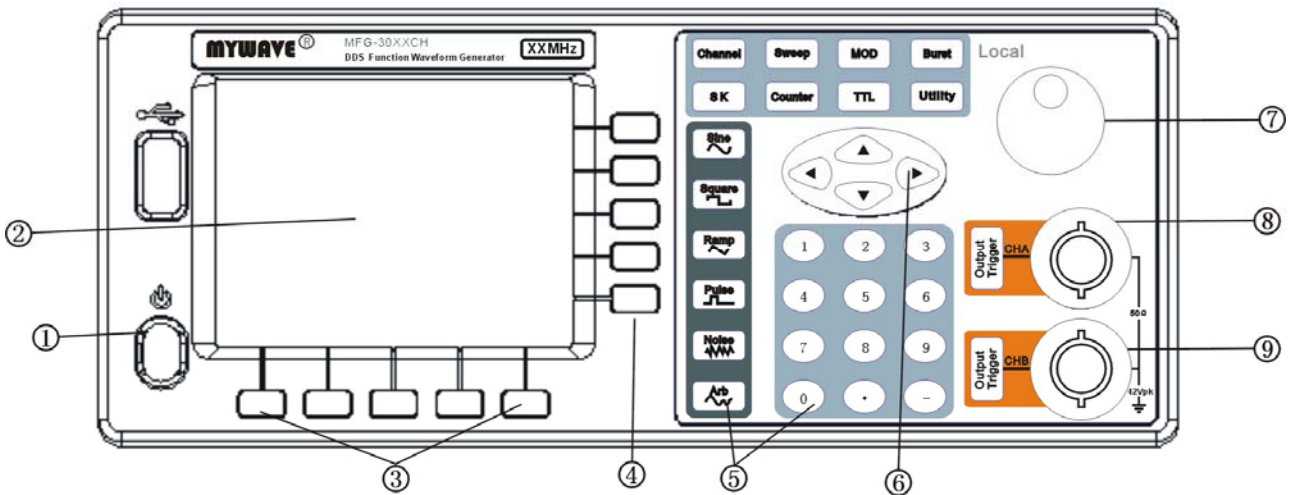


◆ Main Features

- Direct Digital Synthesis (DDS) technology, 2 independent output channels
- 3.5-inch TFT display, English/Chinese menu
- 32 kinds of built-in pre-stored waveforms
- Minimum stable output waveform: 1mV(50Ω)
- Multiple modulation functions: FM, FSK, ASK, PSK
- Frequency sweep, amplitude sweep and burst functions
- Over voltage, over current, output short-circuit and reverse voltage protections
- Optional parts: RS232 interface, 200MHz frequency counter, 7W(8Ω) power amplifier

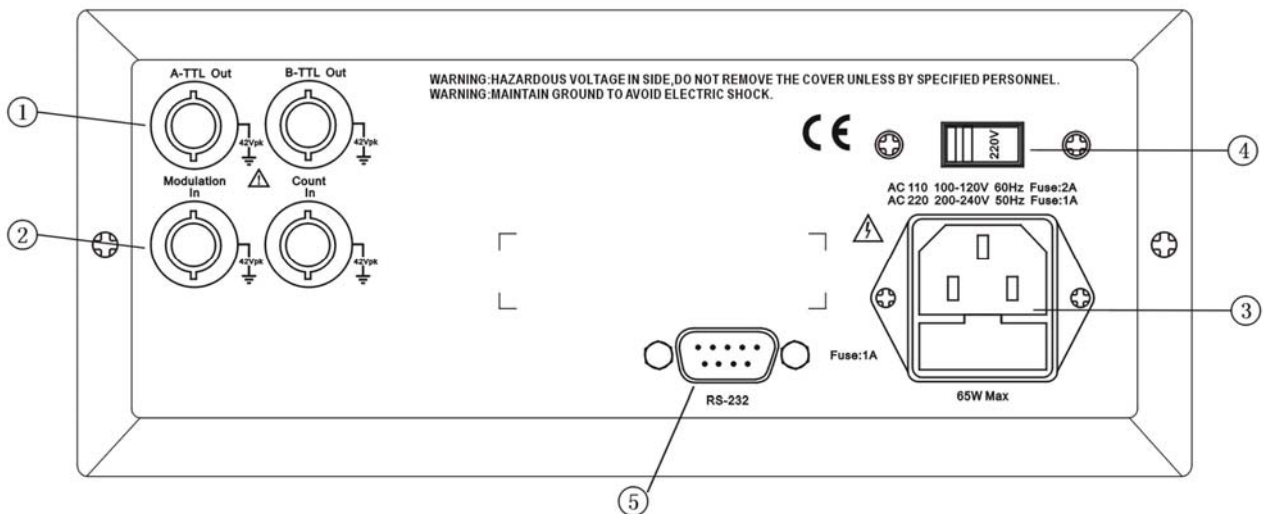
◆ Front Panel and Real Panel

Front Panel



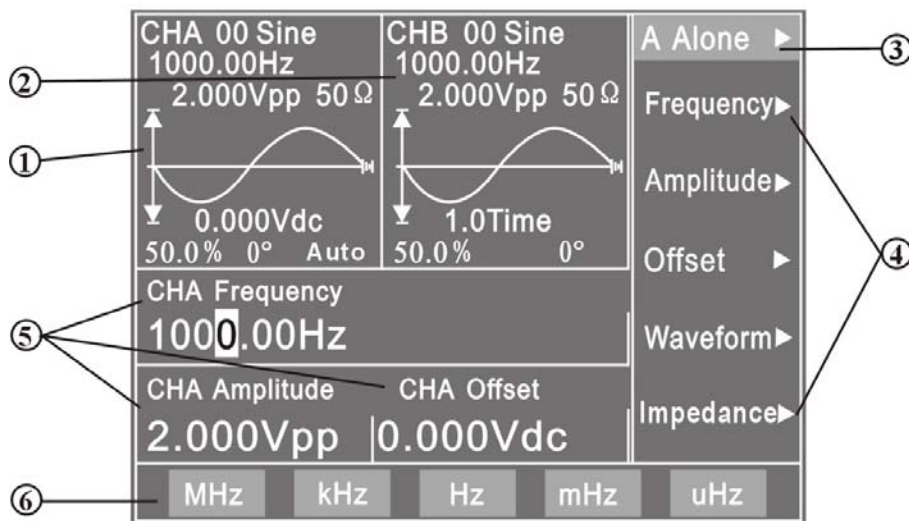
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|------------------------------------|-----------------------------|------------------|--------------------|
| 1. Power switch | 2. TFT display | 3. Unit soft key | 4. Software option |
| 5. Function key and Numeric keypad | 6. Direction key | 7. Rotary knob | |
| 8. Channel A output/trigger | 9. Channel B output/trigger | | |

Real Panel



- | | |
|------------------------------|---|
| 1. A-TTL/B-TTL output (BNC) | 2. Modulation/External signal input (BNC) |
| 3. Power connector with fuse | 4. AC110V/220V power selection switch |
| 5. RS232 connector | |

◆ Description of TFT Display



1. **Channel A waveform display:** the waveform of channel A and preset parameters are displayed at the upper-left portion.
2. **Channel B waveform display:** the waveform of channel B and preset parameters are displayed at the upper-middle portion.
3. **Function menu:** The first line on the right of the TFT displays the function menu.
4. **Option menu:** The second to the sixth lines display the option menu.
5. **Parameter menu:** Three of the waveform parameters of channel A are displayed at the middle of the lower-left portion.
6. **Unit menu:** The bottom line displays the unit menu.

◆ Technical Specifications

Model	MFG-3005CH	MFG-3010CH	MFG-3015CH	MFG-3020CH
Frequency range(sine)	1μHz~5MHz	1μHz~10MHz	1μHz~15MHz	1μHz~20MHz
Output Characteristics of Channel A				
Waveform Characteristics				
Waveform type	32 waveforms including: Sine, Square, Triangle, Ramp, Pulse etc.			
Waveform length	1024 points			
Sample rate	100MSa/s			
Waveform amplitude resolution	8bits			
Sinusoidal harmonic rejection	≥40dBc (<1MHz), ≥35dBc (1MHz~20MHz)			
Sine wave total distortion	≤1% (20Hz~200kHz)			
Square rise/fall edge time	≤35ns			
Square overshoot	≤10%			
Square wave duty cycle	1%~99%			
Frequency Characteristics				
Frequency range	sine: 1μHz~Max.frequency (MHz)			

	square: 1μHz~5MHz other waveforms: 1μHz~1MHz
Frequency resolution	1μHz
Frequency accuracy	$\pm(5 \times 10^{-5})$
Frequency stability	$\pm 5 \times 10^{-6}$ /3 hours
Amplitude Characteristics	
Amplitude range	2mVpp~20Vpp 1μHz~10MHz (high impedance) 2mVpp~15Vpp 10MHz~15MHz (high impedance) 2mVpp~8Vpp 15MHz~20MHz (high impedance)
Amplitude resolution	20mVpp (amplitude>2Vpp), 2mVpp (amplitude<2Vpp)
Amplitude accuracy	$\pm(1\%+2mVrms)$ (high impedance, true RMS, frequency at 1kHz)
Amplitude stability	$\pm 0.5\%$ /3 hours
Amplitude flatness	$\pm 5\%$ (frequency<10MHz), $\pm 10\%$ (frequency >10MHz)
Output impedance	50Ω
DC Offset Characteristics	
Offset range	$\pm 10V$ (high impedance, attenuation 0dB)
Resolution	20mVdc
Offset accuracy	$\pm(1\%+20mVdc)$
Sweep Characteristics	
Sweep type	frequency sweep, amplitude sweep
Sweep range	free to set the start and stop points
Sweep time	100ms~900s
Sweep direction	Up, Down, Up-Down
Sweep mode	linear, logarithmic
Control mode	auto sweep or manual sweep
Frequency Modulation Characteristics	
Carrier signal	channel A signal
Modulation signal	internal signal of channel B or external signal
FM deviation	0%~20%
Shift Keying Characteristics	
FSK	free to set carrier frequency and hop frequency
ASK	free to set carrier amplitude and hop amplitude
PSK	hop phase 0~360°, max. resolution 1°
Alternative rate	10ms~60s
Burst Characteristics	
Carrier signal	channel A signal
Trigger signal	TTL_A signal
Burst count	1~65000 cycles
Burst mode	Internal TTL, External, Single
Output Characteristics of Channel B	
Waveform Characteristics	
Waveform type	32 waveforms including: Sine, Square, Triangle, Ramp, Pulse etc.
Waveform length	1024 points
Sample rate	12.5MSa/s

Waveform amplitude resolution	8bits
Square duty cycle:	1%~99%
Frequency Characteristics	
Frequency range	Sine: 1μHz~1MHz Other waveforms: 1μHz~100kHz
Frequency resolution	1μHz
Frequency accuracy	$\pm(1 \times 10^{-5})$
Amplitude Characteristics	
Amplitude range	50mVpp~20Vpp (high impedance)
Amplitude resolution	20mVpp
Output impedance	50Ω
Burst Characteristics	
Carrier single	channel B signal
Trigger signal	TTL_B signal
Burst count	1~65000 cycles
Burst mode	Internal TTL, External, Single
TTL Output Characteristics	
Waveform characteristics	Square, rise/fall time≤20ns
Frequency characteristics	10mHz~1MHz
Amplitude characteristics	TTL, CMOS compatible, low level<0.3V, high level>4V
Common Characteristics	
Power source	Voltage: AC220V±10%, AC110V±10% (Pay attention to the position of voltage selection switch) Frequency: 50Hz ±5% Power: <45VA
Environment	Temperature: 0~40°C Humidity: <80%
Operation characteristics	Keypad operation and rotary knob operation
Display	TFT display, 320*240, English, Chinese (simplified), Chinese (traditional)
Manufacturing technology	Surface Mount Technology, Integrated Circuit. High reliability and stability.
Accessories	Power cord, Q9 test lead, Q9 BNC-clip test lead, Operation manual RS232 cable (optional), RS232 interface software CD (optional)
Dimension	Machine dimension: 385(D)×260(W)×110(H)mm Chassis dimension: 415(D)×295(W)×195(H)mm
Weight	3.5kg
Optional Parts Characteristics	
Remote interface	RS232 serial interface
Frequency counter	Testing frequency range: 1Hz~200MHz Input signal amplitude: 100mVpp~20Vpp
Power amplifier	Max. output power: 7W (8Ω), 1W (50Ω) Max. output voltage: 22Vpp Frequency bandwidth: 1Hz~200kHz

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