



|                 |             |             |              |              |              |              |
|-----------------|-------------|-------------|--------------|--------------|--------------|--------------|
| Model Number    | MFG-2103    | MFG-2105    | MFG-2110     | MFG-2120     | MFG-2140     | MFG-2150     |
| Frequency Range | up to 3 MHz | up to 5 MHz | up to 10 MHz | up to 20 MHz | up to 40 MHz | up to 50 MHz |

## Specifications:

### Function waveform

Sine, Square, Triangle, Positive Ramp  
Negative Ramp, random noise, Sin(x)/x, Index up, Index down.

### Waveform

Memory length 8K (8192) points Sample rate 10Msa/s  
Vertical resolution 8 bits Off line protect memory four 8K waveform

### Frequency characters

Sine 1mHz~fmax Maximum resolution 100uHz or 8 digit  
Square 1mHz~5MHz Long term stability 50ppm(0°C~40°C)  
Others 1mHz~10KHz Short term stability 1ppm (after power on and stable)

### Harmonic Distortions

<20kHz -60dBc 20kHz~1MHz 1MHz~10MHz -50dBc  
10MHz~20MHz -40dBc (50Ω load, 1Vpp output) -30dBc

### Signal Characters

Square: Rise time and fall times <25ns  
Over shot <5% Asymmetry <2%+20ns  
Triangle, Ramp Linearity (1KHz) <1%  
Rise or Fall Time: 120ns

### Output

Amplitude: (Open circuit) 2mVpp~20Vpp (<20MHz)  
2mVpp~6Vpp (>20MHz)  
(50 Ω load) 1mVpp~10Vpp (<20MHz)  
1mVpp~10Vpp (>20MHz)  
Output impedance: 50 Ω  
Amplitude flatness 5%~100%~100%Vpp  
DC offset range

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## Features:

Using Direct Digital Synthesis (DDS) Technology. It features high resolution, high accuracy, high stability, superb price/performance  
Direct input using numerical keys, data can also be continuously adjusted using adjusting knobs  
Multi-waveforms are suitable for various application areas  
Standard RS-232 interface. It can connect with PC  
Series 21xxA has Arbitrary Waveform

### Sweep

Sweep range: 0.1Hz~fmax Minimum step 0.1Hz

### FSK, PSK

Pulse width, period 10us~10s  
Trigger mode Internal, external, single  
Frequency 0.1Hz~fmax  
PSK phase differ -360°C~360°C  
PSK carrier waveform

### Internal amplitude modulation

Carrier waveform Internal waveform  
Carrier frequency 1MHz~fmax  
Modulation waveform Internal waveform  
Modulation frequency 100MHz~20KHz  
Stability of modulation frequency 50ppm  
Depth of modulation 0%~120%

### External amplitude

Input impedance 1k Modulation Depth:  
When output signal is 1Vpp sine waveform,  
4Vpp modulation signal could achieve 100% modulation depth

### Internal frequency modulation

Carrier waveform Internal waveform  
Carrier frequency 0.1Hz~fmax  
Modulation waveform Internal waveform  
Modulation frequency 100MHz~20KHz  
Stability 50ppm  
Frequency shift range 0.1Hz~fmax

### Internal phase modulation

Carrier waveform Sine, Square  
Carrier frequency 0.1Hz~fmax  
Modulation waveform Internal waveform  
Modulation frequency 100MHz~10KHz  
Stability 50ppm  
Maximum phase shift 360°C

Supplied by :

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