

## Arbitrary/DDS Function Generator

**AFG-1005 / AFG-1010 / AFG-1020**



### ■ FEATURE

- Max. output frequency 5MHz/10MHz/20MHz
- 3.5-inch TFT LCD display
- Direct Digital Synthesis technology (DDS)
- Sampling rate 100Msa/s, vertical resolution 8 bit, waveform length 1Kpts
- Arbitrary waveform functions, up to 8 sets of user-defined waveforms
- Output waveforms: 32 built-in waveforms and 8 sets of user-defined waveforms
- 40 sets panel setting save & recall
- Min. 1mV (50Ω) waveform output with good stability
- FM, FSK, ASK, and PSK modulations
- Over voltage protection, over current protection, short circuit protection, reverse voltage protection
- Numeric keyboard and rotary dial for data input
- SMT technology production, high reliability
- 100MHz frequency counter
- RS232 interface

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## ■ TECHNICAL SPECIFICATIONS

|   | AFG-1005(5MHz)   | AFG-1010(10MHz) | AFG-1020(20MHz) |
|---|--|-----------------|-----------------|
| <b>Waveform (Output A)</b>                  |  |                 |                 |
| Waveform types                              | 40 types waveforms, including Sine, Square, Pulse and 8 sets of arbitrary waveforms  |                 |                 |
| Waveform length                             | 1024 points  |                 |                 |
| Vertical resolution                         | 8 bits   |                 |                 |
| Sampling rate                               | 100MSa/s   |                 |                 |
| Sine harmonic distortion                    | ≥40dBc (<1MHz, ), ≥35dBc (1MHz~20MHz)  |                 |                 |
| Sine total distortion                       | ≤1% (20Hz~200kHz)  |                 |                 |
| Square                                      | Rise/fall edge time: ≤35ns, Overshoot: ≤10%  |                 |                 |
| Square wave duty cycle                      | 1%~99%   |                 |                 |
| <b>Frequency (Output A)</b>                 |  |                 |                 |
| Frequency range                             | Sine wave: 40mHz~Max.frequency<br>Other waveforms: 40mHz~1MHz  |                 |                 |
| Resolution                                  | 40mHz  |                 |                 |
| Accuracy                                    | ± (50ppm + 40mHz)  |                 |                 |
| <b>Amplitude (Output A)</b>                 |  |                 |                 |
| Amplitude range                             | 2mVpp~20Vpp, 40mHz~10MHz (high impedance)<br>2mVpp~15Vpp, 10MHz~15MHz (high impedance)<br>2mVpp~8Vpp, 15MHz~20MHz (high impedance) |                 |                 |
| Resolution                                  | 20mVpp (amplitude>2Vpp), 2mVpp (amplitude<2Vpp)  |                 |                 |
| Accuracy                                    | ± (1% +2 mVrms) (high impedance, RMS, frequency 1kHz)  |                 |                 |
| Stability                                   | ±0.5% / 3 hours  |                 |                 |
| Flatness                                    | ±5% (frequency of 10MHz or below ), ±10% (frequency above 10MHz)   |                 |                 |
| Output impedance                            | 50Ω  |                 |                 |
| <b>Offset (Output A)</b>                    |  |                 |                 |
| Offset range                                | ±10V (high impedance, attenuation 0 dB)  |                 |                 |
| Resolution & Accuracy                       | 20mVdc, ±(1% + 20mVdc)   |                 |                 |
| <b>Sweep (Output A)</b>                     |  |                 |                 |
| Linear sweep or frequency sweep             |  |                 |                 |
| Sweep range                                 | Free to set starting point and end point   |                 |                 |
| Sweep step                                  | Higher than any figure of the resolution   |                 |                 |
| Sweep rate                                  | 10ms~60ms/step   |                 |                 |
| Sweep mode                                  | Linear, Log Up or Log Down, Single   |                 |                 |
| <b>Frequency Modulation (FM) (Output A)</b> |  |                 |                 |
| Carrier signal                              | Output A waveforms   |                 |                 |

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|                                 |   |
|---------------------------------|---|
| Modulating signal & deviation   | Output B signal or External signal, 0%~20%  |
| <b>Burst</b>                    |   |
| Burst counts & Burst mode       | 1~65000 cycles , Internal, External, Single   |
| <b>FSK, ASK, PSK (Output A)</b> |   |
| FSK                             | Free to set carrier waveform frequency and hopping frequency                        |
| ASK                             | Free to set carrier waveform amplitude and hopping amplitude                        |
| PSK                             | Hopping phase: 0~360°, Max. resolution: 1°  |
| Alternative rate                | 10ms~60s  |
| <b>Output B</b>                 |   |
| Waveform                        | 40 types waveforms, including Sine, Square, Pulse and 8 sets of arbitrary waveforms |
|                                 | Length: 1024 points   |
|                                 | Sampling range : 12.5Msa/s  |
|                                 | Amplitude resolution : 8 bits   |
| Frequency                       | Square wave duty cycle : 1%~99%   |
|                                 | Range: Sine wave: 40mHz~1MHz; Other waveforms: 10mHz~100kHz                         |
|                                 | Resolution: 10mHz   |
| Amplitude                       | Accuracy: $\pm$ (50ppm+10 mHz)  |
|                                 | Range: 50mVpp~20Vpp (high impedance)  |
|                                 | Resolution: 20mVpp  |
| Burst                           | Output impedance : 50 $\Omega$  |
|                                 | Burst count : 1~65000 cycles  |
|                                 | Burst mode : Internal, External, Single   |
| <b>TTL output</b>               |   |
| Waveform characteristics        | Square wave, rise/fall time $\leq$ 20ns   |
| Frequency characteristics       | 40mHz~1MHz  |
| Amplitude characteristics       | TTL and CMOS compatible, low<0.3V, high>4V  |
| <b>Frequency counter</b>        |   |
| Frequency range                 | 1Hz~100MHz  |
| Input signal amplitude          | 100mVpp~20Vpp   |
| <b>General</b>                  |   |
| Power source                    | 110V/220V AC, (1 $\pm$ 10%), 50Hz (1 $\pm$ 5%)                                      |
| Power consumption, Display      | <30V, TFT LCD   |
| Environmental                   | Temperature: 0~40°C , humidity: <80%  |
| Dimension & Weight              | 365*260*110mm, 3KG  |

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