

# DDS Function Generator

**NEW**



CE

**SFG-2104/2107/2110 (4/7/10MHz)**

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**SFG-2004/2007/2010 (4/7/10MHz)**

## FEATURES

- \* DDS Technology and FPGA Chip Design
- \* Frequency Range:0.1Hz~4MHz/7MHz/10MHz
- \* High Frequency Accuracy :  $\pm 20$ ppm
- \* High Frequency Stability :  $\pm 20$ ppm
- \* Frequency Resolution :100mHz
- \* Low Distortion Sine Wave : -55dBc, 0.1Hz~200KHz
- \* Built-in 6 Digits, 150MHz/High Resolution Counter (SFG-2100 Series Only)
- \* INT/EXT AM/FM Modulation (SFG-2100 Series Only)
- \* LIN/LOG Sweep Mode (SFG-2100 Series Only)
- \* Front Panel Setting Save/Recall with 10 Groups of Setting Memories

## SPECIFICATIONS

|                               |   | SFG-2000 Series   |            |             | SFG-2100 Series   |            |             |
|-------------------------------|---|---|------------|-------------|---|------------|-------------|
|                               |   | SFG-2004  | SFG-2007   | SFG-2010    | SFG-2104  | SFG-2107   | SFG-2110    |
| <b>MAIN</b>                   | Frequency Range(For Sine, Square)                       | 0.1Hz~4MHz  | 0.1Hz~7MHz | 0.1Hz~10MHz | 0.1Hz~4MHz  | 0.1Hz~7MHz | 0.1Hz~10MHz |
|                               | Range(For Triangle) Resolution Stability Accuracy Aging | 0.1Hz~1MHz<br>0.1Hz<br>$\pm 20$ ppm<br>$\pm 20$ ppm<br>$\pm 5$ ppm / year   |            |             |   |            |             |
|                               | Output Function   | Sine, Square, Triangle  |            |             |   |            |             |
|                               | Amplitude Range   | 10Vpp(into 50 $\Omega$ load)  |            |             |   |            |             |
|                               | Flatness(Sinewave relative to 1kHz)                     | $< \pm 0.3$ dB,0.1Hz~1MHz; $< \pm 0.5$ dB,1MHz~4MHz; $< \pm 2$ dB, 4MHz~10MHz                                     |            |             |   |            |             |
|                               | Impedance   | 50 $\Omega$ $\pm 10\%$  |            |             |   |            |             |
|                               | Attenuator  | -20dB $\pm 1$ dB $\times 2$   |            |             |   |            |             |
|                               | DC Offset   | $< -5$ V ~ $> +5$ V(into 50 $\Omega$ load)  |            |             |   |            |             |
|                               | Duty Control  | 20% to 80% below 1MHz (Square wave only)  |            |             |   |            |             |
|                               | Display   | 1%<br>9 digits LED display  |            |             |   |            |             |
| <b>SINE WAVE</b>              | Harmonics Distortion                                    | -55dBc,0.1Hz~200kHz; -40dBc,0.2MHz~4MHz; -30dBc,4MHz~10MHz (Specification applied from MAX. to 1/10 level)        |            |             |   |            |             |
| <b>TRIANGLE WAVE</b>          | Linear  | $\geq 98\%$ ,0.1Hz~100kHz; $\geq 95\%$ ,100kHz~1MHz   |            |             |   |            |             |
| <b>SQUARE WAVE</b>            | Symmetry  | $\pm 1\%$ of period +4ns to 0.1Hz~100kHz;Rise or Fall Time $\leq 25$ ns at maximum output.(into 50 $\Omega$ load) |            |             |   |            |             |
| <b>CMOS OUTPUT</b>            | Level   | 4Vpp $\pm 1$ Vpp~14.5Vpp $\pm 0.5$ Vpp adjustable; Rise or Fall Time; $\leq 120$ ns                               |            |             |   |            |             |
| <b>TTL OUTPUT</b>             | Level   | $\geq 3$ Vpp; Fan Out; 20 TTL load; Rise or Fall Time; $\leq 25$ ns   |            |             |   |            |             |
| <b>SWEEP OPERATION</b>        | Sweep/Rate Sweep/Time Sweep/Mode                        | —   |            |             | 100:1 ratio max. and adjustable<br>0.5Sec~30Sec adjustable<br>Lin./Log. switch selector   |            |             |
| <b>AMPLITUDE MODULATION</b>   | Depth & MOD. Frequency Carrier BW EXT Sensitivity       | —   |            |             | 0~100% ; 400Hz(INT),DC~1MHz(EXT)<br>100Hz~5MHz(-3dB)<br>$\leq 10$ Vpp for 100% modulation   |            |             |
| <b>FREQUENCY MODULATION</b>   | Deviation & MOD. Frequency EXT Sensitivity              | —   |            |             | 0~ $\pm 5\%$ ; 400Hz(INT),1kHz(EXT)<br>$\leq 10$ Vpp for 10% modulation   |            |             |
| <b>FREQUENCY COUNTER</b>      | Range Accuracy Time base Resolution                     | —   |            |             | 5Hz~150MHz<br>Time base accuracy $\pm 1$ count<br>$\pm 20$ ppm(23 $^{\circ}$ C $\pm 5^{\circ}$ C) after; 30 minutes warm up<br>The maximum resolution is 10nHz for 1Hz and 0.1Hz for 100MHz |            |             |
|                               | Input Impedance Sensitivity                             | 1M $\Omega$ /150pf<br>$\leq 35$ mVrms(5Hz~100MHz)<br>$\leq 45$ mVrms(100MHz~150MHz)                               |            |             |   |            |             |
| <b>STORE/RECALL FUNCTION</b>  |   | 10 groups of Setting memories   |            |             |   |            |             |
| <b>POWER SOURCE</b>           |   | AC115V, 230V $\pm 15\%$ ,50/60Hz  |            |             |   |            |             |
| <b>ACCESSORIES</b>            |   | Instruction manualx1,Power Cord x 1,GTL-101x1   |            |             | Instruction manualx1,Power Cord x 1,GTL-101x2   |            |             |
| <b>DIMENSION &amp; WEIGHT</b> |   | 107(W) $\times$ 266(H) $\times$ 293(D) m/m;Approx. 3.1kg  |            |             | 107(W) $\times$ 266(H) $\times$ 293(D) m/m;Approx. 3.2kg  |            |             |

## ORDERING INFORMATION

|                 |                              |                 |  |
|-----------------|------------------------------|-----------------|--|
| <b>SFG-2004</b> | 4MHz DDS Function Generator  | <b>SFG-2104</b> | 4MHz DDS Function Generator with Counter, Sweep & AM, FM Modulation  |
| <b>SFG-2007</b> | 7MHz DDS Function Generator  | <b>SFG-2107</b> | 7MHz DDS Function Generator with Counter, Sweep & AM, FM Modulation  |
| <b>SFG-2010</b> | 10MHz DDS Function Generator | <b>SFG-2110</b> | 10MHz DDS Function Generator with Counter, Sweep & AM, FM Modulation |

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