GENERAL
The WE7121 10-MHz function generator module is complete with all of the basic features of a function generator.

The module contains in its flash memory the graphic data for screens used to set such data items as the waveform, output voltage and frequency necessary for module operation. When connected to a personal computer, the module is actuated once it transfers the graphic data to the computer. The module can generate simplified arbitrary waveforms.

FEATURES
- 1-μHz to 10-MHz oscillation frequency range
- Can generate simple arbitrary waveforms
- Operates in sync with an adjacent WE7121 module

Performance Specifications
The following performance specifications are attained under standard operating conditions (“General Specifications”).

Waveform output
- Number of output channels: 1 channel
- Standard output waveforms: Sine wave/square wave (duty cycle fixed at 50%)/triangular wave/ramp wave/pulse wave (duty cycle variable), and inversions of each waveform
- Arbitrary waveform
- Output amplitude resolution: 12 bit
- Memory length: 16384 points (some points are not generated when the repetitive frequency is 2.4 kHz of higher.)
- Output operation
- Continuous oscillation (CONT): Outputs the waveform continuously
- Trigger oscillation (TRIG): Outputs the specified count (integer) of burst waveforms in sync with the trigger.
- Gate oscillation (GATE): Outputs the integer count of burst waveforms while the gate is enabled.
- DC output (DC): Outputs a DC voltage.
- Oscillation frequency range
  - Sine/Square wave: 1 μHz to 10 MHz
  - Triangular/Pulse wave: 1 μHz to 200 kHz
  - Ramp wave: 1 μHz to 200 kHz
  - Arbitrary waveform: 1 μHz to 200 kHz
- Oscillation frequency resolution: 1 μHz or 9 digits maximum
- Oscillation frequency accuracy: ±20 ppm
- Oscillation frequency stability: ±20 ppm (when ambient temperature is 5 to 40°C)
- Oscillation reference clock: 40.2107 MHz

Output characteristics
- Maximum output voltage (see Note 1): ±10 V
- Amplitude setting range (see Note 1): 20 Vp-p (resolution: 1 mVp-p)
- Amplitude accuracy (see Note 1) (for 1 kHz sine wave): ±0.5% of set value + 14 mV
- Oscillation frequency characteristics (see Note 2)
  - Sine wave
    - ≤ 100 kHz ±0.1 dB
    - ≤ 1 MHz ±0.2 dB
    - ≤ 10 MHz ±0.5 dB
  - Square/Pulse wave (duty cycle 50%): ≤ 10 kHz ±2%
  - Triangular wave: ≤ 10 kHz ±3%
  - Ramp wave: ≤ 10 kHz ±3%
- Offset voltage setting range (see Note 1): ±10 V (resolution: 1 mV)
- Offset voltage accuracy (see Note 1): ±0.3% of set value + 0.2% of set amplitude + 20 mV
- DC output setting range (see Note 1): ±10 V (resolution: 1 mV)
- DC output accuracy (see Note 1): ±0.3% of set value + 20 mV
- Output impedance: 50 Ω ±1%, except open when the output is turned OFF
- Maximum output current: ±200 mA
- Output format: Non-isolated unbalanced
- Connector type: BNC

Note 1: Value under high impedance load.
Note 2: Amplitude 20 Vp-p, offset voltage 0 V, 50 Ω load, measures RMS value with 1 kHz as a reference.
Sine wave purity
Harmonics (see Note) (Maximum value of the 2nd to 5th order harmonic components)
100 kHz: –55 dBc or less
1 MHz: –45 dBc or less
10 MHz: –35 dBc or less
Harmonic distortion (see Note) (RMS value of 2nd to 5th order harmonic components)
100 kHz: 0.3% or less
10 kHz: –55 dBc or less
Spurious response (see Note) (frequency range 1 kHz to 100 MHz)
100 kHz: –55 dBc or less
Note: Measured with 20 Vp-p amplitude, 0 V offset voltage, 50 Ω load.

Characteristics of sine, pulse, triangular waves
Rise time (see Note)
Square wave: 30 ns or less (10% - 90%)
Pulse wave: 100 ns or less (10% - 90%)
Overshoot (see Note): ±5% or less of the output p-p value
Duty cycle setting (pulse wave only)
Setting range: 0 to 100% (resolution: 0.01% or 25 ns)
Time accuracy (≤10 kHz): ±0.2% of (1/set frequency)
Jitter: 1 clock cycle
Note: Measured with 20 Vp-p amplitude, 0 V offset voltage, 50 Ω load.

Phase
Target: Start/stop phase when using trigger/gate oscillation
Setting range: –10000 deg to +10000 deg (resolution: 0.01 deg)

Trigger/Gate
Trigger source: Internal trigger, Bus trigger (BUSTRG1/BUSTRG2) signal on WE bus
Setting range of internal trigger frequency: 1 mHz to 50 kHz (resolution: 1 mHz)
Bus trigger (BUSTRG1/BUSTRG2) signal output source:
Able to output waveform synchronization output (SYNC) signal
Setting range of burst count: 1 to 65535 counts (step: 1)
Gate source: Bus trigger (BUSTRG1/BUSTRG2) signal on the WE bus

Synchronous operation
Skew between modules (when modules are linked and outputting the pulse wave): 70 ns per module
(Typical value (see Note 1))
Isolation between channels (see Note 2) (when modules are linked): –65 dB (Typical value (see Note 1))
Note 1: Typical value represents a typical or average value. It is not strictly guaranteed.
Note 2: Output waveform: Cross talk for a 10 MHz sine wave with 20 Vp-p amplitude, 0 V offset voltage, 50 Ω load.

Specifications of the Auxiliary Output
Waveform synchronization signal output (SYNC OUT)
Output level: TTL level, under high impedance load
Output impedance: Approx. 50 Ω
Maximum output current: ±3.2 mA
Output format: Non-isolated unbalanced
Connector type: BNC

General Specifications
Standard operating conditions
Ambient temperature: 23 ±2°C, Ambient humidity: 50 ±10% RH, Error on supply voltage/frequency: within 1% of rating, after the warm-up time has passed
Warm-up time: At least 30 minutes
Operating conditions: Same as that of the measuring station
Storage conditions
Temperature: –20°C to 60°C
Humidity: 20% to 80% RH (no condensation)
Power consumption: 7 VA (Typical value at 100 V/50 Hz (see Note))
External dimensions: Approx. 33 (W) × 243 (H) × 232 (D) mm (projections excluded)
Weight: Approx. 0.7 kg
Number of dedicated slots: 1
Standard accessory: User’s Manual (1)
Optional accessory
366924 BNC cable (1 m)
366925 BNC cable (2 m)
366926 BNC alligator clip cable (1 m)
366921 Adapter (BNC plug-banana terminal jack)
366927 Adapter (BNC plug-RCA jack)
366928 Adapter (BNC jack-RCA plug)
Note: Typical value represents a typical or average value. It is not strictly guaranteed.

AVAILABLE MODEL

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>707121/HE</td>
<td>10 MHz Function Generator Module</td>
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Dimensions
Unit: mm (inch)

| 33 (1.3) | 227 (8.94) | 4.5 (0.18) |

Note: Typical value represents a typical or average value. It is not strictly guaranteed.