



AIM & THURLBY THANDAR INSTRUMENTS

TG120



## 20MHz function generator

- 0.2Hz to 20MHz frequency range
- 10mV to 20V pk-pk from 50  $\Omega$ , plus TTL/CMOS output
- DC offset control with zero detent
- Variable symmetry control
- External sweep input
- Very low cost

# TG120 Low-cost 20MHz function generator

## An essential instrument

The function generator is one of the most versatile instruments available.

It can generate a variety of precision waveshapes over a range of frequencies from mHz to MHz. It can provide a wide range of controlled amplitudes from a low impedance source and maintain constant amplitude as the frequency is varied.

Voltage control of frequency allows FM modulation to be introduced or can provide a swept frequency source for such tasks as frequency response testing.

## 20MHz from a low-cost generator

Most lower cost function generators use a technology which enables them to operate up to no more than 2MHz.

The TG120 utilises an alternative technology which retains its waveform quality right up to 20MHz.

## Variable symmetry for pulse and ramp waveforms

The TG120 provides switchable bi-directional variable symmetry which enables variable duty cycle pulse waveforms and saw-tooths to be generated.

## Sweep mode operation (external)

The TG120 can be operated in sweep mode by connecting an external sweep voltage. A sweep range of at least 20:1 can be achieved.

## Wide range level control

The TG120 provides a main output with a maximum emf of 20V pk-pk from a 50Ω source.

An amplitude vernier with a range of 26dB is combined with two -20dB switched attenuators to provide levels down to 10mV pk-pk. Variable DC offset of ±10V is available via a centre detent control.

An auxiliary output provides a fixed 0 to +5V level suitable for driving both TTL and CMOS loads.

## Key features

- 0.2Hz to 20MHz frequency range
- 10mV to 20V pk-pk from 50 Ω
- TTL/CMOS auxiliary output
- DC offset control with zero detent
- Variable symmetry control
- External sweep input

## Technical Specifications

### FREQUENCY

Frequency Range:	0.2Hz to 20MHz in 8 overlapping decade ranges with fine adjustment by a vernier.
Vernier Range:	>10:1 on each range.
Vernier Accuracy:	Typically ±5% of full scale.

### SWEEP MODE (EXTERNAL)

Input Impedance:	82 kΩ
Sweep Range:	Typically > 20:1
Input Sensitivity:	Typically 0 to 2V for 10:1 sweep
Max. Input Voltage:	±10V
Max. Slew Rate of sweep voltage:	0.1V/us

### OPERATING MODES

(Specifications apply for the top decade of each frequency range and output 10V peak-to-peak into 50Ω termination).

#### SINE

Distortion:	Typically 2% on 200, 2k and 20k ranges.
Amplitude Flatness:	±0.2dB to 200kHz; ±2dB to 20MHz.

#### TRIANGLE

Linearity:	Typically 99% on kHz ranges.
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#### SQUAREWAVE

Rise and Fall Times:	<22ns
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#### DC

Range:	±10V from 50 Ω
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#### SYMMETRY

Symmetry Range:	Typically variable from 1:6 to 6:1 up to 500kHz.
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### OUTPUTS

#### 50 Ω

Three switch-selectable ranges with 26dB vernier control within each range.	
0dB Range:	1V to 20V peak-to-peak (0.5V to 10V into 50 Ω).
-20dB Range:	100mV to 2V peak-to-peak (50mV to 1V into 50 Ω)
-40dB Range:	10mV to 0.2V peak-to-peak (5mV to 0.1V into 50 Ω)
DC Offset Range:	±10V from 50 Ω. DC offset plus signal peak limited to ±10V (±5V into 50 Ω). DC offset plus waveform attenuated proportionally in -20dB and -40dB position.

#### TTL/CMOS

Capable of driving 4 standard TTL loads.

### GENERAL

Power:	230V or 115V nominal 50/60Hz, adjustable internally; operating range ±14% of nominal; 30VA max. Installation Category II.
Operating Range:	+5°C to +40°C, 20% to 80% RH.
Storage Range:	-10°C to +65°C
Environmental:	Indoor use at altitudes to 2000m, Pollution Degree 1.
Electrical Safety:	Complies with EN61010-1.
EMC:	Complies with EN61236.
Size:	220(W) x 82(H) x 230(D) mm, (10.3 x 3.4 x 9.2") excluding feet.
Weight:	1.5 Kg (3.3lb).

Thurlby Thandar Instruments Ltd. operates a policy of continuous development and reserves the right to alter specifications without notice.

Designed and built in Europe by:



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## Product Summary

### Laboratory Power Supplies

Bench and system power supplies from 30 watts up to 1200 watts using linear, mixed-mode and PowerFlex regulation technologies.



### Waveform Generators

Analog and digital (DDS) function generators, true arbitrary generators, arbitrary/function generators and pulse generators.



### Precision Measurement Instruments

Benchtop DMMs, frequency counters, component measurement instruments (LCR), electronic dc loads, current probes.



### RF and EMC Test Equipment

Spectrum analyzers, signal generators, frequency counters, power meters, emc measurement instruments.



## Company name and product brands

Thurlby Thandar Instruments Ltd. (TTi) is one of Europe's leading manufacturers of test and measurement instruments.

Products have been sold under two brand names: TTi and Aim.



In the future, however, the full product range will be branded Aim-TTi.



This changeover will be gradual and many products will continue to carry the TTi or Aim brands for some time to come.

## Web Addresses (URLs)

The preferred URL for obtaining information concerning Aim-TTi products is:

[www.aimtti.com](http://www.aimtti.com) (international customers)

Customers in the UK should use the URL:  
[www.aimtti.co.uk](http://www.aimtti.co.uk)

Customers in the USA should use the URL:  
[www.aimtti.us](http://www.aimtti.us)

Note that previous URLs such as [www.tti-test.com](http://www.tti-test.com) will continue to operate for the time being.

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