

## TGF3000 Series Dual Channel Arbitrary Function Generators



Frequency up to 160MHz, 15 digits or 1 $\mu$ Hz resolution

Arbitrary waveforms up to 16 bits at 800MS/s

Wideband noise generator | high resolution pulse generator

Comprehensive internal/external digital and analog modulations

Two identical channels with phase control, coupling and tracking

USB and LXI compliant LAN interfaces, plus optional GPIB interface

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**Aim-TTi**

# TGF3000 Series - Key Features

Sine frequency up to 160MHz  
high sine purity, THD <0.05%

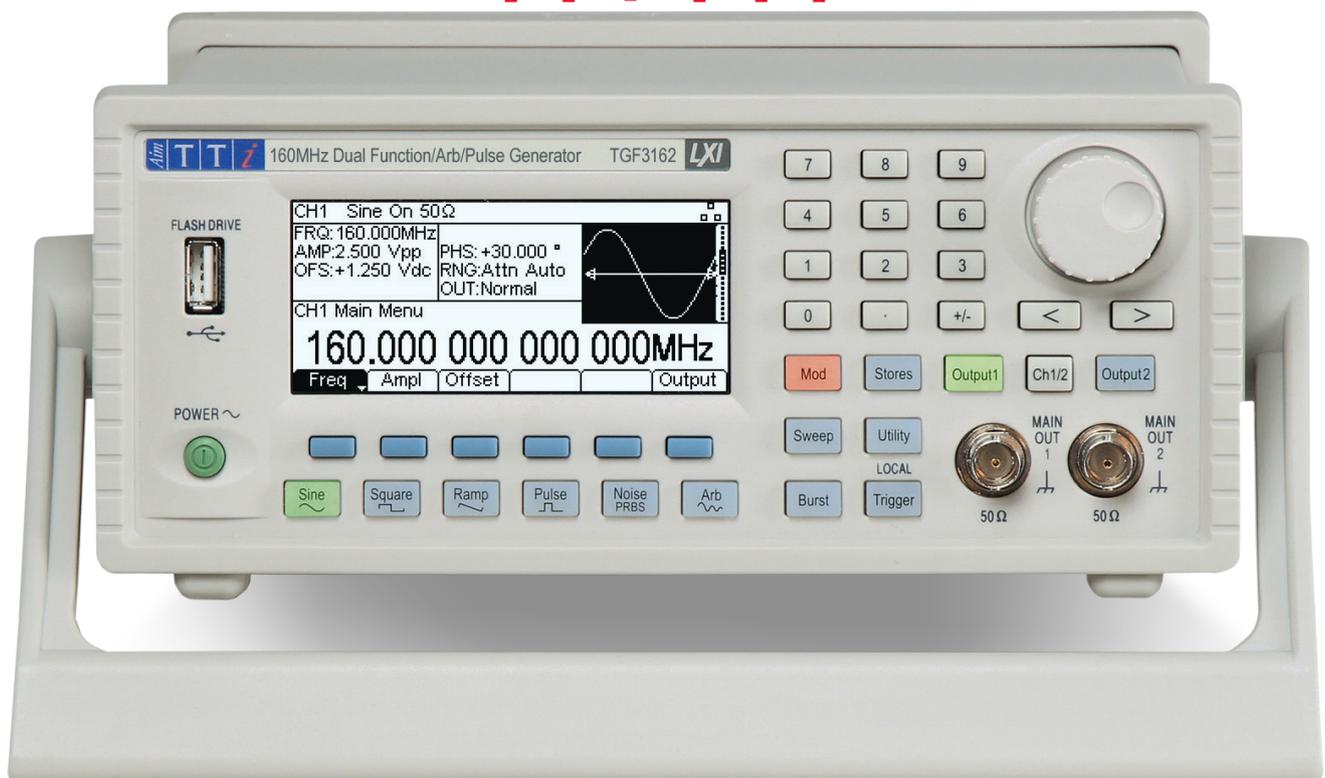
Arbitrary waveforms of 16 bits  
at up to 800MSa/s

Class-leading modulation set  
including SUM modulation

Two identical channels with phase  
control, coupling and tracking

High resolution pulse generator  
and wide bandwidth noise source

PRBS serial patterns with eight  
selectable sequence lengths



USB and LXI compliant LAN  
interfaces, plus optional GPIB.

The TGF3000 series is the latest function/arbitrary generator series from Aim-TTi offering class-leading performance and unrivalled value for money.

A frequency capability of up to 160MHz is combined with two identical full performance channels that can operate as independent generators or in coupled or tracking modes. Precise channel to channel phase control with a resolution of 0.001° is provided.

A wide range of built-in waveforms is included and custom arbitrary waveforms can be used at sample speeds up to 800MS/s and replay rates up to 80MHz. PC based arbitrary waveform generation and editing software is provided.

High resolution, low jitter pulses can be generated as can wide bandwidth white noise.

A extensive array of modulations is provided using internal and external sources. Gated, burst and sweep modes can use internal or external trigger sources.

Remote control via USB and LXI compliant LAN (standard) can be supplemented by optional GPIB if required.



Model Comparison	TGF3162	TGF3082
No. of channels	2	2
Max frequency (sine)	160MHz	80MHz
Vertical bits / Sample rate	16 bits / 800MS/s	14 bits / 400MS/s
Max noise bandwidth	100MHz	62.5MHz
Model specific features*		
PRBS Generator	Standard	Optional*
Harmonics Generator	Standard	Optional*
Sum Modulation	Standard	Optional*
Inter-channel coupling & tracking	Standard	Optional*

\* The four features listed as model specific can be added to the TGF3082 by software unlocking. (option GU3082). Most other features and specifications are common to both models (see technical specifications section for full details).

## FEATURES SUMMARY

- ▶ 0.001mHz to 80MHz (TGF3082) or 160MHz (TGF3162) sine frequency range
- ▶ High sine wave purity with low phase noise and jitter, audio band THD down to 0.05%
- ▶ Square waves up to 50MHz with variable duty cycle, edge speeds down to 5ns
- ▶ Resolution of up to 15 digits or 1μHz, high stability TCXO timebase
- ▶ Two identical channels - independent or linked with coupled and tracking modes \*
- ▶ Inter-channel phase offset of -360° to +360° with 0.001° resolution
- ▶ Pulse generation with 100ps width resolution, <30ps jitter, and variable rise/fall times
- ▶ Wideband noise generator with up to 100MHz noise bandwidth
- ▶ PRBS pseudo-random bit sequence generation with 8 sequence lengths \*
- ▶ Harmonics generation using up to 16 harmonics \*
- ▶ Wide range of standard and arbitrary waveforms built-in
- ▶ Arbitrary waveforms of 14-bits / 400MS/s (TGF3082) or 16-bits / 800MS/s (TGF3162)
- ▶ Waveform Manager Plus for Windows editing software included
- ▶ Front USB host socket for waveform storage and file transfers using Flash drives
- ▶ Comprehensive internal/external digital and analog modulation set including Sum \* modulation
- ▶ Modulation frequencies up to 10MHz internal and 5MHz external
- ▶ Gate and Burst modes with internal and external triggering
- ▶ Bi-directional linear and logarithmic sweep using internal or external triggering
- ▶ 125MHz frequency counter/timer with five measurement modes
- ▶ Compact half-rack 2U casing with protective buffers and handle
- ▶ Programmable via USB and LAN (LXI) interfaces; GPIB optional

Features marked \* are standard on the TGF3162 and optional on the TGF3082 by adding GU3082

# TGF3000 Series - Functions and Waveforms

## HIGHER FREQUENCIES

The TGF3000 Series out-performs other generators in its price range by offering sine waves up to 160MHz and square waves up to 50MHz.

### Exceptional frequency precision

The frequency of these waveforms can be set with up to 15 digits or one micro hertz of resolution.

The DDS based frequency generation system uses a high stability TCXO timebase oscillator.

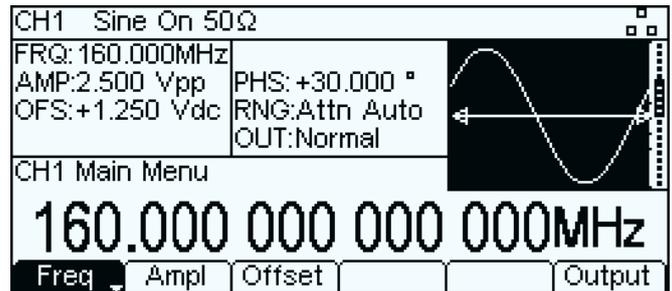
### Waveform quality

The TGF3000 Series generates high purity sine waves with low harmonic distortion and low phase noise. Audio band THD is significantly better than similar generators at just 0.05%.

### Built-in Waveforms

A large number of standard and pre-built arbitrary waveforms are built into the generator. These include triangles, ramps, sinc, logarithmics, exponentials, gaussians and cardiac (among others).

High sampling rate allows higher repetition rates than other generators.



High quality sine waves at up to 160MHz (TGF3162) or 80MHz (TFG3082)



Built-in complex waveforms supplemented by more than 100 loadable additional waveforms

## CUSTOM ARBITRARY WAVEFORMS

Custom arbitrary waveforms of 16 bit vertical resolution and up to 8192 points can be defined and replayed at sampling rates up to 800MS/s and repetition rates up to 80MHz.

### Waveform Editing

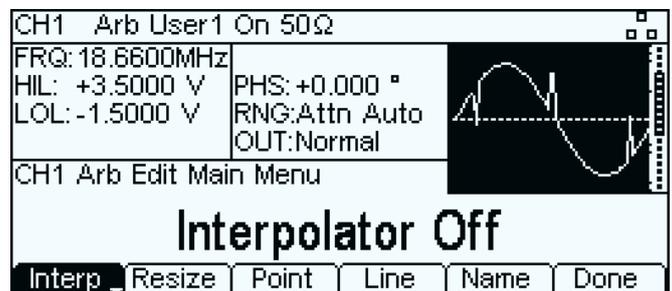
Basic waveform creation and editing is built into the generator. However for complex waveforms Waveform Manager Plus software is included.

This Windows based package enables almost any waveform shape to be created using mathematical expressions, freehand drawing, waveform libraries, and import of waveforms using the Clip Board.

### Waveform Transfer and Storage

Waveforms can be stored on Flash drives using the front panel mounted USB host interface.

Waveforms can be transferred from or to a PC either using a Flash drive, or via the digital interfaces (USB, LAN or GPIB).



Arbitrary waveforms can be generated and edited within the instrument, but complex wave shapes are generated using the supplied PC software Waveform Manager Plus- see page 9

## WIDEBAND NOISE GENERATOR

The Noise function provides wideband gaussian noise at bandwidths up to 100MHz and crest factor of more than five.

Noise can be used both as a carrier waveform and as a modulating waveform for AM, FM, PM, PWM and SUM modulation types.

As a carrier it can be AM, ASK or SUM modulated.

