

# Műszaki adatok

Specifications apply at 18°- 28°C after 1 hour warm-up, at maximum output into 50Ω.

## FREQUENCY

All waveforms are derived from a crystal clock using Direct Digital Synthesis.

Frequency Range: 1mHz to 20MHz (TG2000)  
Resolution: 6 digits or 1mHz  
Accuracy: ±10ppm for 1 year, 18°C to 28°C; ±1mHz below 0.2Hz  
Tempco.: Typically <1ppm/°C outside of 18°C to 28°C

## WAVEFORMS

### Sinewave

Range: 1mHz to 20MHz  
Resolution: 6 digits or 1mHz  
Distortion: <0.3% THD to 20kHz (typically 0.1%), <-45dBc to 300kHz, <-35dBc to 20MHz (typically <-40dBc)  
Spurii: Non harmonically related spurii <-55dBc to 1MHz, <(-55dBc + 6dB/octave) 1MHz to 20MHz  
Output Level: 5mV to 20V pk-pk from 50Ω or 600Ω

### Squarewave

Range: 1mHz to 10MHz/20MHz  
Resolution: 6 digits or 1mHz  
Symmetry: variable 20% to 80% in 1% steps  
Aberrations: <5% + 2mV  
Rise & Fall Times: <22ns  
Output Level: 5mV to 20V pk-pk from 50Ω or 600Ω

### Triangle

Range: 1mHz to 1MHz  
Resolution: 6 digits or 1mHz  
Linearity error: <0.5% to 100kHz  
Output Level: 5mV to 20V pk-pk from 50Ω or 600Ω

### Positive and Negative Pulse

Range: 1mHz to 20MHz  
Resolution: 6 digits or 1mHz  
Symmetry: variable 20% to 80% in 1% steps  
Aberrations: <5% + 2mV  
Rise & Fall Times: <22ns  
Output Level: 2.5mV to 10V pk-pk from 50/600Ω positive or negative only pulses with respect to the DC Offset baseline

## MODULATION MODES

### Continuous

Continuous cycles of the selected waveform are output at the selected frequency.

### Gated

Non phase-coherent signal keying - output is On while Gate signal is high and Off while low.

Carrier frequency: From 0.1Hz to 10MHz/20MHz  
Carrier waveforms: All  
Trigger rep. rate: dc to 100kHz external, dc to 5kHz internal  
Gate source: Front panel MAN TRIG key, Internal Gate Generator, TRIG/GATE input, or Remote Interface

### Sweep

Carrier waveforms: All  
Sweep Mode: Linear or logarithmic, single or continuous  
Sweep Width: 0.2Hz to 10MHz/20MHz in one range. Phase continuous. Independent setting of the start and stop frequency  
Sweep Time: 50ms to 999s (3 digit resolution)  
Markers: Available from AUX output. Variable during sweep  
Sweep Trigger source: The sweep may be free run or triggered from: front panel MAN TRIG key, TRIG/GATE input, or Remote Interface

### Amplitude Modulation

Carrier frequency: 1mHz to 10MHz/20MHz  
Carrier waveforms: All  
Modulation source: VCA IN socket

### Frequency Shift Keying (FSK)

Phase coherent switching between two selected frequencies at a rate defined by the switching signal source.

Carrier frequency: 1Hz to 10MHz/20MHz  
Carrier waveforms: All  
Switch rate: dc to 5kHz (internal), dc to 1MHz (external)

Switching signal source: Front panel MAN TRIG key, Internal Trigger Generator, TRIG/GATE input, or Remote Interface

## Tone

The tone is output while the trigger signal is high, and stopped when the trigger signal is low. The next tone is output when the trigger signal goes high again.

Carrier waveforms: All  
Frequency list: Up to 16 frequencies between 1Hz and 10MHz/20MHz  
Min. switching time: 1ms per tone  
Switching source: Front panel MAN TRIG key, Internal Trigger Generator, TRIG/GATE input, or Remote Interface

## Internal Trigger/Gate Generator

Period: 0.2ms to 999s (resolution 0.2 ms)  
Waveform: Square wave (1:1 duty cycle)

## MAIN OUTPUT

Output Impedance: 50Ω or 600Ω switchable  
Amplitude: 5mV to 20V pk-pk open circuit (2.5mV to 10V into 50/600Ω)  
Output can be specified as V-HiZ (open circuit value) or V (potential difference) in pk-pk, RMS or dBm. Note that in positive or negative Pulse modes the amplitude range is 2.5mV to 10V pk-pk O/C.

Accuracy: ±3% ±1mV at 1kHz into 50Ω/600Ω  
Flatness: ±0.2dB to 500kHz; ±1dB to 10MHz; ±2dB to 20MHz  
DC Offset: ±10V from 50Ω/600Ω. DC offset plus signal peak limited to ±10V. Accuracy ±3% ±10mV  
Resolution: 3 digits for both amplitude and offset

## AUXILIARY OUTPUT

Multi-function output user definable to be any of the following:

Waveform Sync: Outputs a 50% duty cycle squarewave at the main waveform frequency  
Trigger Out: Outputs a replica of the current trigger signal  
Sweep Sync: Outputs a trigger signal at the start of sweep (for synchronising an oscilloscope or chart recorder). Can additionally output a sweep marker.  
Signal Levels: Output Impedance 50Ω nominal. Logic levels of <0.8V and >3V. Sweep Sync is a 3 level waveform, low at start of sweep, high at end of sweep, with a narrow 1V pulse at the marker point

## INPUTS

### Ext Trig/Gate

Frequency Range: DC to 1MHz for FSK; DC to 100kHz for Gate; DC to 2.5kHz for Tone and Sweep  
Signal Range: Nominal TTL level threshold; maximum input ±10V  
Min. Pulse Width: 100ns for Gate/FSK; 0.2ms for Sweep and Tone  
Input Impedance: Typically 10kΩ

### VCA In

Frequency Range: DC - 100kHz  
Signal Range: 2.5V for 100% level change at maximum output  
Input Impedance: Typically 6kΩ

## INTERFACES

Full remote control facilities are available through the RS232 or USB interfaces.

RS232: Variable Baud rate (19200 max), 9-pin D-connector. As well as operating in a conventional RS-232 mode the interface can be operated in addressable mode whereby up to 32 instruments can be addressed from one RS-232 port  
USB: Standard USB hardware connection. Conforming USB 1.1

## GENERAL

Display: 20 character x 4 row alphanumeric LCD  
Data Entry: Keyboard selection of mode, waveform etc.; value entry direct by numeric keys or by rotary control.  
Stored Settings: Up to 9 complete instrument set-ups may be stored in battery-backed memory.  
Size & Weight: 260(W) x 88(H) x 235(D) mm; 2kg (4.5lb)  
Power: 100V, 110-120V or 220-240V ±10% 50/60Hz, adjustable internally. 40VA max. Installation Category II.  
Operating Range: +5°C to 40°C, 20-80% RH  
Storage Range: -20°C to +60°C  
Environmental: Indoor use at altitudes up to 2000m, Pollution Degree 2  
Safety & EMC: Complies with EN6010-1 and EN61326

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