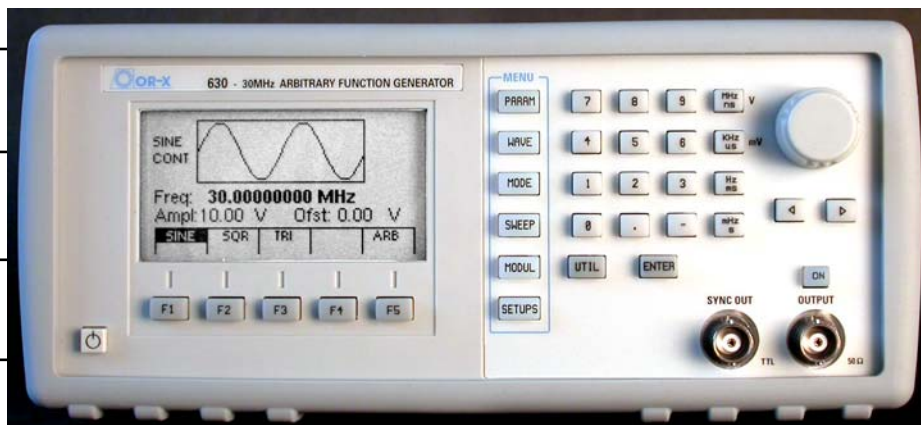




MODEL 630

ARBITRARY FUNCTION GENERATOR

- * 31 MHz Sine and Square Waveforms
- * 50 MHz Sampling, 500K-point Arbitrary Waveforms
- * AM, FM, FSK, PM modulation types
- * IEEE488.2 and RS-232C



Capabilities

The MODEL 630 can generate standard or user-defined waveforms with crystal controlled sampling rates of up to 50MHz, 12 bit vertical resolution and up to 500K points. The sampling rate can also be controlled by an external clock. All waveforms are internally generated with amplitudes to 10Vp-p into 50 Ω . An offset generator allows generation of signals with large offsets. A full range of triggering capabilities is available, including internal-external trigger source, gated and burst modes of operation. Two or more units can be parallel connected to produce multiple waveforms with adjustable phase.

Easy Operation

A menu-driven front panel operation with an easy-to-read graphic LCD display makes the MODEL 630 easy to operate. Parameter changes and data entry can be made using the rotary knob. Waveform editing can be done from scratch or by modifying standard waveforms. A PC software program, **Wave-X** Arbitrary Waveform Editor allows you to easily create, edit and download complex waveforms. Multiple waveforms can be stored in the instrument flash memory.

External Reference

A 10MHz external reference clock lets you synchronize the unit for precise phase adjustment.

Standard Waveforms

The wide choice of build-in standard waveforms gives instant access to frequently used test signals. The standard waveforms are: sine, triangle, square, ramps, pulses and DC. AM, FM, FSK and PM modulation are available with programmable internal or external signals.

Programming

The instrument can be remotely controlled by the build-in GPIB IEEE-488.2 and RS-232C interfaces. All parameters, modes and functions are programmable and SCPI compatible.

MODEL 630 - SPECIFICATIONS

DESCRIPTION

The **MODEL 630** is a programmable **Function - Arbitrary Waveform Generator**, generating user defined waveforms or Sine, Square, Pulse, Triangle, Ramp up, Ramp down, etc.

OPERATING MODES

Continuous: Output continuous at programmed parameters.

Triggered: Output quiescent until triggered by an internal, external, GPIB or manual trigger, then one waveform period is generated at the programmed point rate, amplitude and offset. Up to 10MHz trig rate for ARB waveforms and 5MHz in DDS mode.

Gated: Same as triggered mode except waveform is executed for the duration of the gated signal. The last waveform period started is completed.

Burst: Same as triggered mode for programmed number of waveform periods from 2 to 99,999.

Phase: Variable from -360° to $+360^\circ$ with 0.1° resolution.

ARBITRARY CHARACTERISTICS

Horizontal Resolution: 500,000 points.

Vertical Resolution: 12 bits (-2047 to $+2047$).

Point Execution Rate: 20ns to 50s with 4 digits resolution (limited to 10ps) and 0.002% accuracy.

FREQUENCY CHARACTERISTICS

Sine: 10 μ Hz to 31 MHz.

Square: 10 μ Hz to 31 MHz.

Triangle: 10 μ Hz to 500 KHz.

Pulse: 0.5mHz to 10MHz with variable width, rise and fall times

Accuracy: 0.002 % (20 ppm).

Resolution: 10 digits or 10 μ Hz.

OUTPUT CHARACTERISTICS

Amplitude Range: 10mV-10Vp-p into 50 Ω

Resolution: 3 digits (1000 counts)

Accuracy: $\pm 1\%$ ± 20 mV of the programmed output from 1V- 10V.

Flatness: 0.2dB at 1MHz
0.5dB at 20 MHz

Offset Range: ± 4.5 V into 50 Ω in the 1V-10V amplitude range.

Offset Resolution: 3 digits, 10 mV.

Offset Accuracy: $\pm 1\%$ ± 10 mV.

Output Impedance: 50 Ω .

Filters: 9 pole Elliptic and 5 pole Bessel filters.

Protection: The instrument is protected against short circuit to ground or to any voltage practically available in electronic laboratories.

WAVEFORM CHARACTERISTICS

Harmonic Distortion:

DC -100KHz -60dBc

100KHz-1MHz -45dBc

1MHz-15MHz -35dBc

15MHz-30MHz -25dBc

Spurious: DC-1MHz, < -65 dBc

Square Rise/Fall Time: < 12 ns (10% to 90%) at full amplitude into 50 Ω .

Variable Duty Cycle:

20% to 80% to 5MHz

40% to 60% up to 20MHz.

Symmetry: at 50% $< 1\%$.

Overshoot: $< 2\%$ of p-p ± 50 mV.

MODULATION CHARACTERISTICS

Amplitude Modulation: Internal 0.01Hz-20KHz sine wave, square or triangle, variable depth from 0% to 100%.

External: 5 Vp-p for 100% modulation.

Frequency Modulation: Internal : 0.01Hz-20KHz sine wave, square or triangle. External: 5 Vp-p for 100% deviation.

FSK: Internal rate 0.02Hz-1MHz. External 1MHz max.

SWEEP CHARACTERISTICS

Sweep Shape: Linear and Log.

Sweep Time: 20 ms to 500 s.

Sweep trigger: internal, external, continuous or burst

INPUTS AND OUTPUTS

Sync Output: Positive TTL pulse at selected frequency, 50 Ω impedance.

Trigger Input: TTL compatible, 1K Ω nominal impedance. Max. rate 10MHz, Minimum width 50ns.

Modulation Input: 5 Vp-p for 100% modulation, 10 K Ω input impedance, DC to > 20 KHz bandwidth.

Ref Input: 10MHz, TTL compatible.

Ref Output: 10MHz, TTL levels

INTERNAL TRIGGER

Repetition: 0.01Hz - 1MHz

Resolution: 4 digits

Accuracy: $\pm 0.002\%$

INTERFACE

IEEE488.2 (GPIB) SCPI compatible. RS-232

GENERAL

Store memory: 50 full panel settings at power-off

Arbitrary memory: 500K in flash memory

Power Requirements: 90V-264V, 50 VA max.

Dimensions: Height: 88 mm (3.5 in)

Width: 213 mm (8.4in)

Length: 300 mm (12 in)

Weight: 3Kg net.

Operating Temperature: 0 $^\circ$ C to 50 $^\circ$ C

Humidity: to 95% RH, 0 $^\circ$ C to 30 $^\circ$ C

EMC: EN55011, EN55082.

Safety: EN61010.

CE Labeled

NOTES

Specifications are verified according to the performance check procedures in the technical manual. Specification not verified in the manual are either explanatory notes or general performance characteristics only.

01/2006



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