TGA1230 Arbitrary & Universal Waveform Generator

- 12 bit, 30MS/s arbitrary waveform generator
- 64K word waveform memory
- Waveform linking, looping and sequencing
- 10MHz standard waveform generator
- Standard waveforms include sine, \( \sin x/x \), square, triangle, ramp, pulse and pulse train
- Triggered and gated modes
- Full range sweep, 30ms to 15 minutes
- Output level 5mV to 20V pk-pk
- RS-232 standard, GPIB optional

**OUTPUTS**

**Main Output**
- Amplitude: 5mV to 20V pk-pk from 50Ω
- Flatness: ±0.2dB to 200kHz, ±1dB to 5MHz, ±2.5dB to 10MHz
- Rise and Fall Times: <25ns
- DC Offset: ±10V from 50Ω
- Resolution: 3 digits or 1mV for both Amplitude and DC Offset.

**Sync Output**
- Multifunction output user definable or automatically selected to be any of the following: Waveform Sync, Position Markers, Trigger Signal, Burst Done, Loop Done.

**Sweep Out**
- Outputs the sweep trigger signal.
- Lock Out
  - Used to phase lock two or more generators.
- Z-Mod/Sweep Marker
  - Used to modulate the Z-axis of an oscilloscope when using the waveform editing features. Can be displayed on a second oscilloscope channel if Z-modulation is not available. Outputs sweep marker when sweep is enabled.

**INPUTS**
- Ext Trig, VCA/SUM In, Hold, Ref In/Out

**STANDARD WAVEFORMS**

- **Sine**
  - Range: 0.1mHz to 10MHz
  - Resolution: 7 digits or 0.1mHz
- **Square**
  - Range: 1mHz to 15MHz
  - Resolution: 4 digits or 1mHz
- **Triangle/Ramp/\( \sin x/x \)**
  - Range: 0.1mHz to 100kHz
  - Resolution: 7 digits or 0.1mHz

**Pulse/Pulse Train**
- Pulse and Pulse train are defined by period, width and delay. Each pulse in a pulse train can be allocated an individual level.
- Repletion Range: 1mHz to 10MHz
- Pulse Width: 33ns to 1000ns
- Pulse Delay: 33ns to 1000ns
- Pulse Resolution: 4 digits or 33ns

**ARBITRARY WAVEFORMS**
- Up to 50 user defined waveforms may be stored in RAM. Waveforms can be defined by front panel editing controls or by downloading of waveform data from RS232 or GPIB interfaces.
- Waveform Memory: 64K words. Waveform size 4 points to 64K points.
- Resolution: 12 bits
- Sample Clock: 100MHz to 30MHz

**Resolution:** 4 digits
**Waveform Sequencing:**
- Up to 4 waveforms may be linked. Each waveform can have a loop count of up to 32768 or run continuously, conditional upon a external trigger event. Additionally a sequence of waveforms can be looped up to 1048576 times or run continuously.

**Output Filter:**
- Selectable 10MHz Elliptic, 10MHz Bessel or none.

**MODULATION MODES**

**Trigger/Burst**
- Each positive edge of the trigger signal will produce one burst of the waveform, starting and stopping at the waveform position specified by the sync marker setting.
- Carrier waveforms: All standard and arbitrary
- Trigger rep. rate: dc to 50kHz internal, dc to 1MHz external.
- Source: Internal from keyboard or trigger generator. Externally from EXT TRIG input or remote interface.
- Gated: Waveform runs with Gate signal is high and stops while low.
- Carrier waveforms: All standard and arbitrary
- Trigger rep. rate: dc to 50kHz internal, dc to 1MHz external.
- Gate signal source: Internal from keyboard or trigger generator. Externally from EXT TRIG input or remote interface.

**Sweep**
- Capability provided for both standard and arbitrary waveforms. Arbitrary waveforms are expanded or condensed to exactly 4096 points and DDS techniques are used to perform the sweep.
- Carrier waveforms: All standard and arbitrary.
- Sweep Mode: Linear or logarithmic, single or continuous.
- Sweep Width: From 1mHz to 10MHz in one range. Phase continuous, independent setting of the start and stop frequency.
- Sweep Time: 30ms to 999s (3 digit resolution).
- Marker: Variable during sweep.
- Trigger source: The sweep may be free run or triggered from any of the following sources: Internal from keyboard. Externally from EXT TRIG input or remote interface.

**External Amplitude Modulation**
- Frequency Range: DC - 100kHz.
- Signal Range: 2.5V for 100% level change at maximum output.
- **Trigger Generator**
  - Internal source 0.005 Hz to 50kHz square wave adjustable in 20us steps, 3 digit resolution. Available for external use from the SYNC OUT socket.

**INTERFACES**
- Full remote control facilities are available through the RS232 (standard) or optional GPIB interfaces.
- **RS232:** Variable Baud rate, 9600 Baud maximum. 9-pin D-connector.
- **IEEE-488:** Standard or addressable mode (ARC) operation. Conforming with IEEE488.1 and IEEE488.2

**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 and recalled from battery-backed memory. Up to 50 arbitrary waveforms can also be stored.
- **Size:** 3U (130mm) height; half-rack (212mm) width; 330mm long.
- **Weight:** 4.1kg. (9lb.)
- **Power:** 230V, 115V or 100V nominal 50/60Hz, adjustable inter-nally; operating range +/-14% of nominal; 30VA max.
- **Operating Range:** +5°C to 40°C; 20-80% RH.
- **Storage Range:** -20°C to + 60°C.
- **Options:** IEEE-488 interface; 19 inch rack mounting kit.
- **Safety and EMC:** Complies with EN61010-1, EN50081-1 and EN50082-1.

**Note:** This is a faxable data sheet, a colour brochure is also available.

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