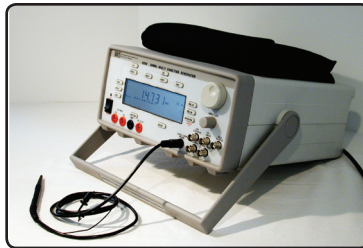


# IST MODEL 5800/5850

## TECHNICAL SPECIFICATIONS



### AUTO-RANGING COUNTER:

**Input Characteristics:**  
**Impedance:** 1MOHM  
**Coupling:** AC (Ext. counter BNC input) or DC (logic probe input)  
**MAX. Overload Protection:** +/- 250V AC/DC  
**Triggering threshold:** Selectable for TTL, CMOS logic threshold or 0-3.5V  
 Continuously adjustable triggering level

**FREQUENCY COUNTER (Display shown "Ext. CNTR")**  
**Range:** 2.4 Hz to 50 MHz Auto-ranging  
**Resolution:** 0.01, 0.1, 1, 10, 100 Hz  
**Max. Display:** 6 digit  
**Time Base Stability:** 0.1 PPM (23+/- 5 Degree C)  
**Accuracy:** Time Base Accuracy +/- 1 count  
**Sensitivity:** 0.35 Vrms

**PERIOD COUNTER (Display shown "Ext. CNTR TOTAL")**  
**Range:** 0.03 Hz to 3.00 Hz Auto-ranging  
**Resolution:** 0.01, 0.001 Hz  
**Accuracy:** Time Base Accuracy +/- 0.01 count  
**Max. Display:** 4 digits

**TRANSITION (TOTALIZE) COUNTER ("TOTAL")**  
**Range:** DC to 2 KHz Max.  
**Max. Display:** 6 digits

### AUTO-RANGING DVM:

**Input Characteristics:**  
**Input Range:** 0 to +/- 2.500 V, +/- 25.00 V, +/- 250.0 V Auto-ranging  
**Resolution:** 1 mV, 10 mV, 100 mV  
**Accuracy:** +/- 0.5%  
**Input Protection:** Max. +/- 250V  
**Impedance:** 1 MOHM  
**Max. Display:** 4 digits

### UNIVERSAL LOGIC PROBE:

**Logic Threshold:**

	TTL	CMOS
High Threshold	2.2V +/- 5%	70% Vdd*
Low Threshold	0.8V +/- 5%	30% Vdd*

\*Vdd is controlled by C-Level

**MAX. Repetitive Frequency Response:** 35MHz (w/probe miniature clip to ground)  
**Min. Single Pulse Detection:** 12ns  
**Display Format:** Logic High, Logic Low, Square Clock, Positive Going Pulse, Negative Going Pulse, Tri-state

### TRIPLE OUTPUT DC POWER SUPPLY:

	Vcc	+Vs	-Vs
Output Voltage	5V/3.3V	0~+24V	0~-24V
	Min.	5.0A	1.5A
Output Current	Typical	5.0A	2.0A
	Max.	6.5A	2.5A
DVM display	3-digit	4-digit	4-digit
Load Regulation	≤ 6mV	≤ 10mV	≤ 10mV
Overload Protection	Short Circuit, Overcurrent, Overvoltage, Reverse Polarity, Overtemperature		
Recovery Time	≤ 20us	≤ 20us	≤ 80us
Ripple & Noise	1mVrms	1mVrms	1mVrms
Dual Tracking*	N/A	YES	YES

\* -Vs tracks +Vs or independent adjustment

### PHYSICAL PROPERTIES:

**Dimensions:** 5.3" x 9.5" x 10.5"  
**Shipping Weight:** 7.5 lbs (3.4 Kg)  
**Power Requirements:** 115VAC or 230VAC 10% 50 or 60 Hz., Approx.  
**Accessories:** Operational manual, AC power cord, BNC cable with clips, Logic Probe  
**Options:**  
 1) RS-232C D-Sub 9-Pin Male to Female interface cable  
 2) Universal Solderless Breadboard Kit with Banana Plugs (connects to model 5850 directly)

### FUNCTION GENERATOR:

**FREQUENCY CHARACTERISTICS**  
**Wave forms:** Sine, Square, Triangle, +/-Pulse, +/-Ramp  
**Range:** 0.13Hz to 20MHz in 8 ranges  
**Resolution:** 0.01, 0.1, 1, 10, 100Hz Display  
**Tuning Range:** Coarse: 10:1, Fine: +/- 3% of Coarse Setting  
**Variable Duty Cycle:** 15:85:15 Continuously variable  
**Operating Modes:** Normal, Sweep, VCG, AM, FM, Burst  
**Frequency Stability:** Within +/- 0.1% of the tuning frequency at any time

**OUTPUT CHARACTERISTICS:**  
**Impedance:** 50 ohm +/- 10%  
**Level:** 10mV to 20V p-p Open-circuit, or 10V p-p into 50 ohm to 10 MHz  
**Amplitude Control:** Variable, 20 dB range typical  
**DC Offset:** Preset: +/- 0.1V typical, Variable: +/- 10V open-circuit, +/- 5V into 50 ohm

**Sine Wave**  
**Distortion:** ≤ 1% typical @ 1KHz  
**Flatness:** +/- 5% (0.45 dB) 0.13Hz to 10 MHz, +/- 10% (1 dB) 10 MHz to 20 MHz

**Square Wave**  
**Symmetry:** ≤ 2% 0.13Hz to 100KHz  
**Rise Time:** ≤ 20ns  
**Overshoot & Undershoot:** ≤ 5%

**Triangle Wave**  
**Linearity:** ≥ 98% up to 100KHz

**TTL OUTPUT**  
**Level:** 0.8V to 3.5V  
**Rise Time:** ≤ 20ns  
**Duty Cycle:** 50% typical

**CMOS OUTPUT**  
**Frequency:** 3MHz @ 5V supply output. Output Frequency increases as supply voltage increases. 7MHz @ 15V supply output  
**Level:** Output to 16.5V +/- 0.5Vp-p  
**Rise Time:** 100ns

**VCG (Voltage Controlled Generator) INPUT**  
**Input Voltage:** 0-10V +/- 1V causes a 100:1 frequency change  
**Impedance:** 10K ohm +/- 5%

**SWEEP OPERATION**  
**Mode:** LIN/LOG  
**Source:** Internal, External  
**Width:** 100:1, continuously variable  
**Rate:** 20mS to 2 sec, continuously variable  
**Sweep Output:** 0 to 2V  
**Start/Stop Frequency:** By digital setting

**AM MODULATION CHARACTERISTICS**  
**Source:** Internal, External  
**Modulation Ratio:** 0 to 100%  
**INT. Modulation:** 1KHz  
**EXT. Modulation:** DC to 500KHz  
**EXT. Sensitivity:** Less than 10Vp-p for 100% modulation

**FM MODULATION CHARACTERISTICS**  
**Source:** Internal, External  
**Deviation:** 0 to 5%  
**INT. Modulation:** 1KHz  
**EXT. Modulation:** DC to 500KHz  
**EXT. Sensitivity:** Less than 10Vp-p for 100% modulation

**BURST CHARACTERISTICS**  
**Mode:** Multiple, Single, or Key Controlled one shot  
**Source:** Internal, External  
**Burst Width:** Continuously variable from 5% to 90% of internal gating frequency  
**Repetition Rate:** 0.5Hz to 50Hz, internal or DC to 500KHz external  
**Burst Frequency:** Determined by the main generator frequency setting  
 Tone burst is in integral cycles of frequency being gated

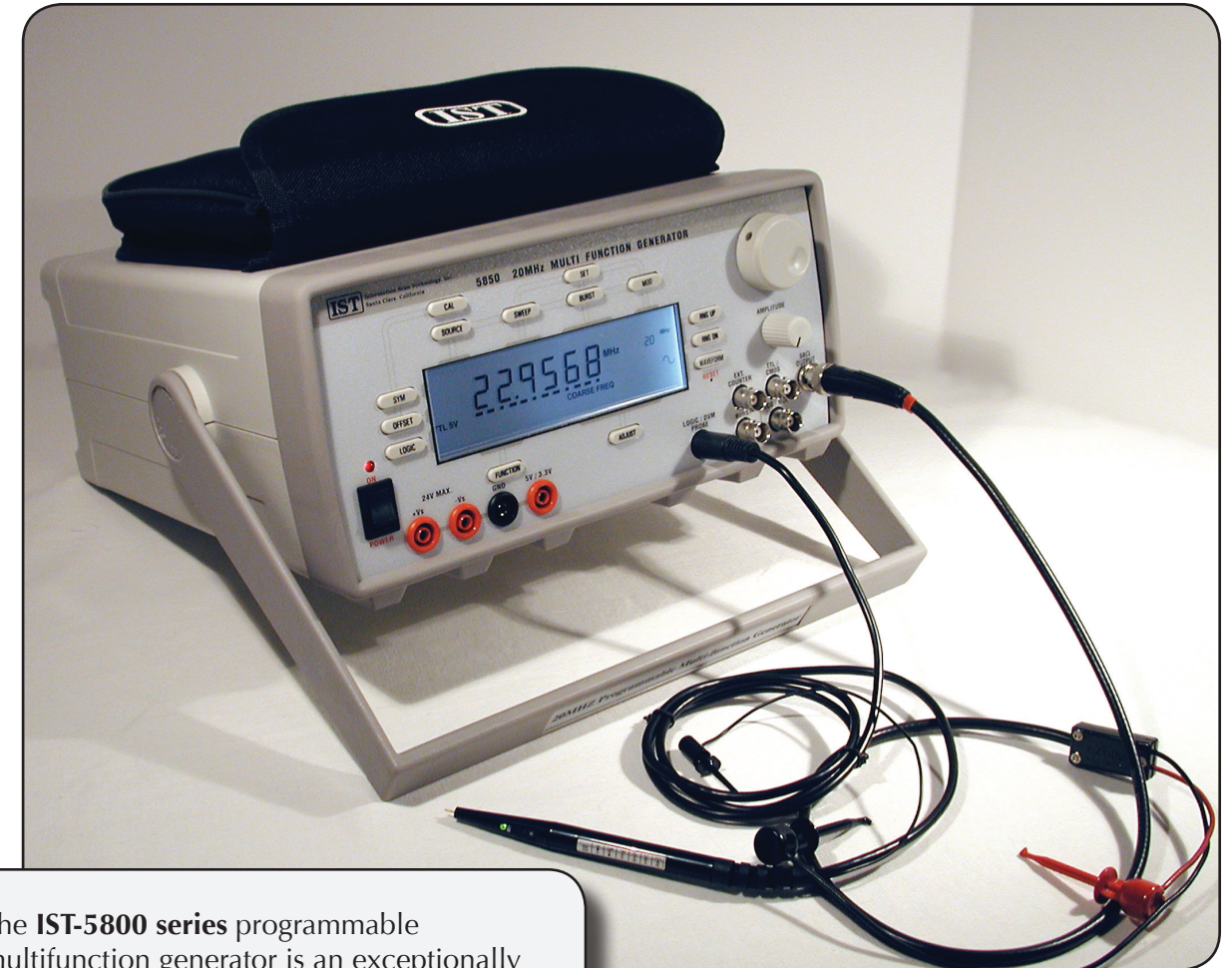


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# IST MODEL 5800/5850

## PROGRAMMABLE MULTIPLE FUNCTION GENERATOR

*A complete testing solution featuring five lab instruments in one low cost and portable package for maximum precision and convenience*



The IST-5800 series programmable multifunction generator is an exceptionally versatile and economical instrument for applications in R&D, Manufacturing Test, Service Repair and Training. Featuring an adjustable triple output power supply and waveform generator, it has the ability to provide power and signal sources for a circuit while the universal logic probe, auto-ranging frequency counter, and digital voltmeter allows you to simultaneously analyze and measure circuit activity. This compact device combines the functionality of five standard laboratory instruments into one integrated unit, making the task of switching instruments as easy as pressing a button.

### Five instruments in one!

- 20 MHz Sweep/Function Generator
- 35 MHz Universal Logic Probe
- 80 W Adjustable Triple Output Power Supply with Display\*
- Autoranging frequency, Period, Totalize Counter
- Autoranging Digital Voltmeter

\*Note: Only the IST-5850 model comes equipped with a power supply.

# INTRODUCING THE VERSATILE 5-IN-1 IST-5800 SERIES PROGRAMMABLE MULTIPLE FUNCTION GENERATOR

## FEATURES:

### System Integration:

For unparalleled convenience, the **IST-5800 Series** integrates five different instruments into one unified system ground, eliminating ground loop currents to provide accurate and hassle-free measurements.

### User Friendly Interface:

The **IST-5800 Series'** elaborately designed software interface allows for one touch access to adjusted quantities from previously used functions. Switch functions with the press of a key and use the digital encoder to make new adjustments on up to eighteen saved quantities.

### Cost Effective:

Integrating the circuitry of five different testing instruments into one multifunctional device enables IST to deliver all five for the price of one.

### Memory Backup:

The Memory Backup feature allows the **IST-5800 Series** to work just like a conventional mechanical switch operated instrument. All previous modes, settings, and quantities adjustments are restored immediately after power up. Up to ten different data programs can be stored to memory, allowing quick changes from one operation to another.

### LCD Back-Light Display:

The **IST-5800 Series'** high brightness, uniform cold cathode fluorescent lamp back-lighting provides a high contrast display that's easily readable from multiple angles and even from a distance.

### RS-232C Serial Port:

A built-in RS-232C serial port enables network connectivity. Use the **IST-5800 Series** over a network to perform remote monitoring or control of sensors or actuators in corrective or analysis applications. In training applications, multiple units can be set-up through the network by an instructor.

### Auto Frequency Locking Capability:

Unlike conventional function generators, the output frequency of the **IST-5800 Series** can be automatically locked within +/-0.1% range at the tuned frequency, without drifting problems due to effects of temperature, moisture or component degeneration.



### Multi-Function Simultaneous Operations:

For most uses, the **IST-5800 Series** is capable of performing multiple testing operations simultaneously. (Example: The IST-5850 can output a signal from the function generator, while the logic probe shows logic activity, the autoranging DVM displays the voltage and the power supply delivers the appropriate power to the circuit being tested. The frequency measurement can also be implemented with a keypress.)

### Mounted Accessories Pouch:

Keep accessories organized in one place with the convenient storage pouch mounted on the top of the instrument case.

- 9 **WAVEFORM Key:** Selects output signal (Sine, Square, or Triangle.)
- 10 **Digital Encoder:** Adjusts up to 18 different quantities (displayed by bar graphic) for each desired function.
- 11 **Amplitude Pot:** Adjusts the amplitude of the output signal.
- 12 **SYM Key:** Enables the Duty Cycle adjustment function.
- 13 **OFFSET Key:** Enables the DC Offset adjustment function. Also steps backwards while in multi-function sequence mode.
- 14 **LOGIC Key:** Selects the Logic signal output and the threshold level of the logic probe, triggering level of the counter, and logic power supply into TTL, 5V, 3.3V or CMOS logic.
- 15 **+Vs:** Variable positive supply output from 0 to +24V.
- 16 **-Vs:** Variable negative supply output from 0 to -24V.
- 17 **GND:** Power supply and system ground terminal.
- 18 **+5V/3.3V:** Logic supply +5V or +3.3v output.
- 19 **FUNCTION Key:** Controls Function and Display. Press to advance one function at a time in the following sequence:

Upon entering this multifunction sequence, the "FUNCTION" key will step forward, the "OFFSET" key will step backward, and the "ADJUST" key will abort the sequence.

Function Generator->Frequency Counter(EXT CNTR)->Period counter(EXT CNTR TOTAL)->TOTALIZE Counter(TOTAL)-> Digital Voltmeter (DVM)->CMOS level(C-LEVEL)->Positive Supply(+Vs)->Negative Supply(-Vs)->Logic Supply(Vcc)

- 20 **ADJUST Key:** Select the Coarse or Fine frequency adjust mode, press to abort any other function and enter into function generator coarse frequency adjust mode. The message display above key indicates the quantity being adjusted by the digital Encode.
- 21 **LCD:** 5"x1.5" Liquid Crystal Display with CCFL Back light. Messages displayed next to corresponding keys as functions are enabled. Flashing messages indicate the quantity being adjusted by the encoder.
- 22 **LOGIC/DVM PROBE:** The furnished logic probe is connected here for convenient voltage, frequency measurement, and logic circuit analysis.
- 23 **50 OHM Output:** Main function generator output with superimposed DC offset and Duty Cycle adjustment.
- 24 **TTL/CMOS Output:** Provides logic signal output with same frequency and Duty Cycle as the 50 OHM Output.
- 25 **Ext. Counter:** Input for external frequency measurement with AC coupling only.
- 26 **Burst Input:** Input external gating signal for Burst operation.
- 27 **Vcc/MOD Input:** Input external control signal for Sweep or Modulation operation.
- 28 **RS-232C Serial Port:** Connects to computer for remote operation.
- 29 **GCV Output:** Generator Control Voltage output. Voltage proportional to generator frequency.
- 30 **Heat Activated Cooling Fan:** For quieter operation, temperature sensitive cooling system activates only when needed.

- 1 **CAL Key:** Resets the function generator to 50% duty cycle and DC offset to zero. Controls "Tracking" adjustment mode for Positive (+Vs) and Negative (-Vs) Power Supply. Recalls data setting from program memory.
- 2 **SOURCE Key:** Selects internal or external control signal for sweep, burst, and modulation functions. Also accesses program memory.
- 3 **SWEEP Key:** Selects "linear" or "logarithm" frequency sweeping modes.
- 4 **BURST Key:** Selects "Single" or "Multiple" burst for the output signal.
- 5 **MOD Key:** Select "Frequency" modulation or "Amplitude" modulation mode.
- 6 **SET Key:** Turns ON/OFF the back light of the LCD display, as the function generator is set into Sweep, Burst, or Modulation function mode, this key provides the capability to strobe each step and quantity during set up process. Also stores current setting to program memory.
- 7 **RNG UP Key:** Increase the output frequency by a decade.
- 8 **RNG DN Key:** Decreases output frequency by a decade.