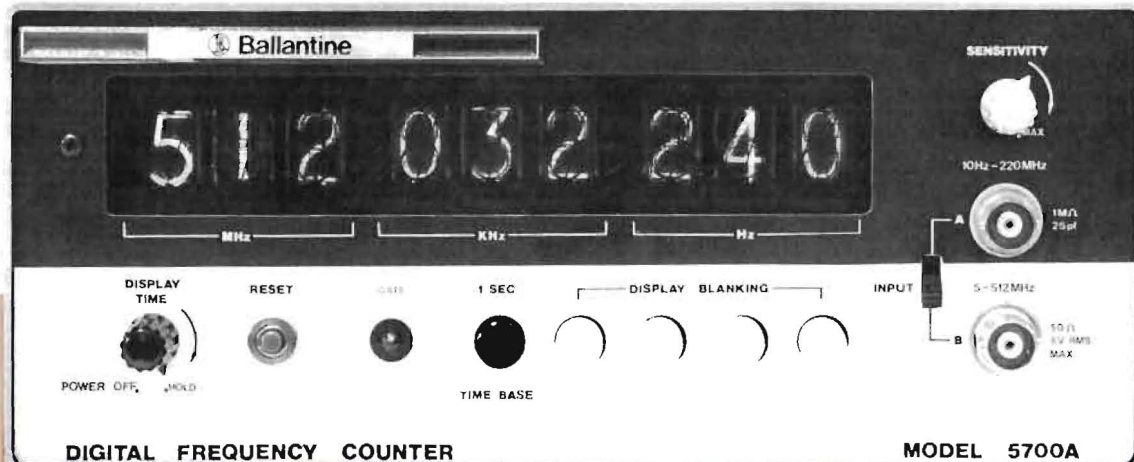


AUTOCONVERT

512 MHz FREQUENCY COUNTER

5700A

- Automatic Count Offset for Up-Down Conversion of Measurement Display



- QUICK RECOGNITION 9-DIGIT DISPLAY — PUSHBUTTON BLANKING OF UNUSED DIGITS.
- NO CALCULATIONS — OFFSET SIGNAL FREQUENCIES AUTOMATICALLY CONVERTED TO DESIRED READING.
- WIDE APPLICATION FOR COMMUNICATIONS — SENSITIVITY TO 10 mV rms

The name AUTOCONVERT derives from a unique (optional) capability offered for measurement applications requiring frequency readouts to be modified by a fixed offset. A common example would be in accurately determining the signal frequency to which a communications receiver is tuned. Conventional measurement techniques use counters to measure receiver local oscillator frequency, manually subtracting the known IF frequency from the reading to obtain the desired result. In the 5700A a pre-wired card can be plugged into the counter to automatically down-convert the final displayed reading by the IF frequency; the readout then, is directly the frequency of the receiver input signal. Extra cards may be pre-wired for any other frequency offsets, as needed.

In its normal modes of operation the 5700A is a wideband digital frequency counter, covering the spectrum from 10Hz to 512MHz, and a ratio instrument measuring the frequency ratio of two input signals. The man-machine interface is well-considered in the display system — resolution can be pushbutton selected to show 5, 6, 7, 8, or 9 digits, providing resolution from 10KHz to 1Hz. Unnecessary zeroes are not displayed and further aid in quick recognition of the display is gained by dividing the numer-

- MULTIPLE OPERATING MODES — FREQUENCY 10Hz to 512MHz FREQUENCY RATIOS TO RESOLUTION OF $1/10^9$
- HIGH ACCURACY & 1Hz RESOLUTION — 10MHz CRYSTAL UP TO $2/10^9$ /DAY STABILITY
- SYSTEMS ORIENTED — BCD OUTPUT WITH BUFFER STORAGE.

ics into three 3-digit groups labeled MHz, KHz, and Hz. Display storage makes the indication non-blinking.

The time base is derived from a 10MHz crystal, in a well regulated solid state oven. Aging rate is $<2/10^8$ per day, and an optional high stability time base provides $<1/10^9$ per day. Clock output is available at a rear connector, and external clocks can be used where special time bases are needed.

Sensitivity is adjustable on the low frequency input channel for optimum triggering. In the high frequency channel, AGC circuitry automatically controls input levels. Sensitivity is better than 10 mV rms to 400 MHz and 20 mV rms to 512 MHz on high frequency channel. Low frequency channel sensitivity is 50 to 200 mV rms.

Printer outputs are oriented to data acquisition and control systems and are 4 line BCD, parallel. Buffer storage holds the previous count from changing until it is updated. Inhibit circuits latch the counter from re-cycling as commanded.

The instrument is compact, rugged, and has excellent temperature coefficient specs, and fast warm-up. This, with its 7 pound weight and other characteristics make it suitable for in-field usage.



BALLANTINE LABORATORIES, INC.

FOUR DECADES OF INNOVATION IN ELECTRONIC INSTRUMENTATION

FREQUENCY

Range: Channel A: 10 Hz to 220 MHz.
Channel B: 5 MHz to 512 MHz.
Input: Channel A or Channel B.
Resolution: 10 KHz to 1 Hz. The number of digits displayed may be selected as 5, 6, 7, 8, or 9.
Accuracy: ± 1 count \pm time-base accuracy.
Readout: Divided into three 3-digit groups labeled MHz, KHz and Hz.

FREQUENCY RATIO

Frequency Range: Channel A: 10 Hz to 220 MHz.
Channel B: 5 MHz to 512 MHz.
Channel C: 1 KHz to 1.2 MHz.
Input F1: Front Panel Channel A or Channel B.
Input F2: Rear Panel Channel C (external Clock Input).
Measures: (F1/F2) $\times 10^6$ with 1 sec. Time Base pushbutton depressed, and (F1/F2) $\times 10^5$ with right-most display blanking pushbutton depressed.

Accuracy: ± 1 count of F1 $\pm \frac{\text{trigger error of F2}}{10^5 \text{ or } 10^6}$

Readout: Dimensionless.

INPUT CHANNELS A, B AND C

Channel A

Impedance: 1 Megohm shunted by 25 pF approx.
Input Coupling: AC
Frequency Range: 10 Hz to 220 MHz
Sensitivity: 50 mV rms 10 Hz to 120 MHz, increasing to 200 mV rms at 220 MHz.
Attenuator: Continuously variable vernier control
Maximum Input: 600 VDC
250 V rms 10 Hz to 10 KHz.
10 V rms above 10 MHz.

Channel B

Impedance: 50 ohms nominal
Input Coupling: AC
Frequency Range: 5 MHz to 512 MHz
Sensitivity (Sinewave): < 10 mV (-27 dBm) to 400 MHz;
 < 20 mV to 512 MHz
AGC: Internal automatic gain control circuit with greater than 35 dB range. Controls amplitude of signals supplied to input amplifier.
Maximum Operating Input: 1 V rms
Maximum Continuous Input: 5 V rms

Channel C

Impedance: 1 Kohm
Input Coupling: AC
Frequency Range: 1 KHz to 1.2 MHz
Sensitivity: 0.25 V rms
Maximum Input: 50 VDC, 10 V rms AC

DISPLAY

Numerical: 9 long-life glow discharge display tubes
Units: MHz, KHz and Hz.
Display Storage: Prior reading is held while new reading is being made. Display time is adjustable from 0.2 to 5 seconds or held indefinitely.
Gate: Lights when counter gate is open.
Manual Reset: Front-panel pushbutton switch resets the display and all registers, and initiates a new measurement.

TIME BASE

Crystal Frequency: 10 MHz
Crystal Oven: Self-regulating solid-state oven.
Aging Rate: Less than 2 parts in 10^8 per day after 10 days of continuous operation.
Temperature Stability: Less than 2 parts in 10^6 from 0°C to $+50^\circ\text{C}$.

Line Voltage Stability: Less than 5 parts in 10^7 for $\pm 10\%$ line voltage change.

Ext. Time Base Input: Via rear panel BNC connector (Channel C)

Int. Time Base Output: 1 MHz via rear panel BNC connector.
(see option 14 for high stability time base)

GENERAL

Operating Temperature: 0°C ($+32^\circ\text{F}$) to $+50^\circ\text{C}$ ($+122^\circ\text{F}$).
Power Requirements: 115 or 230 volts $\pm 10\%$. 48 to 400 Hz, 30 watts.
Dimensions: 3 1/2" (88 mm) H x 8 3/8" (212 mm) W x 12 1/2" (317 mm) D.
Weight: 7 pounds (3.2 Kg).
Accessories Furnished: Power cord. Instruction Manual.

PRICE: \$895.00

ACCESSORIES AVAILABLE

Description	Part No.	Price
50 Ω BNC Feedthrough Termination	12630D	\$12.50
Cable, 4 ft., 50 Ω BNC/BNC	12249D	7.50
Cable, 4 ft., 50 Ω BNC/Alligator	12250A	8.50
Cable, 6 ft., Printer-Counter Interconnect, 50-pin (Amphenol 57-30500-375 Ballantine P/N 31100370A each end).	12253A	60.00
Connector only, mating 50-pin	31100370A	12.50
Probe Kit, 6 ft., 10:1 Attenuator	10601A	32.00
Rack Mtg. Kit for 1 or 2 5700A side/side	800-04	40.00
Half-Rack Cover for Rack Kit	381000051L	10.00
Filter, Low-Pass (1 kHz)	12631A	35.00

OPTIONS AVAILABLE

Description	Price
PRINTER OUTPUT (Option 01) Logic: Positive true Form: 4-line 1-2-4-8 BCD. "1" state: $+5 \pm 0.5$ V nominal 2.5 Kohm source Z "0" state: $+0.25$ V @ 1 ma. Print Command: $+5$ V pulse, approx. 1 ms. duration DC coupled at end of gate time. Source Z 1 Kohm "high" and 100 ohm "low" state. Inhibit Input: $+3$ V pulse minimum 50 V max. Inhibits recycling circuitry. Connector: Amphenol 57-40500-375 (50 pin). (see accessories for interconnect cable, and mating connectors)	\$75.00
AUTOCONVERT (Option 03) (Frequency Conversion - automatic subtraction of offset frequency) Additional Program Card Ballantine P/N 8910052-1A	\$75.00 \$12.50
HIGH STABILITY TIME BASE (Option 14) Aging Rate: $< 2/10^9$ /day Long Term Stability: $< 4/10^7$ /yr. Temperature Stability: $< 2/10^9$ / $^\circ\text{C}$ Warm-up Time: $1/10^7$ in 4 minutes.	\$195.00



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Four Decades of Innovation in Electronic Instrumentation

U.S. Sales prices f.o.b. Boonton, New Jersey.
Specifications and prices subject to change without notice.

10/72 Printed in U.S.A.