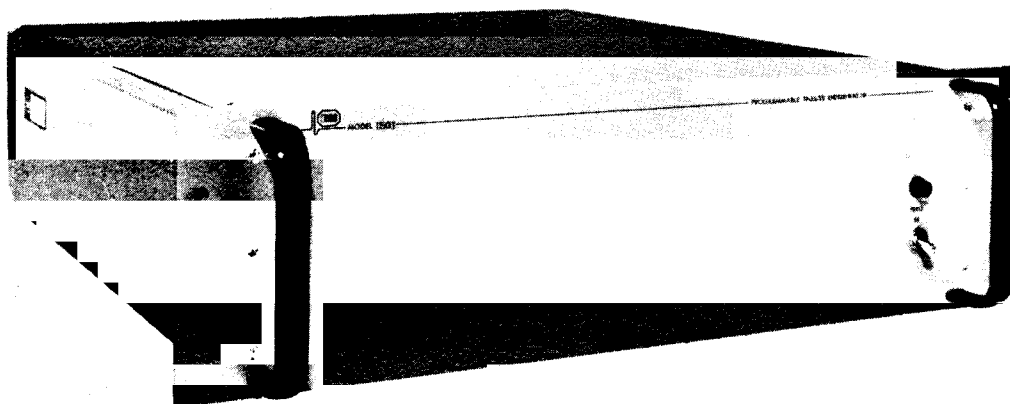# model 1501

PROGRAMMABLE PULSE GENERATOR

- PARALLEL DIGITAL PROGRAMMING, ALL PARAMETERS

- ±40 mV to ±10 V BACKMATCHED OUTPUT

- ACCEPTS TTL AND DTL DRIVE SOURCES

- 50 MHz PULSE REPETITION FREQUENCY

The E-H Model 1501 Programmable Pulse Generator is a compact unit designed to meet the requirements for a fully programmable pulse generator in high-speed, automatic test system applications. Programmable 10 V output amplitude, and 50 MHz repetition frequency capabilities make the Model 1501 an ideal choice for any application requiring TTL and DTL drive sources.

Full control of all pulse parameters is provided by coarse and fine programming through parallel programming lines. Interface to integrated circuits and adaptation to current logic levels is enhanced by the addition of variable baseline offset and polarity inversion functions, which allow simulation of positive, negative or inverted logic. Baseline offset is inserted after the attenuator to permit full use of the offset capability.

Synchronous and asynchronous gating are provided as useful features for systems applications. Distortion is less than 5% peak-to-peak for all functions.

Normal/inverted and single/double pulse modes are built into the Model 1501. In the inverted mode an extremely high duty cycle can be achieved for the output pulse.

Programming is accomplished through 4 range and mode control lines and 12 control lines for each function. Logic "1" is less than 0.75 V and logic "0" is greater than 2.5 V, with a 5 V maximum. Each program line is equal to one 7400 TTL load. Positive true logic will be supplied on request. Four bits define mode and range information and 12 bits define the 4 digit 1248 BCD coded vernier information.

E-H RESEARCH LABORATORIES, INC.

TIMING

Pulse Repetition Frequency . . . . .0.5 Hz to 50 MHz
in 8 decade ranges

Pulse Delay . . . . 10 ns to 10 ms
in 6 decade ranges

Pulse Width . . . . 10 ns to 10 ms
in 6 decade ranges

Jitter . . . . .less than 0.1% of setting
applies to frequency, delay, or width jitter

Duty Factor . . . . greater than 50%
applies to either delay or width circuit

Modes . . . . Normal/Inverted and Single/Double Pulse
The inverted mode allows an extremely high duty cycle
for the output pulse.

External Drive . . . . less than 0.75 V low, greater than
1.5 V high into 1 kilohm. Maximum input 5 V.
Maximum frequency 50 MHz.

Synchronous Gate . . . . . . less than 0.75 V low, greater than
1.5 V high into 1 kilohm load. Both gate on and gate off
modes under program control.

Asynchronous Gate . . . . greater than 2.5 V low,
less than 0.75 V high into 1 kilohm load. Gate off
operation only.

Trigger Output . . . . . . .greater than 3 V from 50 ohm source
width 10 to 100 ns depending on clock frequency

Minimum Double Pulse Spacing . . . . .less than
12% of width range maximum

OUTPUT

Amplitude . . . . ±40 mV to ±10 V into
50 ohms from a 50-ohm source

Offset . . . .±5 V into 50 ohms independent of
attenuator setting. The maximum output amplitude is
restricted to ±10 V for the sum of the pulse and offset
amplitudes.

Pulse Distortion . . . . .less than 5% peak-to-peak for
all amplitudes and for all risetimes greater than 3 ns.

Rise and Fall Time . . . . .less than 3 ns to 1 ms
in 6 decade ranges. Separate rise and fall verniers.

Ramp Linearity . . . . less than ±3% above 100 ns
less than ±5% 10 to 100 ns

PROGRAMMING

Long Term Accuracy . . . . ±5% of programmed value
±3 ns for delay, width, rise, and fall times.

Settling Time . . . . .less than 100 μs except
attenuator setting which is less than 5 ms. The delay,
width, and ramps are assumed to be at rest for this
specification.

Repeatability . . . . ±1% of setting

Digital Control Lines . . . . .4 range and mode control
and 12 vernier controls lines for each function.

Control Voltage . . . . .Logic "1" less than 0.75 V
logic "0" greater than 2.5 V, 5 V maximum. Each
program line is equal to one 7400 TTL load. Positive
true logic will be supplied on request.

Programming Format . . . . .4 bits define mode
and range and 12 bits define vernier information in a 3
digit 1248 BCD format.

Analog Control Lines . . . . .One for each of the seven
functions. Standard on all units for optional analog
programming of vernier control.

Analog Programming . . . .+0.5 V to +5 V
or 1 to 10 kilohm resistance control for a 10:1 vernier
range

MISCELLANEOUS

Dimensions
. . . . .5-1/4 in. (13.3 cm) high
. . . . .19 in. (48.2 cm) wide
. . . . 18-1/2 in. (46.9 cm)deep

Price $3500
.F.O.B. Oakland, California
O.E.M. discounts available; contact factory.

Prices and technical data subject to change without notice

E-H RESEARCH LABORATORIES, INC.