ELP-810 LOGIC PULSER

LOGIC PULSER OPERATION MANUAL

GENERAL DESCRIPTION

The logic pulser is a very effective tool for inspecting and repairing the logic circuits. It can be used directly to inject a signal into the logic circuits without removing the IC or breaking the circuits. Using the logic probe as a monitor, you can not only know the wiring errors but also check out components malfunctional. The reason is that it can produce a very large transient current in a monent. Since the average power to be produced under these conditions is very small, the injected signal will not destroy any one of the components in the circuits. Further, the pulser takes advantage of the voltage produced by a current flowing through the inherent resistance of the circuit to produce the injected signal.

ELP-810 Logic Pulser can produce a 10μs pulse signal at 100 mA load. The signal frequency may be switched to either 0.5Hz or 400Hz, and as a result the **ELP-810** is a fairly powerful pulser. At the same time, the **ELP-810** can produce a 90% high digital signal at sguare wave output terminal, and it is easier to observe and trace circuits by using oscilloscope. The Logic Pulser Probe also has a sync input point, which can be used to produce an externally syncronized signal.

ELP-810 LOGIC PULSER

MAX. RATINGS

Ratings	Units
Maximum allowable supply voltage	±20V
Operating supply voltage range	5~15V
Max. output allowable connection voltage	± 35V
Free air operating temperature range	0 – 50°C
Max. sync input voltage	±120V/15sec.

SPECIFICATIONS

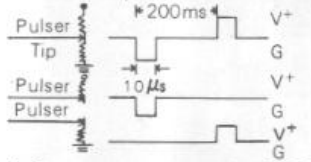
A. Sync input impedance 1MΩ
B. Pulse repetition rate 0.5pps/400pps
C. Pulse width in pulser output at 100 mA load. 10us
D. Output current
  (1) pulser mode . . . . . 100mA sink/source
  (2) square wave output . . . . 5mA sink/source
E. Power supply protection . . . . . ±25V/15 sec.
F. Output protection . . . . . ±35V/15sec.
G. Size 205x18x16.5mm
H. Weight 55g

OPERATING INSTRUCTION

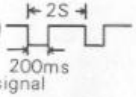
A. Setting up the instrument
  Applying power to the instrument
  (1) Set the repetition rate select switch to 0.5pps position
  (2) Connect the black clip to GND (–)
  (3) Connect the red clip to Vcc (+) be sure the Vcc is less than 18 volts. Vcc: 5V for TTL circuit. Vcc: 5 – 15V for CMOS circuit.
  (4) Check the red LED. If it blinks with 0.5pps, then Vcc is within the correct range. Please remove the clips, if the LED lights without blinking, as that indicates power supply is over 18V. If the LED does not light this Vcc polarity is reversed, please reverse the chips quickly.
B. Setting the repetition rate switch
  (1) 0.5pps position:
  The instrument generates pulses at 0.5pps. At this rate it is easy to control the number of pulses injected into a circuit, and to observe the circuit state with a logic probe.
  (2) 400pps position:
  The instrument generates pulses at 400pps. At this rate, the circuit waveform is easy to monitor on an oscilloscope.

THE OUTPUT WAVEFORM:

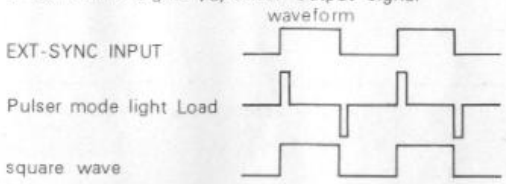
1. Pulser output (at 0.5 PPS rate)



2. Square wave output (at 0.5PPS rate)



3. EXT-SYNC Signal VS, driver output signal waveform



Pulse indicator LED

The LED blinks syncronous with the square wave output.

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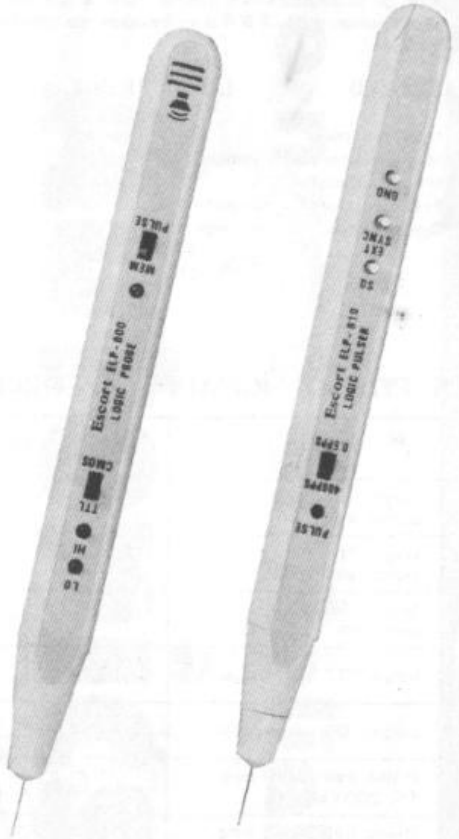
ELP–800 LOGIC PROBE
ELP-810 LOGIC PULSER



ELP–800 LOGIC PROBE

The ELP-800 logic probe is a powerful troubleshooting tool, including a level detector, pulse detector, pulse memory, and audio tone which depends on what kind of logic signal inputs It is compatible with TTL, DTL, RTL, HTL, CMOS, MOS. This compact probe is easy to handle in tight spaces. Three colored LED indicators display pulse presence and high-and low-logic states. In the same time, an audio tone is also coupled with different freq. to remind user to distinguish the logic states easily. It responds to pulses as narrow as 30ns, or pulse trains over 17MHz. Compatible with most logic families, the ELP-800 is an indispensable troubleshooting tool.

ELP-800 LOGIC PROBE

MAX. RATINGS

Max. allowable supply voltage . . . . . ±20V
Max. input voltage . . . . . ±50V
Free Air operating temperature . . . . 0 – 50°C
Operating supply voltage range

	TTL	CMOS
	5V	5 – 15V

SPECIFICATIONS

A. Input impedance 1MΩ
B. Min. detectable pulse width 30ns
C. Max. input frequency displayable 17MHz
D. Logic thresholds. . . TTL CMOS
Logic 1 (red LED lights) with beeper . . . . . 2.3V±0.2V 70% Vcc
Logic 0 (green LED lights) with beeper . . . . . 0.8V±0.2V 30% Vcc
E. Input overvoltage protection. . . . ±220V DC/AC 15 sec.
F. Pulse LED (yellow) flashing time . .500ms
G. Power supply protection . . . . . ±20V
H. Size 205x18x16.5mm
I. Weight . . . . . 60 g

OPERATING INSTRUCTION

A. Setting up the instruction
a. Applying power to the probe
1. Connect the black clip to GND (–)
2. Connect the red clip to Vcc (+). Be sure Vcc is less than 20V.

b. Setting the switches
1. TTL/CMOS switch
The TTL/CMOS switch can be switched to TTL mode for use in the TTL circuit. The TTL logic 1 is 2.3V±0.2V, logic 0 is 0.8V±0.2V. When switched to CMOS mode for CMOS circuit, the CMOS logic 1 is 70% Vcc, logic 0 is 30% Vcc. At same time the switch can determine if the pulse modes trigger edge is positive or is negative.
2. Pulse/Memory switch
The logic probe can detect and memorize the level transition. Either positive or negative level transition can be detected or memorized, depending on the mode selected.
a) Pulse position:
The memory function is inoperative in this position. Input state transition is "0" to "1" or "1" to "0" will activate the pulse indicator flicker for 500ms and will generate chop sound for the Beeper.
b) Memory position:
In this position, memory function is activated. Pulse indicator lights up and Beeper generates sound until reset if any pulse or level transition occurs.

*The Beeper generates sound when the red or green LED lights.

B. TYPICAL SIGNALS AND CORRESPONDING LED INDICATION:

ITEMS	WAVEFORM	LED INDICATIONS LEVEL PULSE RED	GREEN	YELLOW	BEEPER
Logic "1" no pulse activity	1 —— / 0 ----	●	○	○	High tone
Logic "0" no pulse activity	1 ---- / 0 ——	○	●	○	Low tone
Signal level between "1" & "0"	1 ---- / 0 ——	○	○	○	
Logic "1" with pulse	1 ⊓⊓⊓⊓⊓ / 0 ----	●	○	☆	Intermittently high tone.
Logic "0" with pulse	1 ---- / 0 ⊓⊓⊓⊓⊓	○	●	☆	Intermittently low tone.
Pulse train with freq. f< 200KHZ	1 ⊓⊓⊓⊓⊓ / 0 ----	●	●	☆	1. Alternate and Intermittently sound. 2. Mixed and Intermittent sound.
Pulse train with freq. f >200KHZ	1 ⊓⊓⊓⊓⊓ / 0 ----	○	○	☆	

● LED on ○ LED off ☆ LED blink ---------- ref. lvevel ———— signal