Logic Probe DC
Troubleshooting instrument

Description
Simplifies troubleshooting digital circuits by combining a logic probe and pulser in one tool
- Visual and audio indications
- Powered by the circuit being tested
- Extra long leads - 147cm length.

Packaging
Sliding Blister

Additional Information
RoHS and CE certification
Designed as a logic troubleshooting instrument which displays visual (LED) and audio indications for logic levels (Boolean 0 or 1) and pulses. It can also capture positive or negative events as short as 30 nanoseconds. The unit is powered by the circuit under test.

1: Probe
2: High LED (red)
3: Low LED (green)
4: TTL / CMOS switch
5: Yellow LED (Note: If the PULSE/MEM switch is in the MEM position and the unit captures a positive or negative pulse, the yellow LED will light and does not turn off until the PULSE/MEM switch is set to PULSE position)
6: PULSE/MEM Switch (Note: there are two positions for this switch: PULSE: normal operation mode for pulse or level detection; MEM: pulse capture or memory)
7: Black clip: should be connected to ground or common of the circuit to be tested.
8: Red clip: should be connected to the Vcc of circuit to be tested.

**Precautions**
- Do not use if the unit is damaged or operates abnormally.
- Take care not to ground yourself when using the unit.
- To avoid electric shock, do not touch any bare conductors, pins or terminals.
- Do not input more that 40V AC or DC or the unit will be damaged.
- Spark danger — do not use near explosive gas or vapour.

**Instructions**
1. Connect the black clip to ground or common of the circuit to be tested. Connect the red clip to the Vcc of the circuit.
2. Select either TTL (transistor-transistor logic) or CMOS (complementary metal-oxide semiconductor), according to the logic type to be tested. (Note: TTL level is nominal 0 to 5V DC and CMOS levels are 0 to 5-15V DC. For pulse or logic level testing, set the PULSE/MEM switch to PULSE position.
3. Touch the probe tip to the circuit point to be tested. The unit will give LED and sound indications indicating the logic level or signals. (See table).
4. Setting the PULSE/MEM switch to MEM position allows the unit to capture a positive or negative pulse — the yellow LED will light and does not turn off until the switch is set to PULSE position.

**Specifications:**

<table>
<thead>
<tr>
<th>Input Signal</th>
<th>Level</th>
<th>LED Indication</th>
<th>Buzzer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logic: 1</td>
<td>TTL &gt; 2.3V ± 0.2V DC CMOS &gt; 70% Vcc ± 10%</td>
<td>High (Red) ON</td>
<td>Fixed tone</td>
</tr>
<tr>
<td>Logic: 0</td>
<td>TTL &lt; 0.8V ± 0.2V DC CMOS &lt; 30% Vcc ± 10%</td>
<td>Low (Green) ON</td>
<td>Fixed tone</td>
</tr>
<tr>
<td>Bad logic level or open circuit</td>
<td>None</td>
<td>None</td>
<td>No tone</td>
</tr>
<tr>
<td>Square wave</td>
<td>&lt; 200kHz</td>
<td>High and Low blinks at frequency rate</td>
<td>Variable tone at frequency rate</td>
</tr>
<tr>
<td>Square wave</td>
<td>&gt; 200kHz</td>
<td>High and low may or may not be ON</td>
<td>Variable tone at frequency rate</td>
</tr>
<tr>
<td>Narrow high pulse</td>
<td>TTL &gt; 2.3V ± 0.2V DC CMOS &gt; 70% Vcc ± 10%</td>
<td>Low blinking intensity depends on pulse duty cycle</td>
<td>Variable tone at frequency rate</td>
</tr>
<tr>
<td>Narrow low pulse</td>
<td>TTL &lt; 0.8V ± 0.2V DC CMOS &lt; 30% Vcc ± 10%</td>
<td>High blinking intensity depends on pulse duty cycle</td>
<td>Variable tone at frequency rate</td>
</tr>
</tbody>
</table>

**Electrical Specifications:**
- Power Supply: 5 - 15V DC
- Power Supply Protection: 20V DC / AC
- Maximum Input Voltage: 40V DC / AC (duration < 15 seconds)
- Maximum Input Signal Frequency: 20Mhz
- Input Impedance: 1MΩ
- Pulse Indicator Flash Time: 600ms
- Operating Temperature: 0 - 40°C (relative humidity < 80%)
- Storage Temperature: -20 - 50°C (relative humidity < 85%)

**Minimum Detectable Pulse Width:**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>1kHz</th>
<th>1K - 20kHz</th>
<th>20K - 20Mhz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Pulse Width</td>
<td>100ns</td>
<td>60ns</td>
<td>30ns</td>
</tr>
</tbody>
</table>

Pulse Amplitude ± 3V