**DIGITAL TERMS**

**CLOCK**—A pulse waveform used to synchronize the timing of digital or switching circuits.

**COMPARATIVE TESTING**—Evaluation of a component by comparing its performance to that of a properly functioning component.

**DIGITAL SIGNAL**—A discrete signal that assumes one of two states: high or low.

**TTL**—Transistor logic defines a type of digital circuit. It is characterized by a high digital signal state above 2.4 VDC, and low digital states below 0.8 VDC. Operating voltage is typically 5 VDC.

**CMOS**—Complementary Metal Oxide Semiconductor defines another type of digital circuit. It is characterized by a variable operating voltage of 3 to 18 V, and logic levels proportional to that operating voltage (typically 1.5 V low and 3.5 V high @ 5 V supply). CMOS circuits are characterized by high noise immunity.

**IN-CIRCUIT TESTING**—Evaluating the functioning of a component without removing the component from the circuit in which it is being used.

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### Specifications

**Model DP-21**  
20 MHz Logic Probe  
- Tests TTL and CMOS  
- Displays pulse presence and logic states  
- Memory mode “freezes” pulse display  
- Catches pulses to 30ns or pulse trains to 20MHz  
- 1 MΩ input impedance

**Model DP-52**  
50 MHz Logic Probe  
- Tests TTL and CMOS  
- Displays DC to 50 MHz  
- Detects 10ns pulse width  
- Overload protected

**Model DP-31A**  
Pulser Probe  
- For TTL and CMOS  
- Produces 10mS pulse signal at 100mA  
- External square wave terminal  
- Sync input point

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### Model DP-31A

- **Pulse Repetition Rate**: 0.5 pps/400 pps  
- **Pulse width at 100 mA load**: 10ms  
- **Output Current**: Pulser mode-100mA sink/source square wave mode-5 mA sink/source  
- **Operating Supply Voltage**: 5-15 V  
- **Sync Input Impedance**: 1 MΩ  
- **Sync Input Protection**: +120 VDC (15 sec.)  
- **Power Supply Protection**: +220 VAC/DC (15 sec.)  
- **Input Overload Protection**: +220 VAC/DC (15 sec.)  
- **Input Impedance**: 1 MΩ  
- **Input Overload Protection**: +70 VAC/DC (15 sec.)  
- **Input Impedance**: 120 kΩ  
- **Frequency Response**: DC to 20 MHz  
- **Minimum Detectable Pulse Width**: 30 nS  
- **Logic Thresholds**:  
  - TTL Logic 1 threshold (Red LED): 2.3 V + 0.2 V  
  - TTL Logic 0 threshold (Green LED): 0.8 V + 0.2 V  
  - TTL CMOS 1 threshold (Red LED): 70% Vcc + 10%  
  - TTL CMOS 0 threshold (Green LED): 30% Vcc + 10%  
- **Pulsing**: Yellow LED Both Red and Green  
- **Input Overload Protection**: +220 VAC/DC (15 sec.)  
- **Input Overload Protection**: +70 VAC/DC (15 sec.)  
- **Input Overload Protection**: +220 VAC/DC (15 sec.)  
- **Input Overload Protection**: +70 VAC/DC (15 sec.)  
- **Power Supply Protection**: +20 V  
- **Operating Supply Voltage**: 4 to 18 V  
- **Storage Temperature**: -4˚ to 122˚F (-20˚ to 65˚C) <80% RH  
- **Dimensions (HxWxD)**: 0.7 x 0.7 x 8.2” (18 x 18 x 210mm)  
- **Weight**: 1.4 oz. (40g)