

# 7000-SERIES OSCILLOSCOPES 7D13



- TEMPERATURE MODE
- 1.5 kV MAXIMUM COMMON MODE VOLTAGE
- PROBE MEASURES TEMPERATURE OR VOLTAGE
- 3½-DIGIT CRT READOUT



The 7D13 is a Digital Multimeter plug-in designed for use in all 7000-Series Oscilloscope mainframes except those without CRT READOUT. The 7D13 will function in any plug-in compartment.

In addition to measuring DC volts, DC current and resistance, temperature measuring capability is also featured in the 7D13, provided by a temperature sensor on the tip of the P6058 voltage/temperature probe. The temperature probe functions regardless of 7D13 mode or range setting and provides a front-panel analog signal output of 10 mV/°C (0°C = 0 volts). Thus, by using an external voltage indicator, temperature may be measured simultaneously along with any other function. Most any NPN transistor can be used as a separate sensor to make small space, "free air," measurements.

When the 7D13 is used, the character generator traces out a 3½-digit display on the face of the CRT, along with a legend for units like kΩ, mA, C (temperature).

**DC Voltage Range**—0 to 1000 V in four ranges. 3 1/2-digit presentation of 1.999 V, 19.99 V, 199.9 V, and 1000 V full scale. Accuracy is ±0.1% of reading ±1 count from -15°C to +40°C, ±0.2% of reading ±2 counts from 0°C to +50°C. Input impedance is 10 megohms on all ranges. Maximum safe input is 1.5 kV Peak between either contact and ground, 1.0 kV Peak between voltage contacts.

**DC Current Range**—0 to 2 A in four ranges. 3 1/2-digit presentation of 1.999 mA, 19.99 mA, 199.9 mA and 1999 mA full scale. Accuracy is ±0.5% of reading ±2 counts from -15°C to +40°C, ±0.7% of reading ±4 counts from 0°C to +50°C. Maximum input is 3A (fuse protected). Input impedance is 0.2 V/full scale current ±0.3 Ω.

**Resistance Range**—0 to 2 megohms in five ranges. 3 1/2-digit presentation 199.9 Ω, 1999 Ω, 19.99 kΩ, 199.9 kΩ, and 1999 kΩ full scale. Accuracy is ±0.5% of reading ±1 count from -15°C to +40°C, ±0.8% of reading ±2 counts from 0°C to +50°C. Input is fuse protected.

**Temperature Measurement Range**—-55°C to +150°C in one range. 3 1/2-digit presentation to +150°C. Accuracy (+15°C to +40°C ambient) is ±1°C from -55°C to +125°C, ±2°C above +125°C. Accuracy (0°C to +50°C ambient) is ±2°C from -55°C to +125°C, ±3°C above +125°C.

**Settling Time**—1.5 s or less (voltage, current, and resistance modes).

**Polarity**—Automatic indication.

**Maximum Common-Mode Voltage**—1.5 kV Peak between two terminals and ground.

**Normal-Mode Rejection Ratio**—At least 30 dB at 60 Hz increasing at 20 dB/decade.

**Common-Mode Rejection Ratio**—With a 1-kΩ imbalance it is at least 100 dB at DC; 80 dB at 60 Hz.

**Overrange Indication**—When overrange occurs, the readout goes into a "blinking" mode with the most significant digit displaying a 2.

**Recycle Time**—5 measurements per second.

**Temperature Out**—10 mV/°C into a load of at least 2 kΩ.

**Included Accessories**—P6058 Voltage/Temperature probe package (010-0260-00); pair of test leads (003-0120-00).

Order 7D13 DIGITAL MULTIMETER ..... \$560

## 7D13 OPTION

Order Option 2 without P6058 Probe ..... Sub \$65

The P6058 Probe is a combination 1X DC voltage and temperature measuring device. The temperature sensing element consists of a transistor installed in the nose tip that plugs into the end of the probe body. For voltage measurements, a twelve inch and a five inch "common" (low) strap is provided, and is attached by threading into a hole in the side of the probe body. There is no external ground on the P6058 body, "ground" or the low potential point of the circuit under test is obtained via the common strap or connector, which is a floating common that has no tie to chassis ground. This lead may be floated at up to 1500 VDC away from chassis ground. The retractable hook-tip must be used on the probe when voltage measurements are made.

Temperature is measured by applying the flat surface of the probe tip to the device to be measured.

**DC Voltage Range**—0 to 1000 V. Accuracy is ±0.1% of reading ±1 count.

**Maximum Safe Input**—1500 V peak between either voltage contact and chassis ground. 1000 V peak between voltage contacts.

**Temperature Range**—See the 7D13 for the accuracy of a P6058/7D13 combination.

**Cable**—46 inches including probe body. Output connector is four-pin locking type for attaching the P6058 to the 7D13. Supplies power to the probe sensor transistor and signal to the digital multimeter.

**Net Weight**—Approximately 5 ounces.

**P6058 VOLTAGE/TEMPERATURE PROBE, Order 010-0260-00** ..... \$65  
Includes: P6058 Probe (010-0259-00); probe retractable hook tip (013-0121-00); 5-inch ground lead (screw-in, 175-0848-01); 12-inch ground lead (screw-in, 175-0848-02); two miniature alligator clips (344-0046-00).