

# P8018 Handheld TDR Probe Instructions

071-1318-00

## Safety symbols on the product



## Product Description

The P8018 is a handheld passive probe with a 50  $\Omega$  input impedance. The P8018 comes standard with a one meter SMA male-to-male cable assembly that interfaces with an 80A02 EOS/ESD Protection Module or other SMA connectable input.

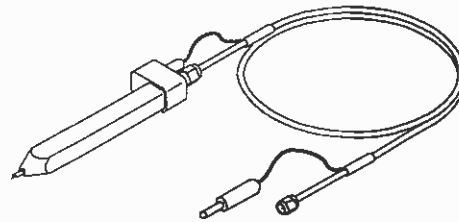


Figure 1: P8018 handheld TDR probe

The P8018 probe is especially designed to be used with the Tektronix 80A02 EOS/ESD Protection Module. Together, they protect sensitive instrument-input stages, such as the sampling bridge of Tektronix electrical sampling modules, from electro-overstress (EOS) and electro static discharge (ESD) damage due to static charges stored in the device under test (DUT). The P8018 probe can also be used as a stand-alone, high-bandwidth probe that is usable with any SMA connectable instrument.

The P8018 provides a unique pressure-actuating probe tip that switches between DUT static-discharging protective mode and engaged-measurement mode.

## Using the Probe

### Connector Care

Use extra care when attaching or removing the cable from SMA connectors. Turn only the nut, not the cable. When attaching the cable, align the connectors carefully before turning the nut. Use light finger pressure to make this initial connection. Then tighten the nut lightly with a wrench. Ideally, the SMA connectors should be tightened to 56 N-cm (5 in-lb) with a torque wrench.

### Probing Technique

The probe tip and grounding clip are designed to probe printed circuit boards (PCB) that incorporate ground reference points next to the signal measurement point. This is to allow the probe tip to be inserted into a PCB through-hole test point while the ground clip contacts the ground reference point.

To achieve the specified bandwidth, the ground clip must be trimmed to the shortest length possible for probing the PCB. See Figure 2 for proper probing technique and ground clip trimming.

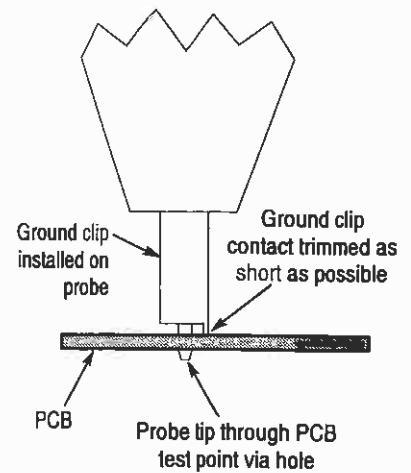


Figure 2: PCB probing and grounding technique

These instructions describe the operation of the P8018 probe connected to a Tektronix 80A02 protection module which is then connected to an instrument to be protected such as a Tektronix 80E04 or SD24 electrical TDR sampling module.

## Specifications

Table 1: Environmental and mechanical

Characteristic	Specification
<b>Probe dimensions</b>	
Length	125 mm (4.94 in)
Height	27 mm (1.06 in)
Width	16 mm (0.64 in)
Weight (probe only)	0.054 kg (0.12 lbs)
<b>Altitude</b>	
Operating	3,048 m (10,000 ft)
Non-operating	12,190 m (40,000 ft)
<b>Ambient temperature</b>	
Operating	-15 °C to +55 °C (+5 °F to +131 °F)
Non-operating	-62 °C to +85 °C (-80 °F to +185 °F)
<b>Humidity</b>	
Operating	20% to 80% relative humidity with a maximum wet bulb temperature of +29 °C at or below +40 °C, non-condensing. (Upper limit derates to 45% relative humidity at +40 °C.)
Non-operating	5% to 90% relative humidity with a maximum wet bulb temperature of +29 °C at or below +60 °C, non-condensing. (Upper limit derates to 20% relative humidity at +60 °C.)

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## Safety Summary

To avoid potential hazards, use this product only as specified.

### To avoid fire or personal injury

**Ground the product.** This product is indirectly grounded through the grounding conductor of the mainframe power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

**Connect and disconnect properly.** Do not connect or disconnect probes or test leads while they are connected to a voltage source.

**Observe all terminal ratings.** To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the host instrument documentation for further ratings information before making connections to the host instrument.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

**Do not operate with suspected failures.** If you suspect there is damage to this product, have it inspected by qualified service personnel.

**Do not operate in wet/damp conditions.**

**Do not operate in an explosive atmosphere.**

**Keep product surfaces clean and dry.**

Table 2: Electrical

Characteristic	Specification
Probe impedance	50 $\Omega$ $\pm$ 2%
Attenuation	1X
RF input connector	Precision 26 GHz SMA female connector
Control signal connector type	Audio mono phone mini-jack
Analog bandwidth	
Probe head	<3 dB insertion loss, DC to 20 GHz
Cable	DC to 20 GHz
Probe fall time (measured with 80E04 or SD24 TDR modules)	< 38 ps Typical reflected TDR fall time < 28 ps
Probe delay	1 ns typical from the connector end to the probe tip  This is a stable impedance section which can be calibrated and used as a reference point.
Maximum voltage input	$\pm$ 5.0 V
Module activation probe pressure	200 to 260 grams

## Accessories

The P8018 probe includes the following items:

- Special 1 meter SMA cable with a parallel control line) 174-4879-xx
- 20 ground clips 016-1936-xx

## WARRANTY SUMMARY

Tektronix warrants that the products that it manufactures and sells will be free from defects in materials and workmanship for a period of one (1) year from the date of shipment. If a product proves defective within the respective period, Tektronix will provide repair or replacement as described in the complete warranty statement.

To arrange for service or obtain a copy of the complete warranty statement, please contact your nearest Tektronix sales and service office.

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