

## AC/DC Current Probe

### TCP0150 Datasheet



The TCP0150 is a high performance and easy-to-use 150 A AC/DC current probe designed for use and direct connection to the TekVPI™ probe interface.

#### Key performance specifications

- DC to 20 MHz bandwidth
- 150 A<sub>RMS</sub> maximum current capability
- 500 A peak pulse current capability
- High accuracy with typically less than 1% DC gain error
- Accurately measures current levels as low as 5 mA

#### Key features

- Easy-to-Use and accurate AC/DC current measurements
- Connects directly to oscilloscopes with the TekVPI™ probe interface
- Low noise and DC drift
- Provides automatic units scaling and readout on the oscilloscope's display
- Remote GPIB/USB probe control through the oscilloscope
- Split-core probe head construction allows easy connection to conductors
- Easy to degauss and autozero

- Setup controls and probe status and diagnostic indicators are provided on both the probe hardware and through an Easy-to-Access scope UI display menu

#### Applications

- Power supplies
- Semiconductor devices
- Power inverters/converters
- Electronic ballasts
- Industrial/consumer electronics
- Motor drives
- Transportation systems

This AC/DC current measurement probe provides 20 MHz of frequency bandwidth with selectable range control for 25 A and 150 A measurement ranges. It also provides low-current measurement capability and accuracy to current levels as low as 5 mA per division — important for achieving broad dynamic current range of high-level and low-level measurement signals.

## Specifications

All specifications are guaranteed unless noted otherwise. All specifications apply to all models unless noted otherwise.

### Warranted characteristics

Bandwidth	DC to $\geq 20$ MHz (-3 dB). Derate with frequency. See Figure 1. (Calculated from Rise Time $BW = .35/\text{Rise Time}$ )
Rise time	$\leq 17.5$ ns
Max RMS current	150 A
Max peak pulse current	500 A
Minimum sensitivity	5 mA (on oscilloscope's 1 mV/div setting) AC coupling (on oscilloscopes that support AC/DC coupling)
Current ranges	25 A and 150 A
Maxbare-wire voltage	600 V <sub>RMS</sub> CAT I and II 300 V <sub>RMS</sub> CAT III

### Typical characteristics

DC accuracy	$\pm 1\%$ typical (3% warranted)
Max amp-second product	
25 A range	3,000 A $\mu$ s
150 A range	15,000 A $\mu$ s
Insertion impedance	0.03 $\Omega$ at 1 MHz 0.075 $\Omega$ at 5 MHz 0.125 at 10 MHz 0.3 at 20 MHz
Signal delay	$\approx 21$ ns
Displayed RMS noise	$\leq 500$ $\mu$ A <sub>RMS</sub> (probe only)

### Physical characteristics

Cable length	2 m (79 in.)
Probe head size	
Length	26.8 cm (10.55 in.)
Width	4.1 cm (1.6 in.)
Height	15.6 cm (6.13 in.)
Max conductor diameter	21 mm x 25 mm (0.83 in. x 1.0 in.)
Shipping weight	0.7865 kg (1.734 lb.)
Power requirements	TCP0150 is powered directly by oscilloscopes with the TekVPI interface

### Environmental

Temperature	
Operating	0 °C to +50 °C

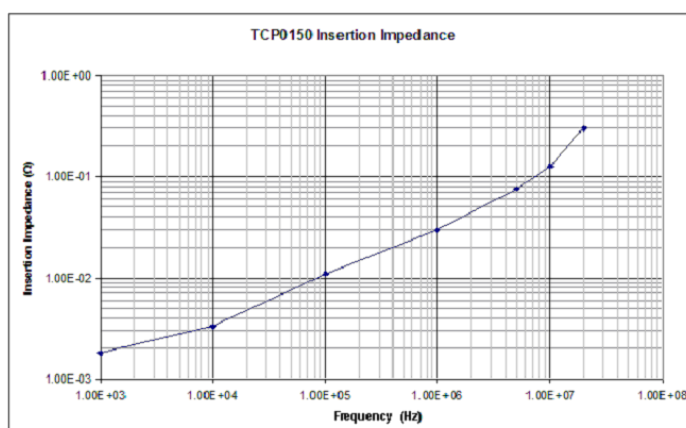
Nonoperating	-40 °C to +75 °C
<b>Humidity</b>	
Operating	5% to 95% RH (Relative humidity) at up to +30 °C 5% to 85% RH above 30 °C up to +50 °C, noncondensing
Nonoperating	5% to 95% RH (Relative humidity) at up to +30 °C 5% to 85% RH above 30 °C up to +75 °C, noncondensing
<b>Altitude</b>	
Operating	Up to 2,000 m (6,560 feet)
Nonoperating	Up to 12,000 m (40,000 feet)

## Recommended oscilloscopes

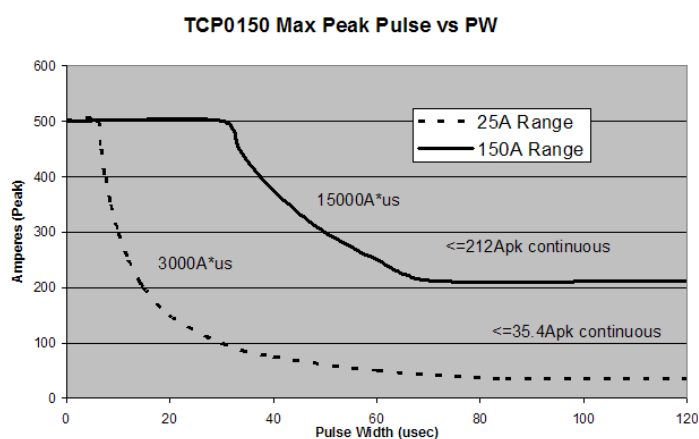
Oscilloscopes with the TekVPI probe interface.

For best probe support, download and install the latest version of the oscilloscope software from [tek.com](http://tek.com).

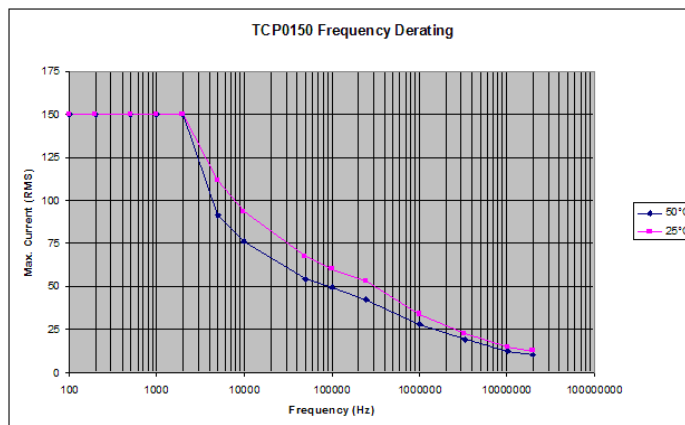
## Performance graphs



TCP0150 insertion impedance



TCP0150 Max Peak Pulse versus PW



*Do not apply currents greater than the max continuous current for more than 10 seconds to minimize heating effects.*

## Ordering information

**TCP0150**

AC/DC current probe with TekVPI interface. Includes protective cover (016-1924-xx), certificate of traceable calibration, and data standard.

## Language options

Opt. L0	English manual
Opt. L5	Japanese manual
Opt. L7	Simplified Chinese manual
Opt. L9	Korean manual

## Service options

Opt. CA1	Single Calibration or Functional Verification
Opt. C3	Calibration Service 3 Years
Opt. C5	Calibration Service 5 Years
Opt. D3	Calibration Data Report 3 Years (with Opt. C3)
Opt. D5	Calibration Data Report 5 Years (with Opt. C5)
Opt. R3	Repair Service 3 Years (including warranty)
Opt. R5	Repair Service 5 Years (including warranty)
Opt. SILV600	Standard warranty extended to 5 years

## Recommended accessories

015-0601-50	Current loop, 1 turn, 50 $\Omega$ with BNC connector used for performance verification
067-1701-xx	TekVPI calibration fixture
067-1686-xx	Cal/Deskew fixture for DPO7000/70000 series



Tektronix is ISO 14001:2015 and ISO 9001:2015 certified by DEKRA.



Product(s) complies with IEEE Standard 488.1-1987, RS-232-C, and with Tektronix Standard Codes and Formats.

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\* European toll-free number. If not accessible, call: +41 52 675 3777

**For Further Information.** Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit [www.tek.com](http://www.tek.com).

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