

## 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  $BW = .35/\text{Rise Time}$ )

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#### Rise time

$\leq 17.5$  ns

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#### Max RMS current

150 A

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#### Max peak pulse current

500 A

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#### Minimum sensitivity

5 mA (on oscilloscope's 1 mV/div setting) AC coupling (on oscilloscopes that support AC/DC coupling)

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#### Current ranges

25 A and 150 A

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#### Max bare-wire voltage

600 V<sub>RMS</sub> CAT I and II

300 V<sub>RMS</sub> CAT III

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### Typical characteristics

#### DC accuracy

$\pm 1\%$  typical (3% warranted)

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#### Max amp-second product

25 A range	3,000 A $\mu$ s
150 A range	15,000 A $\mu$ s

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**Insertion impedance**

0.03  $\Omega$  at 1 MHz 0.075  $\Omega$  at 5 MHz  
0.125 at 10 MHz  
0.3 at 20 MHz

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**Signal delay**

$\approx 21$  ns

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**Displayed RMS noise**

$\leq 500$   $\mu\text{A}_{\text{RMS}}$  (probe only)

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**Physical characteristics****Cable length**

2 m (79 in.)

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**Probe head size**

Length	26.8 cm (10.55 in.)
Width	4.1 cm (1.6 in.)
Height	15.6 cm (6.13 in.)

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**Max conductor diameter**

21 mm x 25 mm (0.83 in. x 1.0 in.)

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**Shipping weight**

0.7865 kg (1.734 lb.)

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**Power requirements**

TCP0150 is powered directly by oscilloscopes with the TekVPI interface

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**Environmental  
Temperature**

Operating	0 °C to +50 °C
Nonoperating	-40 °C to +75 °C

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**Humidity**

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

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**Altitude**

Operating	Up to 2,000 m (6,560 feet)
Nonoperating	Up to 12,000 m (40,000 feet)

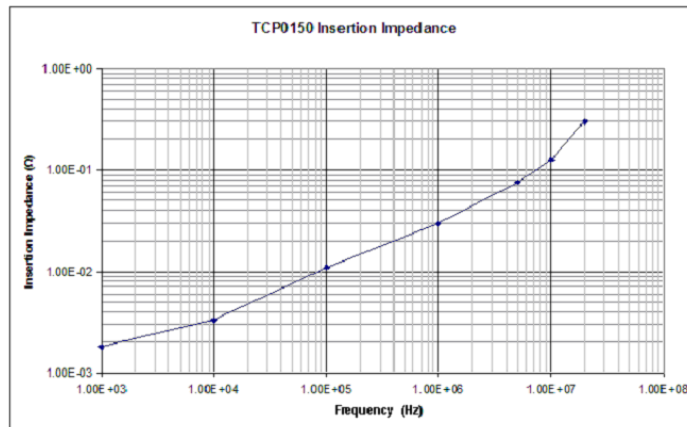
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**Recommended oscilloscopes**

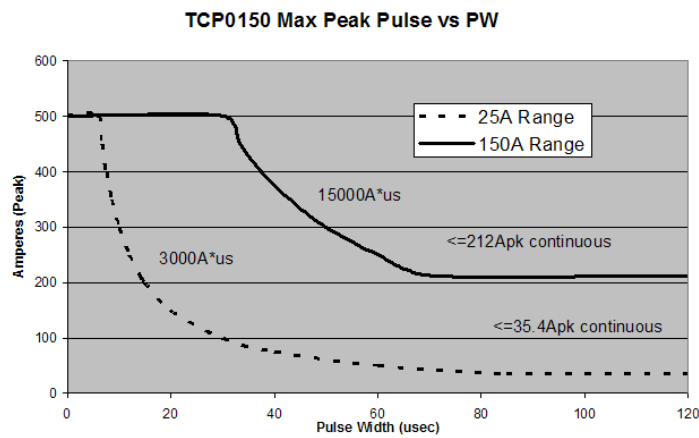
Oscilloscopes with the TekVPI probe interface.

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

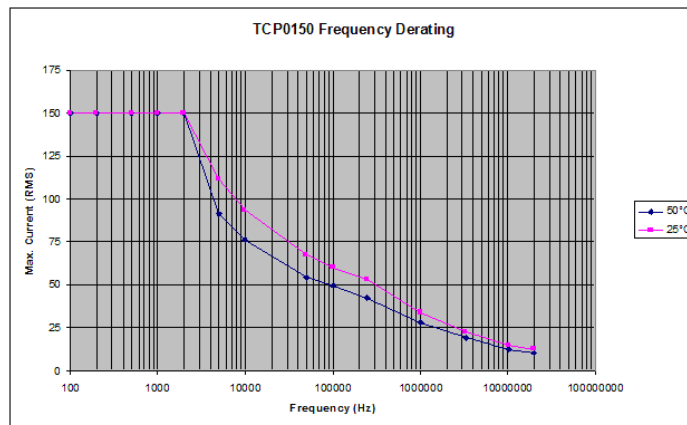
Performance graphs



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

### Models

TCP0150 AC/DC current probe with TekVPI interface.

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**Includes:** Includes protective cover (016-1924-xx), certificate of traceable calibration, and data standard.

### Options

#### Language options

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

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#### 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

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### 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

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Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.



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

**ASEAN / Australasia** (65) 6356 3900  
**Belgium** 00800 2255 4835\*  
**Central East Europe and the Baltics** +41 52 675 3777  
**Finland** +41 52 675 3777  
**Hong Kong** 400 820 5835  
**Japan** 81 (120) 441 046  
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**People's Republic of China** 400 820 5835  
**Republic of Korea** +822 6917 5084, 822 6917 5080  
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**Austria** 00800 2255 4835\*  
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**Balkans, Israel, South Africa and other ISE Countries** +41 52 675 3777  
**Canada** 1 800 833 9200  
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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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