

# AC/DC Current Probe

## TCP0150 Datasheet



TCP0150

### Features & Benefits

- Easy-to-Use and Accurate AC/DC Current Measurements
  - Connects Directly to Oscilloscopes with the TekVPI™ Probe Interface
  - 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
  - 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

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. 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.

## Characteristics

### Warranted

Characteristic	Description
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
Max Bare-wire Voltage	600 $V_{RMS}$ CAT I and II 300 $V_{RMS}$ CAT III

### Typical

Characteristic	Description
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 .125 at 10 MHz .3 at 20 MHz
Signal Delay	$\approx 21$ ns
Displayed RMS Noise	$\leq 500 \mu A_{RMS}$ (probe only)

## Environmental

Characteristic	Description
Temperature	
Operating	0 °C to +50 °C
Nonoperating	-40 °C to +75 °C
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
Altitude	
Operating	Up to 2,000 meters (6,560 feet)
Nonoperating	Up to 12,000 meters (40,000 feet)

## Physical Characteristics

Dimension	Meters	Inches
Cable Length	2 meters	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.
<b>Weight</b>		
	<b>kg</b>	<b>lb.</b>
Shipping	.7865	1.734
Power Requirements	TCP0150 is powered directly by oscilloscopes with the TekVPI interface	

## 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.tektronix.com](http://www.tektronix.com)

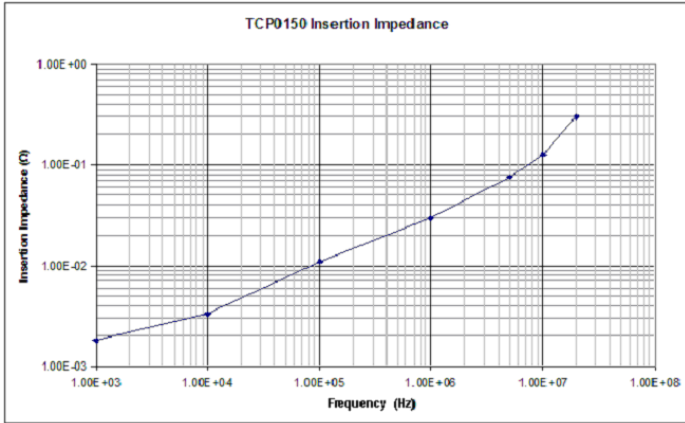


Figure 1.

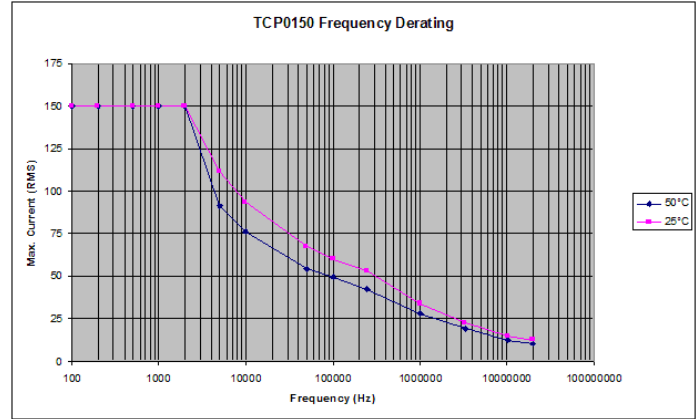


Figure 3: Do not apply currents greater than the max continuous current for more than 10 seconds to minimize heating effects.

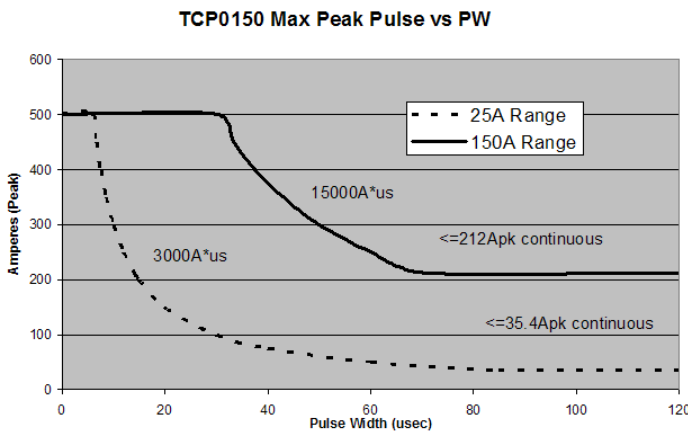


Figure 2.

## Ordering Information

### TCP0150

AC/DC Current Probe with TekVPI Interface.

**Includes:** Protective Cover (016-1924-xx), and Certificate of Traceable Calibration and Data Standard.

### Options

Option	Order
Opt. L0	Standard English Language Instruction Manual (071-xxxx-xx)
Opt. L5	Substitutes Japanese Language Instruction Manual
Opt. L7	Substitutes Simplified Chinese Language Instruction Manual

## Recommended Accessories

Order	Accessory
015-0601-50	Current Loop, 1 Turn, 50 Ω with BNC connector used for Performance Verification
067-1701-xx	TekVPI Calibration Fixture
067-1686-xx	Cal/Deskew Fixture for DPO7000/70000 Series

## Service Options

Option	Description
Opt. CA1	Provides coverage for a single Calibration Event
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
Opt. R5	Repair Service 5 Years
Opt. SILV600	Standard Warranty Extended to 5 Years



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.

**Contact Tektronix:**

- ASEAN / Australasia (65) 6356 3900
- Austria 00800 2255 4835\*
- Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777
- Belgium 00800 2255 4835\*
- Brazil +55 (11) 3759 7627
- Canada 1 800 833 9200
- Central East Europe and the Baltics +41 52 675 3777
- Central Europe & Greece +41 52 675 3777
- Denmark +45 80 88 1401
- Finland +41 52 675 3777
- France 00800 2255 4835\*
- Germany 00800 2255 4835\*
- Hong Kong 400 820 5835
- India 000 800 650 1835
- Italy 00800 2255 4835\*
- Japan 81 (3) 6714 3010
- Luxembourg +41 52 675 3777
- Mexico, Central/South America & Caribbean 52 (55) 56 04 50 90
- Middle East, Asia, and North Africa +41 52 675 3777
- The Netherlands 00800 2255 4835\*
- Norway 800 16098
- People's Republic of China 400 820 5835
- Poland +41 52 675 3777
- Portugal 80 08 12370
- Republic of Korea 001 800 8255 2835
- Russia & CIS +7 (495) 7484900
- South Africa +41 52 675 3777
- Spain 00800 2255 4835\*
- Sweden 00800 2255 4835\*
- Switzerland 00800 2255 4835\*
- Taiwan 886 (2) 2722 9622
- United Kingdom & Ireland 00800 2255 4835\*
- USA 1 800 833 9200

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

Updated 10 February 2011

**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.tektronix.com](http://www.tektronix.com)



Copyright © Tektronix, Inc. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks, or registered trademarks of their respective companies.

26 Jul 2012

51W-20815-3

