

# AC/DC Current Probe

## TCP0150 Data Sheet



TCP0150

### Features & Benefits

- Easy-to-Use and Accurate AC/DC Current Measurements
  - Connects Directly to DPO4000, MSO4000, and DPO7000 Series Oscilloscopes Using 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 Programmable GPIB Control for ATE systems
  - 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
- **Note:** Requires DPO7000 Series Firmware Version 3.0.2 or greater. Requires MSO/DPO4000 Firmware Version 2.06 or greater.

TCP0150 is a high performance and easy-to-use 150 A AC/DC current probe designed for use and direct connection (without the need of an additional power supply) to the TekVPI™ probe interface used on Tektronix DPO4000, MSO4000, and DPO7000 Series oscilloscopes. 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 the DPO4000, MSO4000 and DPO7000 Series oscilloscopes using TekVPI interface	

## Recommended Oscilloscopes

DPO4000, MSO4000, and DPO7000 Series oscilloscopes with TekVPI probe interface.

**Note:** Requires DPO7000 Series Firmware Version 3.0.2 or greater. Requires MSO/DPO4000 Firmware Version 2.06 or greater.

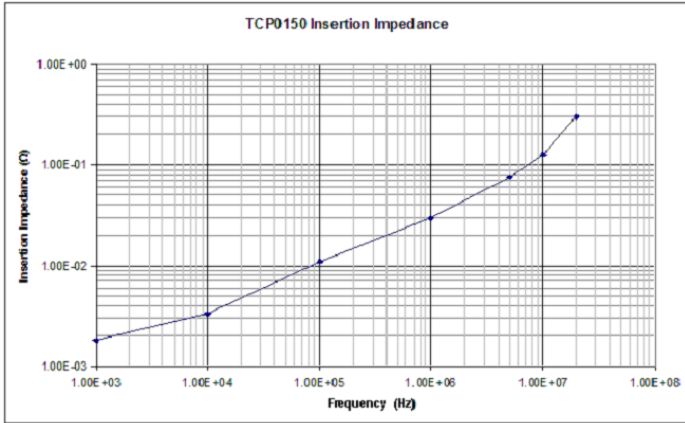


Figure 1.

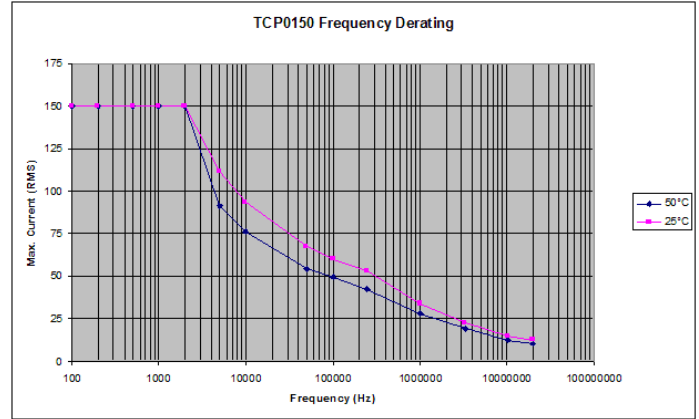


Figure 3: Do not apply currents greater than the max continuous current for more than 10 seconds to minimize heating effects.

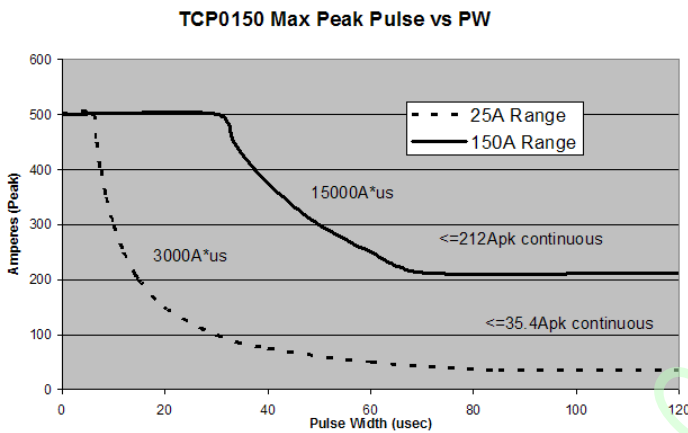


Figure 2.

## 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



Product(s) are manufactured in ISO registered facilities.



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 +41 52 675 3777  
Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777  
Belgium 07 81 60166  
Brazil +55 (11) 40669400  
Canada 1 (800) 661-5625  
Central East Europe, Ukraine, 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 +33 (0) 1 69 86 81 81  
Germany +49 (221) 94 77 400  
Hong Kong (852) 2585-6688  
India (91) 80-42922600  
Italy +39 (02) 25086 1  
Japan 81 (3) 6714-3010  
Luxembourg +44 (0) 1344 392400  
Mexico, Central/South America & Caribbean 52 (55) 54247900  
Middle East, Asia, and North Africa +41 52 675 3777  
The Netherlands 090 02 021797  
Norway 800 16098  
People's Republic of China 86 (10) 6235 1230  
Poland +41 52 675 3777  
Portugal 80 08 12370  
Republic of Korea 82 (2) 6917-5000  
Russia & CIS +7 (495) 7484900  
South Africa +27 11 206 8360  
Spain (+34) 901 988 054  
Sweden 020 08 80371  
Switzerland +41 52 675 3777  
Taiwan 886 (2) 2722-9622  
United Kingdom & Ireland +44 (0) 1344 392400  
USA 1 (800) 426-2200

For other areas contact Tektronix, Inc at: 1 (503) 627-7111

Updated 30 October 2008

**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 Jun 2009

51W-20815-0

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



守宏企業(股)有限公司 RADIOTEK CORPORATION  
台北：三重市重新路五段609巷16號6F-1 TEL:02-22782269 FAX:02-22782059  
新竹：新竹縣竹北市台元街26號4F-10 TEL:03-5526779 FAX:03-5526739  
E-mail: [salesmag1@rdtmail.com.tw](mailto:salesmag1@rdtmail.com.tw) HomePage: [www.radiotek.com.tw](http://www.radiotek.com.tw)