

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_{RMS} 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 ≥ 20 MHz (-3 dB). Derate with Frequency. See Figure 1. (Calculated from Rise Time $BW = .35/\text{Rise Time}$)
Rise Time	≤ 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 μ s
150 A Range	15,000 A μ s
Insertion Impedance	0.03 Ω at 1 MHz 0.075 Ω at 5 MHz .125 at 10 MHz .3 at 20 MHz
Signal Delay	≈ 21 ns
Displayed RMS Noise	≤ 500 μA_{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.
Weight		
Shipping	.7865 kg	1.734 lb.
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.

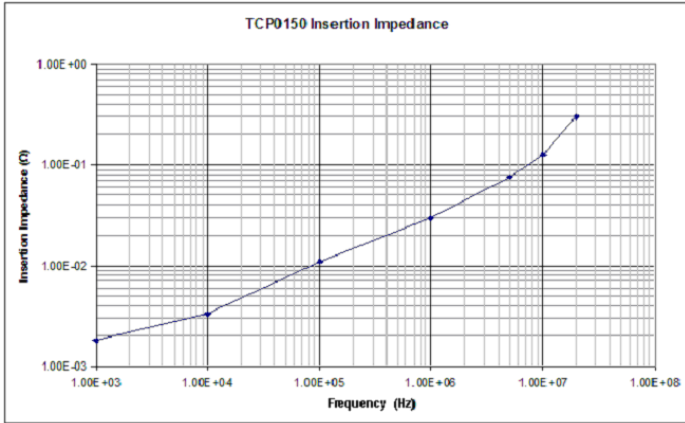


Figure 1.

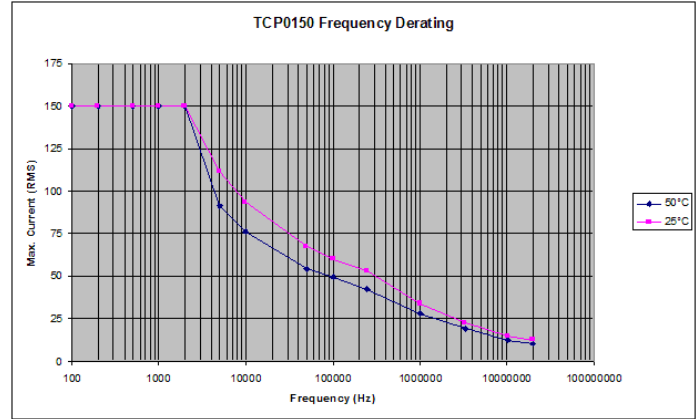


Figure 3: Do not apply currents greater than the max continuous current for more than 10 seconds to minimize heating effects.

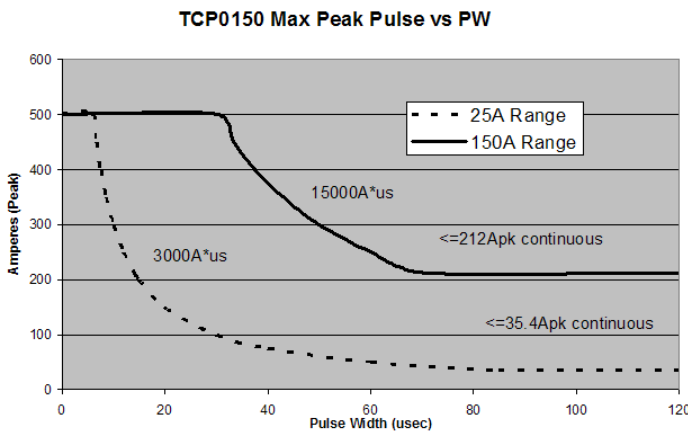


Figure 2.

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

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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



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www.tektronix.com



FINAL TEST^{MR}
Venta de Instrumentos de Prueba y Medición

Calle del Ebano #16625
Jardines de Chapultepec
Tijuana B.C. Mexico
Tel. (664) 681 1130
Fax. (664) 681 1150
Tel. 01800 027-4848
www.finaltest.com.mx