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.

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Characteristics

Warranted

Characteristic	Description
Bandwidth	DC to ≥20 MHz (-3 dB). Derate with Frequency. See Figure 1. (Calculated from Rise Time BW = .35/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	±1% Typical 3% Warranted
Max Amp-second Product	
25 A Range	3,000 Aμs
150 A Range	15,000 Aμs
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 ºC to +50 ºC
Nonoperating	-40 ºC to +75 ºC
Humidity	
Operating	5% to 95% RH (Relative Humidity) at up to +30 ºC 5% to 85% RH above 30 ºC up to +50 ºC, noncondensing
Nonoperating	5% to 95% RH (Relative Humidity) at up to +30 ºC 5% to 85% RH above 30 ºC up to +75 ºC, 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	**kg**	**lb.**
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.

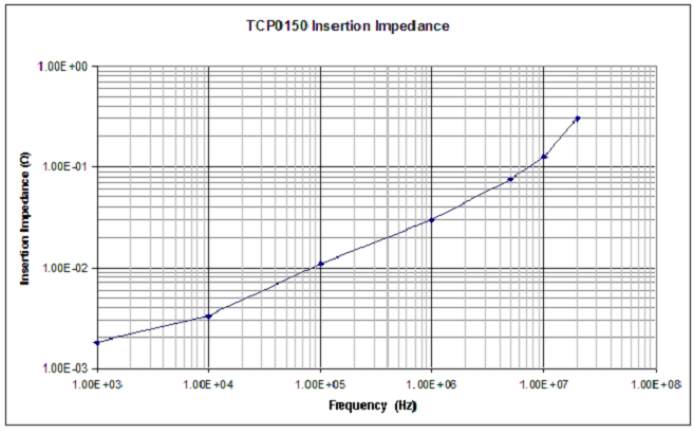

Figure 1.

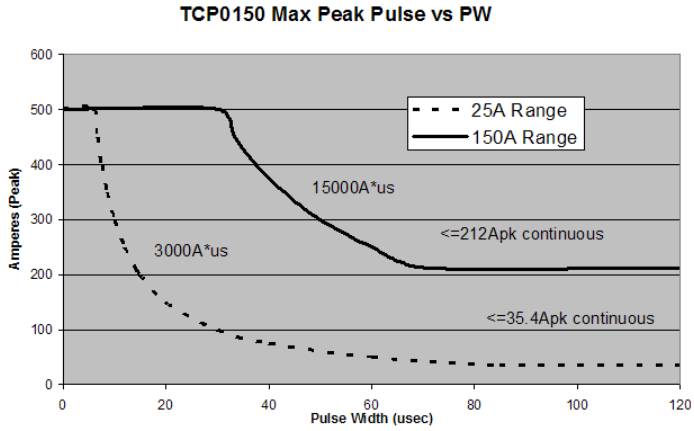

Figure 2.

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

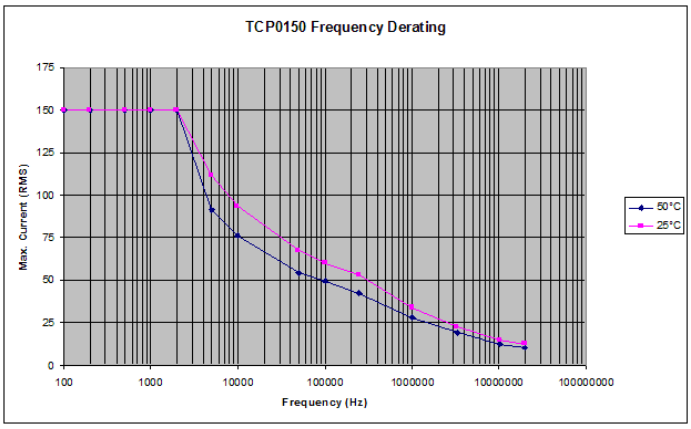

Figure 3: Do not apply currents greater than the max continuous current for more than 10 seconds to minimize heating effects.

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

CE

ISO 9001

Product(s) are manufactured in ISO registered facilities.

GPIB IEEE-488

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

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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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