

AC/DC Current Probe

TCP0150 Data Sheet



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_{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 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 ≥ 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 μ 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.
Weight		
	kg	lb.
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

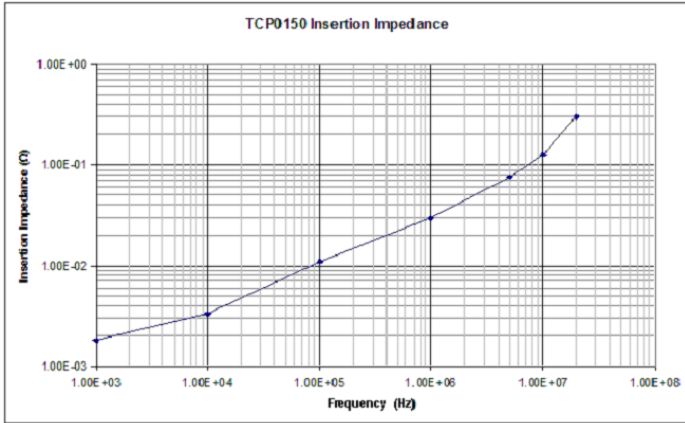


Figure 1.

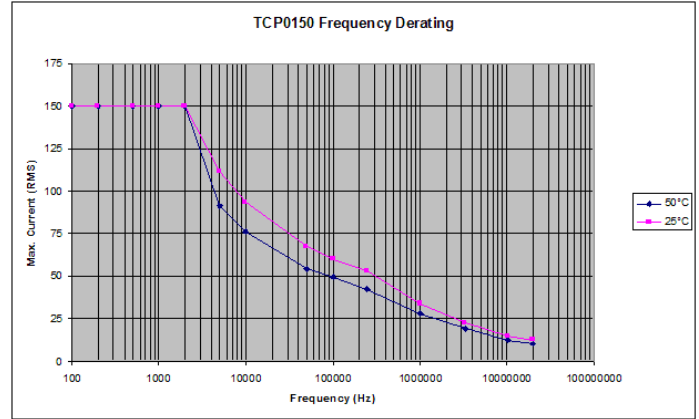


Figure 3: Do not apply currents greater than the max continuous current for more than 10 seconds to minimize heating effects.

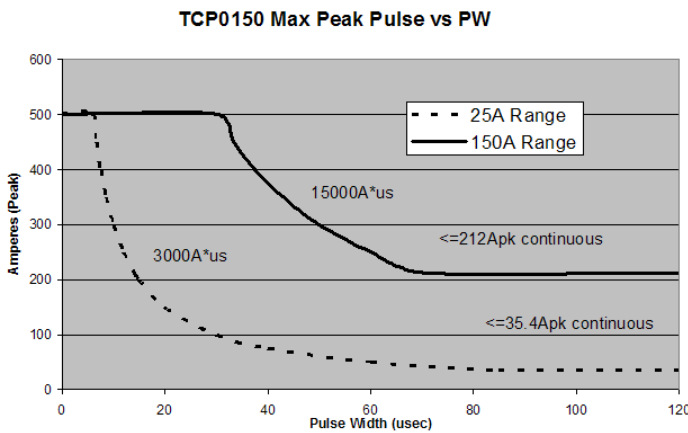


Figure 2.

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



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.

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

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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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