TELEDYNE TEST TOOLS
Everywhereyoulook™

T3CP Current Probes Data Sheet

DC/AC Current Probes

Debug with Confidence

DC/AC 30 Amps – 500 Amps



Tools for Improved Debugging

• 5 models available from a maximum of 30 A to 500 A.	✓ Broad range gives wide application coverage.
• Simultanuous DC and AC measurement coverage.	✓ Measure from DC to the full frequency bandwidth all in one product.
• Connects to any oscilloscope with a 1 MOhm input impedance and BNC connector.	✓ Compatible with a wide range of oscilloscopes, not just Teledyne LeCroy or Teledyne Test Tools.
• Over-current protection with dual indicators.	✓ Buzzer and LED indicators inform the user of measurement current overload conditions helping to protect the current probe from potential damage.
• Built-in degaussing and automatic zero setting.	✓ Functions to maintain user measurement accuracy.
• Dual range capability.	✓ Each probe has a high and low range setting giving the user broader measurement sensitivity coverage.
• Use multiple probes to cover multiphase applications.	✓ Wide single and multiphase application coverage.

Key Specifications

Current Measurements	30 A, 50 A, 150 A, 500 A
Frequency	DC to Maximum Frequency depending on model
5 mm Jaw Size	T3CP30-50, T3CP30-100, T3CP50-50
20 mm Jaw Size	T3CP150-12, T3CP500-5
Connectivity	BNC cable to Oscilloscope 1 MOhm input
Power	Wall socket power adapter
Warranty	1 Year

PRODUCT OVERVIEW

T3CP30-50: 30 Amps, 50 MHz
T3CP30-100: 30 Amps, 100 MHz
T3CP50-50: 50 Amps, 50 MHz
T3CP150-12: 150 Amps, 12 MHz
T3CP500-5: 500 Amps, 5 MHz

Teledyne Test Tools new T3CP series current probes are wide bandwidth DC/AC active current probes, featuring high bandwidth, fast and accurate waveform capture, measurement accuracy up to 1 % and low circuit insertion loss. These probes can be used with any oscilloscope having a high-impedance BNC input.



Key Features

- Accurate and easy current measurements.
- Wide bandwidth.
- Combined DC and AC measurements.
- Over-current protection with dual indicators.
- High and low range / sensitivity selection (dual range).
- Low current measurements feature.
- Degaussing and automatic zero setting.
- User control of range / sensitivity selection, degaussing and automatic zero.

Applications

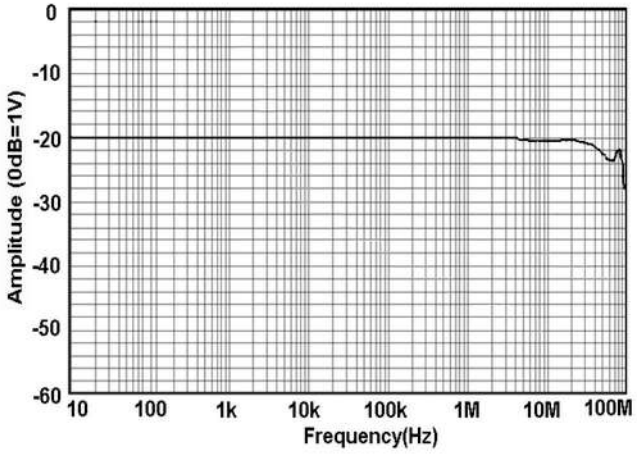
- Switching and linear power design.
- Single and multi-phase inverters.
- Consumer electronics and household appliances.
- Electric vehicle motor, power train and drive electronics.
- Power component measurements.
- Domestic and industrial photo-voltaic (PV) system design.
- LED lighting Power design.
- Industrial and military control electronics.
- Research and development.
- Universities. General electronics education and power focused courses.

Model	T3CP30-50		T3CP30-100		T3CP50-50		T3CP150-12		T3CP500-5	
Bandwidth (-3 dB)	DC – 50 MHz		DC – 100 MHz		DC – 50 MHz		DC – 12 MHz		DC – 5 MHz	
Risetime	≤ 7 ns		≤ 3.5 ns		≤ 7 ns		≤ 29 ns		≤ 70 ns	
Continuous Maximum Input	30 A rms		30 A rms		50 A rms		150 A rms		500 A rms	
Maximum Peak Input (≤ 10 µs)	50 A peak		50 A peak		75 A peak		300 A peak		750 A peak	
Ranges	5 A	30 A	5 A	30 A	7.5 A	50 A	30 A	150 A	75 A	500 A
Overload	5 A	≥ 5 A	5 A	≥ 5 A	7.5 A	≥ 7.5 A	30 A	≥ 30 A	75 A	≥ 75 A
	30 A	≥ 50 A	30 A	≥ 50 A	50 A	≥ 75 A	150 A	≥ 300 A	500 A	≥ 750 A
Current Transfer Ratio	5 A	1 V / A	5 A	1 V / A	7.5 A	1 V / A	30 A	0.1 V / A	75 A	0.1 V / A
	30 A	0.1 V / A	30 A	0.1 V / A	50 A	0.1 V / A	150 A	0.01 V / A	500 A	0.01 V / A
Oscilloscope Input Scaling	5 A	x 1	5 A	x 1	7.5 A	x 1	30 A	x 10	75 A	x 10
	30 A	x 10	30 A	x 10	50 A	x 10	150 A	x 100	500 A	x 100
Minimum Measurable Current	5 A	1 mA	5 A	1 mA	7.5 A	1 mA	30 A	5 mA	75 A	5 mA
	30 A	10 mA	30 A	10 mA	50 A	10 mA	150 A	50 mA	500 A	50 mA
Amplitude Accuracy (DC, 45 Hz – 66 Hz)	5 A	±1 % ±1 mA	5 A	±1 % ±1 mA	7.5 A	±1 % ±1 mA	30 A	±1 % ±10 mA	75 A	±1 % ±10 mA
	30 A	±1 % ±10 mA	30 A	±1 % ±10 mA	50 A	±1 % ±10 mA	150 A	±1 % ±100 mA	500 A	±1 % ±100 mA
Delay Time [1)]	19 ns		19 ns		19 ns		41 ns		47 ns	
Maximum Measurement Conductor Diameter	5 mm						20 mm			
Probe Head to Control Box Cable Length	1 m						1.5 m			
Terminal Load	≥ 100 KOhms									
Probe Head Dimensions	176 mm x 39.5 mm x 18 mm						174 mm x 67.5 mm x 30 mm			
Control Box Dimensions	91.5 mm x 40 mm x 26.5 mm									
Power Supply	DC 12 V / 1 A (supplied)									
Probe Weight	255 gms						555 gms		525 gms	
Operating Temperature and Humidity	0 °C – 40 °C, ≤ 80 %									
Storage Temperature and Humidity	-10 °C – 50 °C, ≤ 80 %									
Operating Altitude	2000 m									
Storage Altitude	12000 m									
Safety Compliance	EN61010-1: 2010+ A1:2019, EN61010-2-032:2019									
EMC Standard	EN61326-1:2013									

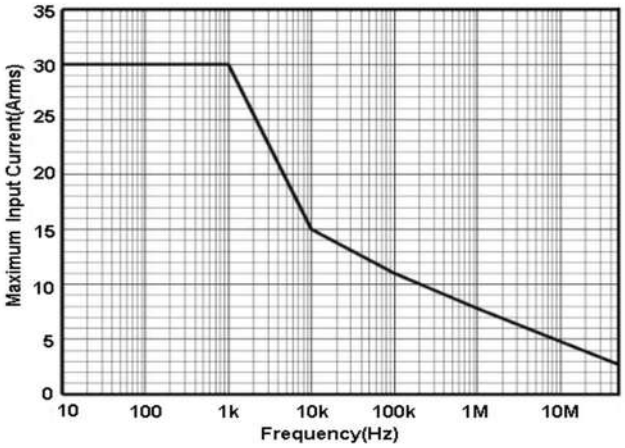
[1)] Delay Time includes 5 ns for the 1 m BNC cable. Other length BNC cables would incur different delay times.

SPECIFICATIONS

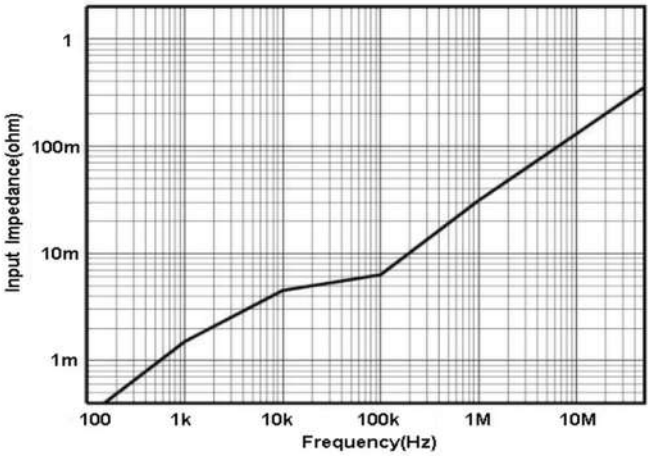
T3CP30-50 Frequency Response



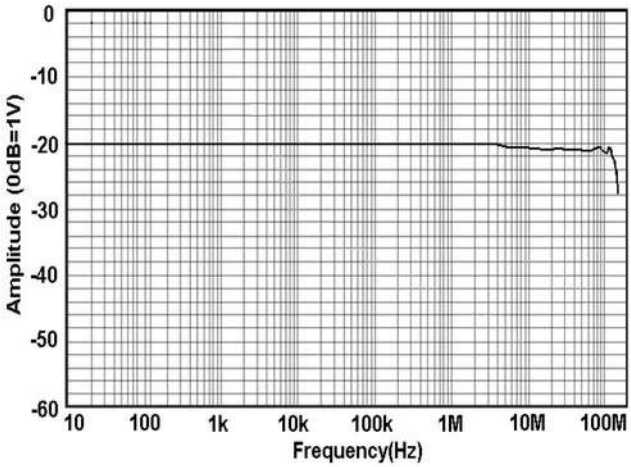
T3CP30-50 Continuous Maximum Current Input



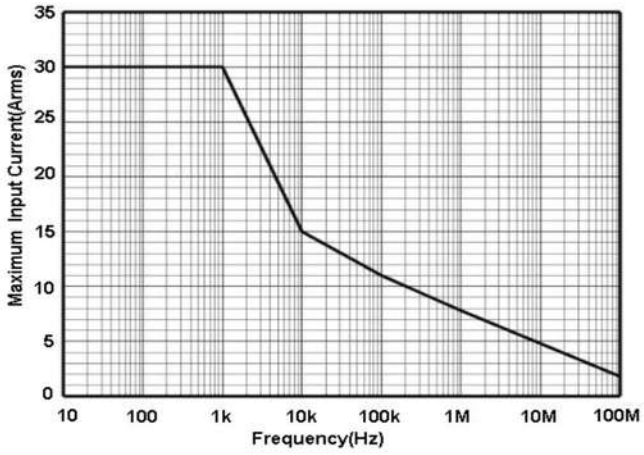
T3CP30-50 Insertion Impedance



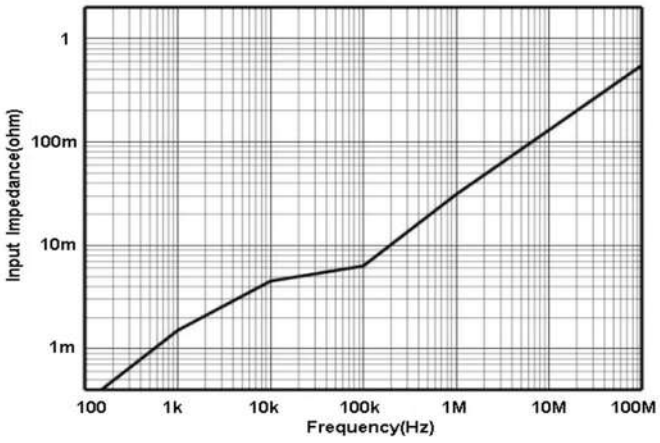
T3CP30-100 Frequency Response



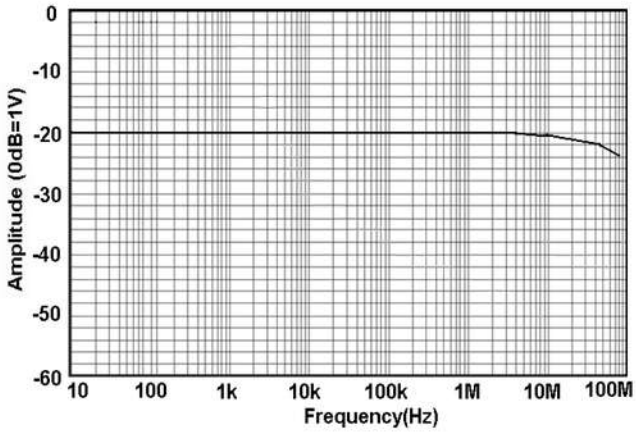
T3CP30-100 Continuous Maximum Current Input



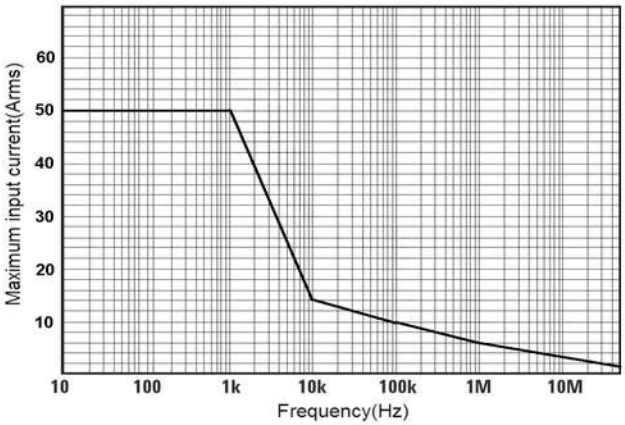
T3CP30-100 Insertion Impedance



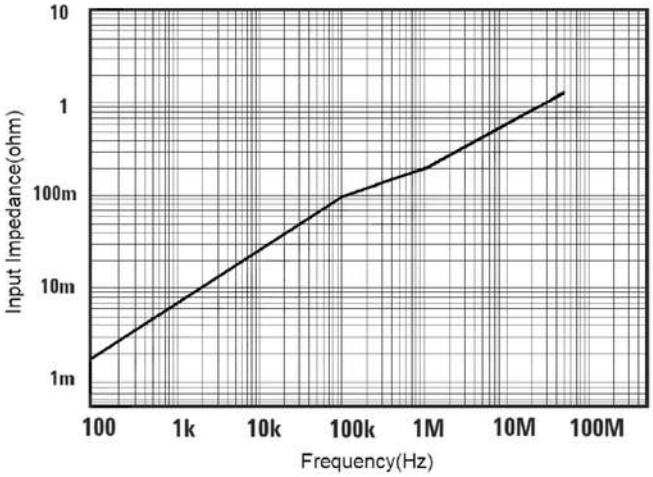
T3CP50-50 Frequency Response



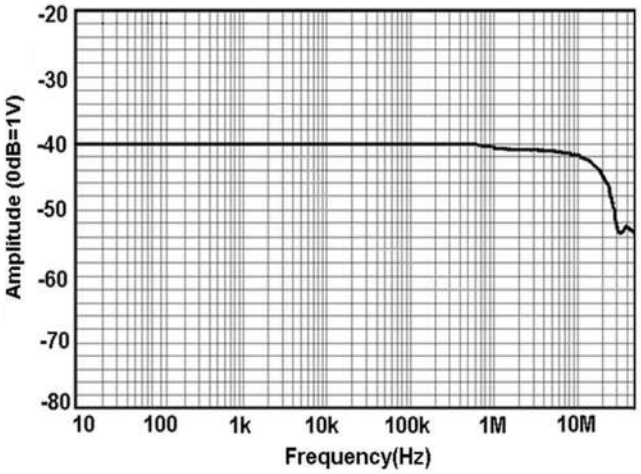
T3CP50-50 Continuous Maximum Current Input



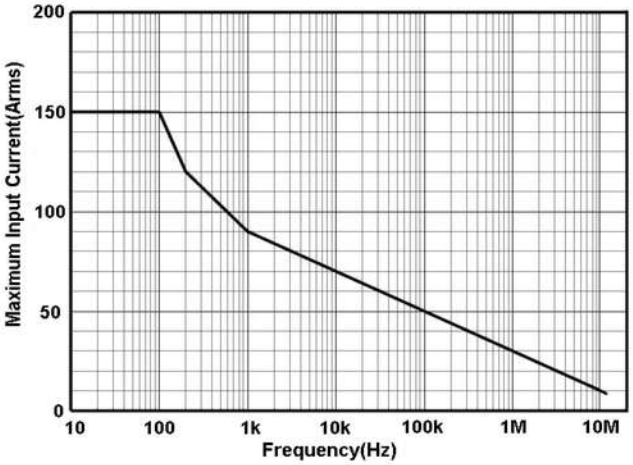
T3CP50-50 Insertion Impedance



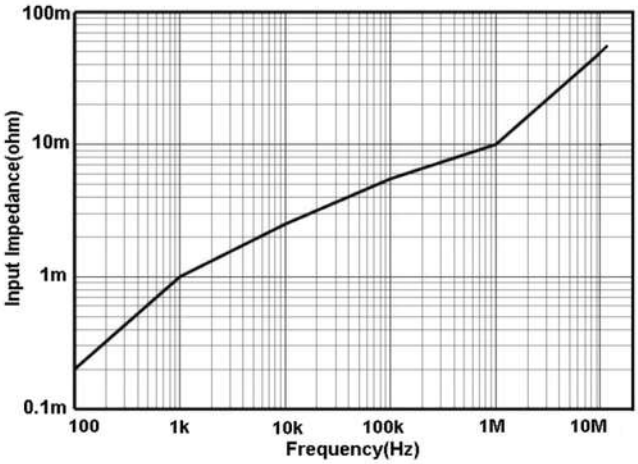
T3CP150-12 Frequency Response



T3CP150-12 Continuous Maximum Current Input

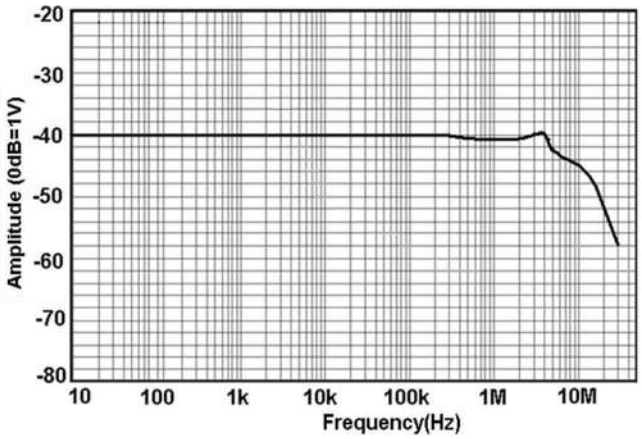


T3CP150-12 Insertion Impedance

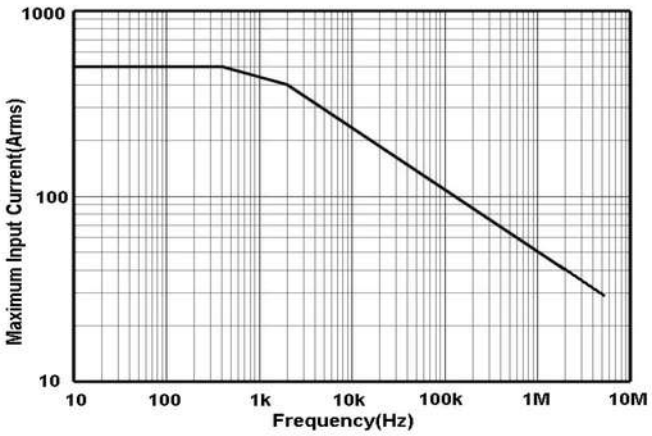


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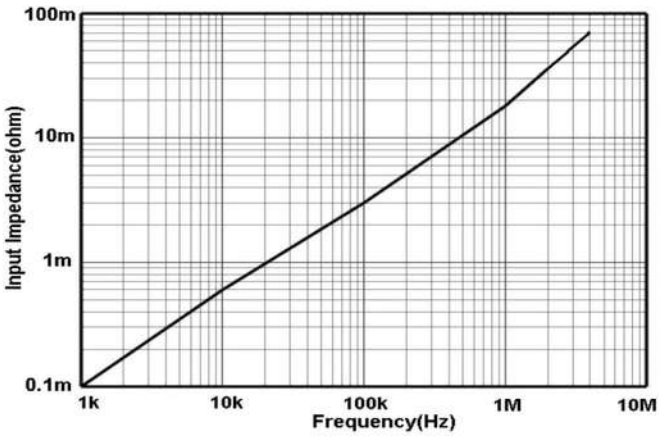
T3CP500-5 Frequency Response



T3CP500-5 Continuous Maximum Current Input



T3CP500-5 Insertion Impedance



Insertion Impedance:

Insertion Impedance (for all current probes) is the impedance added into the cable / DUT being tested, by the presence of the current probe measurement jaw. The insertion impedance is typically < 1 mΩ at low frequencies up to usually not much more than 1 Ω at high frequencies. See the insertion impedance tables for details of insertion impedance for each probe.

ORDERING INFORMATION

Ordering information

Description	30 Amps, DC to 50 MHz	**T3CP30-50**
	30 Amps, DC to 100 MHz	**T3CP30-100**
	50 Amps, DC to 50 MHz	**T3CP50-50**
	150 Amps, DC to 12 MHz	**T3CP150-12**
	500 Amps, DC to 5 MHz	**T3CP500-5**
Standard Accessories	Universal Power supply, DC 12 V / 1 A – 1	
	1 m BNC – BNC cable – 1	
	Instruction Manual – 1	
	Calibration Report – 1	

ABOUT TELEDYNE TEST TOOLS

TELEDYNE TEST TOOLS
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Company Profile

Teledyne LeCroy is a leading provider of oscilloscopes, protocol analyzers and related test and measurement solutions that enable companies across a wide range of industries to design and test electronic devices of all types. Since our founding in 1964, we have focused on creating products that improve productivity by helping engineers resolve design issues faster and more effectively. Oscilloscopes are tools used by designers and engineers to measure and analyze complex electronic signals in order to develop high-performance systems and to validate electronic designs in order to improve time to market.

The Teledyne Test Tools brand extends the Teledyne LeCroy product portfolio with a comprehensive range of test equipment solutions. This new range of products delivers a broad range of quality test solutions that enable engineers to rapidly validate product and design and reduce time-to-market. Designers, engineers and educators rely on Teledyne Test Tools solutions to meet their most challenging needs for testing, education and electronics validation.

Location and Facilities

Headquartered in Chestnut Ridge, New York, Teledyne Test Tools and Teledyne LeCroy has sales, service and development subsidiaries in the US and throughout Europe and Asia. Teledyne Test Tools and Teledyne LeCroy products are employed across a wide variety of industries, including semiconductor, computer, consumer electronics, education, military/aerospace, automotive/industrial, and telecommunications.

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World wide support contacts can be found at:
https://teledynelecroy.com/support/contact

World wide instrument service can be found at:
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T3 stands for Teledyne Test Tools.

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