

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.
- Simultaneous 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.

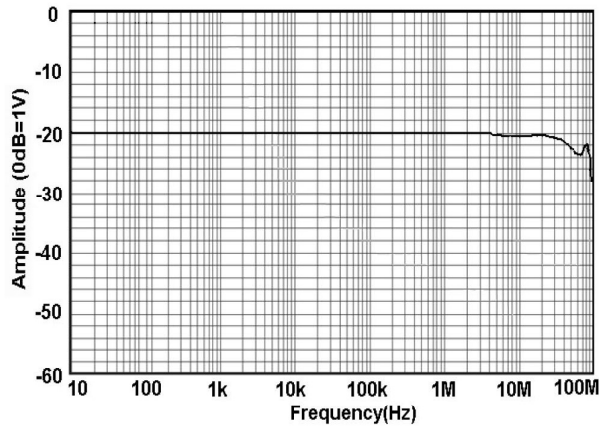
SPECIFICATIONS

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⁾	21 ns		21 ns		21 ns		40 ns		60 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	235 gms						480 gms		460 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									

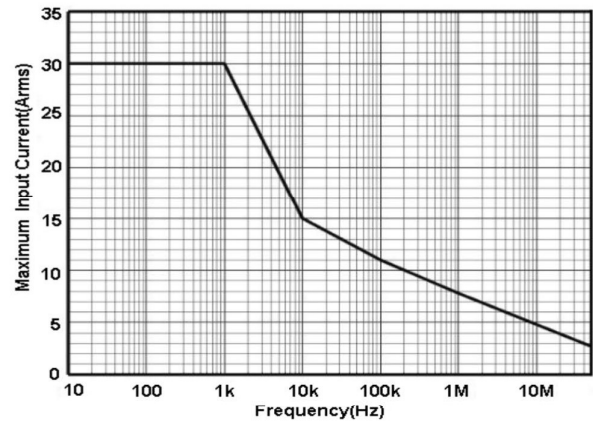
¹⁾ Delay Time includes 5 ns for the 1 m BNC cable. Other length BNC cables would incur different delay times.

SPECIFICATIONS

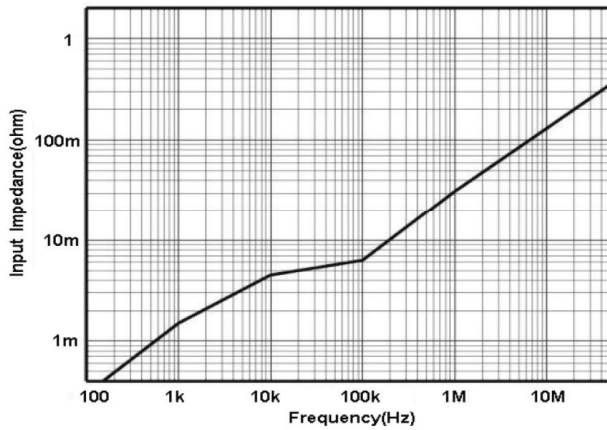
T3CP30-50 Frequency Response



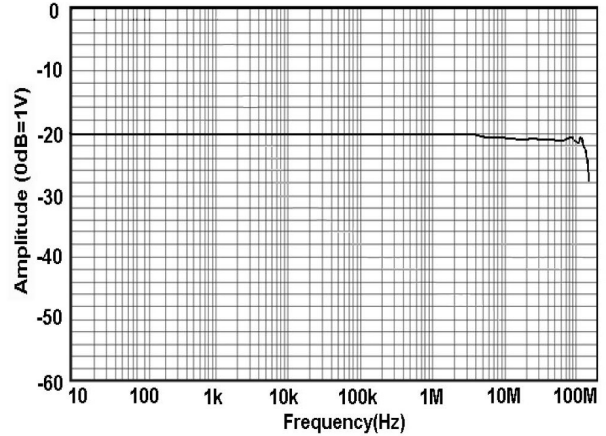
T3CP30-50 Continuous Maximum Current Input



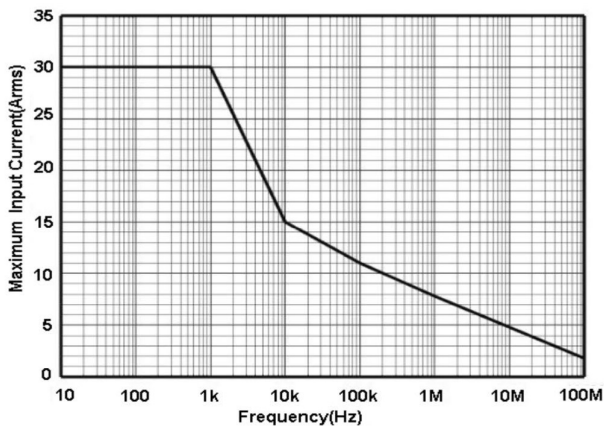
T3CP30-50 Insertion Impedance



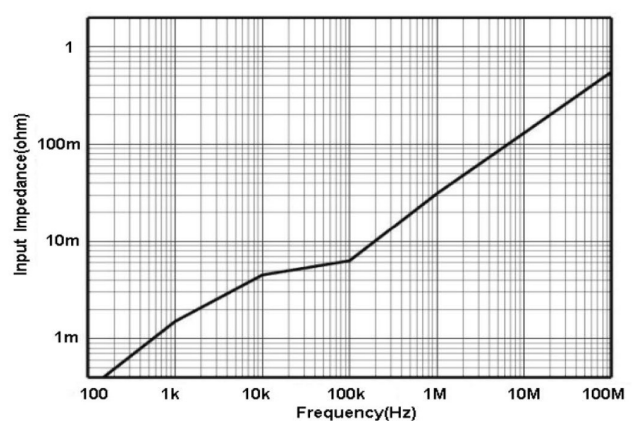
T3CP30-100 Frequency Response



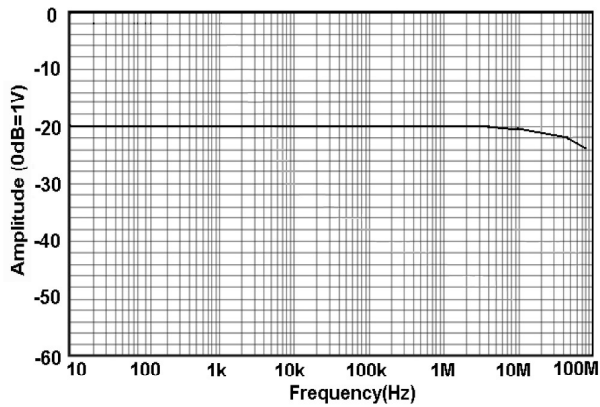
T3CP30-100 Continuous Maximum Current Input



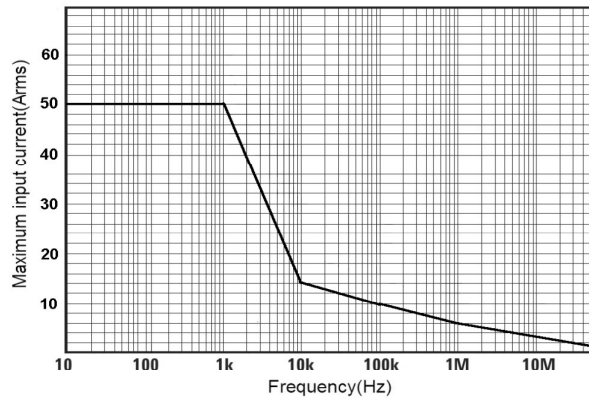
T3CP30-100 Insertion Impedance



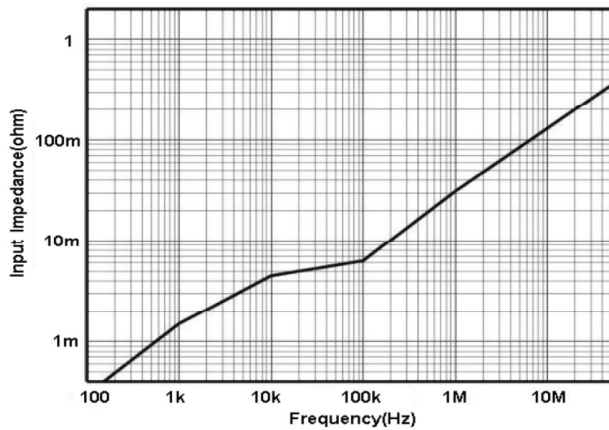
T3CP50-50 Frequency Response



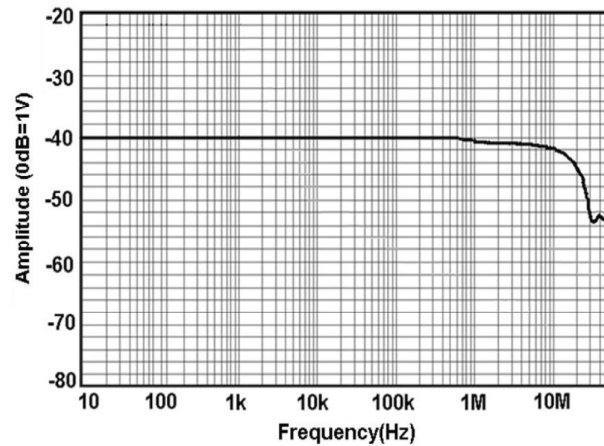
T3CP50-50 Continuous Maximum Current Input



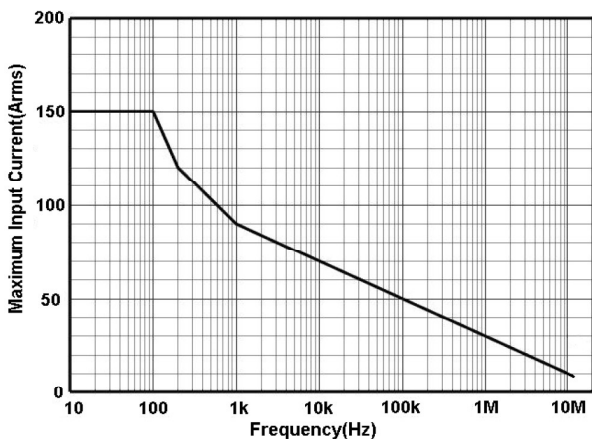
T3CP50-50 Insertion Impedance



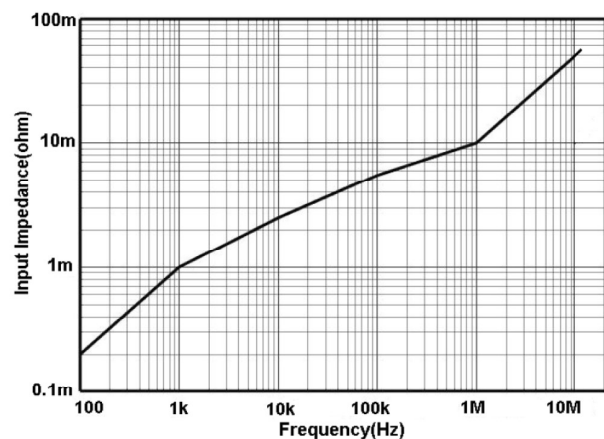
T3CP150-12 Frequency Response



T3CP150-12 Continuous Maximum Current Input

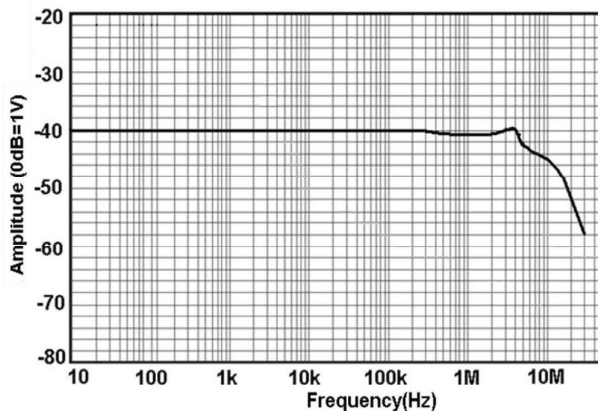


T3CP150-12 Insertion Impedance

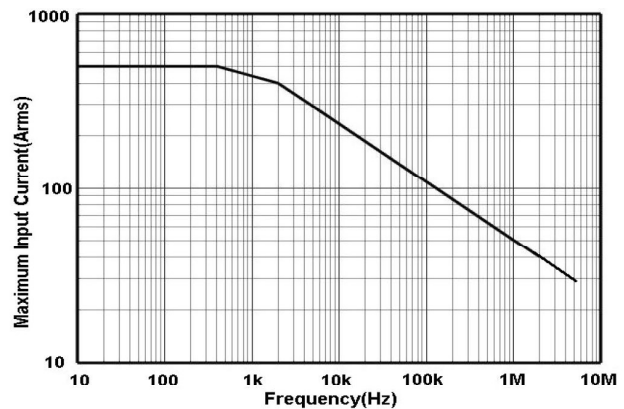


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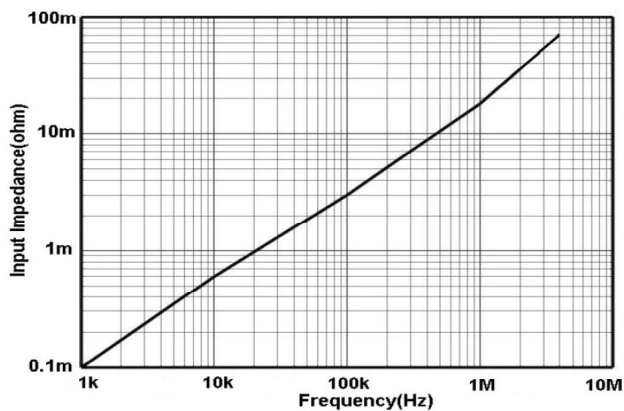
T3CP500-5 Frequency Response



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