TELEDYNE TEST TOOLS
Everywhereyoulook™

T3CP100-2 Current Probe Data Sheet

DC/AC Current Probe

Debug with Confidence

DC/AC 100 Amps, 2 MHz



Tools for Improved Debugging

• 12 mm probe jaw size.	✓ Large measurement jaw size gives wide application coverage.
• Simultaneous DC and AC measurement coverage.	✓ Measure from DC to 2 MHz 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 audio indicator.	✓ Buzzer informs the user of measurement current overload conditions helping to protect the current probe from potential damage.
• Built-in degaussing and zero setting.	✓ Functions to maintain user measurement accuracy.
• Dual range 10 A or 100 A capability.	✓ 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	Dual selectable ranges of 10 A or 100 A Peak
Frequency	DC to 2 MHz
Measurement Jaw Size	12 mm
Rise Time	≤ 175 ns
Connectivity	BNC cable to Oscilloscope 1 MOhm input
Power	Wall socket power adapter or 9 V Battery
Warranty	1 Year

T3CP100-2: DC/AC 100 A Peak, 70 A rms, 2 MHz Bandwidth

Teledyne Test Tools new T3CP100-2 current probe is a DC to 2 MHz bandwidth active AC/DC coupled probe, featuring 2 ranges of 100 A Peak, 70 A rms / 10 A Peak, 7 A rms, fast and accurate waveform capture, risetime of ≤ 175 ns and low test circuit loading. This probe can be used with any oscilloscope having a 1 MΩ BNC input.



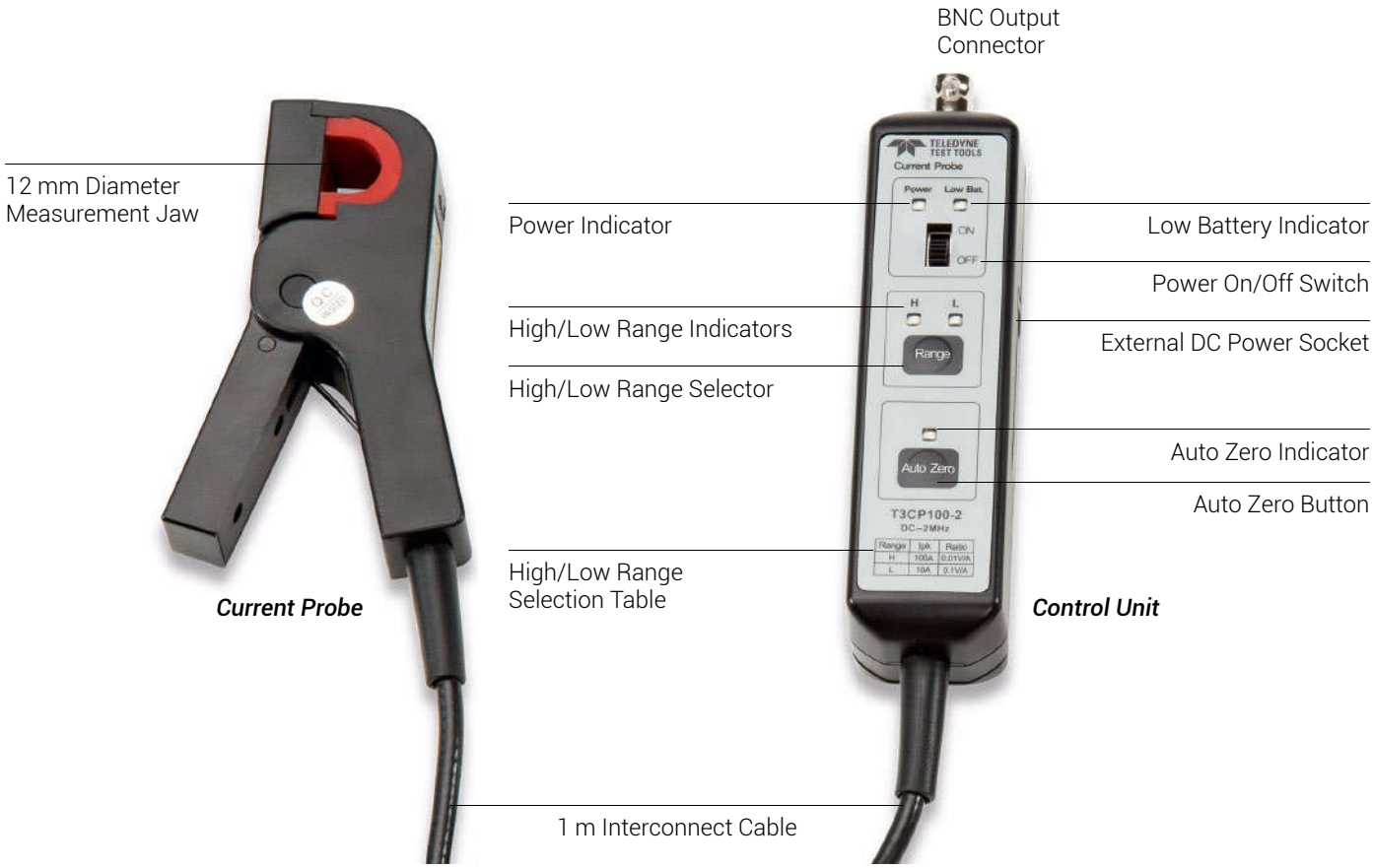
Key Features

- Accurate and easy current measurements.
- Wide 2 MHz bandwidth.
- Maximum AC Peak to Peak current of 200 A.
- Dual range 10 A Peak, 7 A rms / 100 A Peak, 70 A rms.
- Maximum conductor voltage of ± 600 V.
- Measurement jaw size 12 mm.
- Auto Zero button and indicator.
- Use with any scope with a 1 MΩ input and BNC connector.
- Powered by 9 V battery or wall plug power supply (included).

Applications

- Power design and power component measurements.
- Consumer electronics and household appliances.
- Domestic and industrial photo-voltaic (PV) system design and maintenance.
- Automotive and vehicle electronics.
- Industrial and military electronics.
- Service technicians.
- Research and development.
- Universities, general electronics and education.

T3CP100-2 PRODUCT DESCRIPTION



Power On/Off Switch

Turns the probe power on or off. The power indicator will be alight if the power is on and off if the power is off.

Power Indicator

The power indicator will be alight when the power is turned on, and off when the power is off.

Low Battery Indicator

When the voltage of the battery is 6.5 V or lower the low battery indicator will be lit red indicating that the battery should be changed or external power applied to the probe.

External DC Power Socket

This is the point where the external power supply (supplied) is connected to the T3CP100-2 current probe.

High/Low Range Indicators

During use of the probe one of the high / low indicators will always be lit indicating the current measurement range selected. The range can be changed by using the High/Low Range Selector.

High/Low Range Selector

This button allows the high or low range of the probe to be selected.

High/Low Range Selection Table

This table indictes to the user the ranges of the high and low settings as well as the output voltage level.

Auto Zero Indicator

The Auto Zero indicator will be alight when the probe is running it's auto zero process.

Auto Zero Button

Pressing the Auto Zero Button starts the degaussing and auto zero process. The auto zero indicator will alight during this process. The probe measurement clamp jaw should be disconnected from any DUT before using the auto zero button. It is recommended to use the auto zero button before making any measurements.

Control Unit

The control unit houses the probe control as well as having a 9V battery compartment. A standard 9 V alkaline battery needs to be installed within the battery compartment if using the probe without the external power supply.

1 m Interconnect Cable

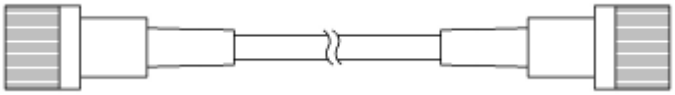
The 1 m current probe head/control unit interconnect cable is permanently attached between the probe head and the control unit.

Probe Head

The current probe measurement head uses a spring loaded lever to open and close the jaw. The jaw can clamp around cables up to 12 mm in diameter. The measurement cable/DUT should always be insulated. Do not clamp around uninsulated wires and cables.

BNC Output Connector

The BNC output connector can be connected to any instrument with a 1 MΩ input impedance including an Oscilloscope, DVM/DMM, etc. The supplied BNC to BNC cable can be used for this connection if the measuring instrument has a BNC input, such as an Oscilloscope. If connecting to a DVM/DMM then a BNC to banana plug cable may be required (not supplied), see your DVM/DMM manual.



1 m BNC to BNC Output Cable

Power Supply

The supplied wall socket power supply (not illustrated) can be used to power the T3CP100-2 current probe in place of batteries if required.

SPECIFICATIONS

T3CP100-2 Specifications	Low Range	High Range
Current Range	50 mA - 10 A Peak	1 A – 100 A Peak
	35.35 mA – 7.07 A rms	0.707 A – 70.7 A rms
Range Output	0.1 V/A	0.01 V/A
Oscilloscope Attenuation Ratio	10:1	100:1
Typical DC Precision	3 % ± 50 mA	500 mA – 40 A Peak: 4 % + 50 mA 40 A – 100 A Peak: ± 15 % Max
Bandwidth (-3 dB)	DC – 2 MHz Refer to Figure 1	
Maximum Current Versus Frequency	Refer to Figure 2	
Typical DC Linearity (High Range)	Refer to Figure 3	
Rise Time	≤ 175 ns	
Phase Shift	DC – 65 Hz <1.5°	DC – 65 Hz <1°
Maximum Operating Current	Refer to Voltage And Current Rating Table	
Maximum Operating Voltage	Refer to Voltage And Current Rating Table	
Maximum Floating Voltage	Refer to Voltage And Current Rating Table	
Operating Voltage RMS	CAT I 600 V, CAT II 600 V, CAT III 300 V	
Common Mode Voltage RMS	CAT I 600 V, CAT II 600 V, CAT III 300 V	
Typical Battery Life	9 V Alkaline: 15 Hours	
Low Power Indication	At <6.5 V the battery indicator will turn red	
Overload Indicator	When the measurement current exceeds the probe range the buzzer will sound	
Calibration Interval	Annually	
Warranty	1 Year	

Voltage And Current Rating Table

Parameter	Maximum Operating Current		Maximum Operating Voltage	Maximum Floating Voltage
	Low Range	High Range		
DC	10 A	100 A	600 V	600 V
DC + Peak AC	10 A	100 A	600 V	600 V
AC Peak	10 A	100 A	600 V	600 V
AC Peak to Peak	20 A	200 A	1200 V	0 V
RMS CAT I	7.07 A	70.7 A	600 V	600 V
RMS CAT II	7.07 A	70.7 A	600 V	600 V
RMS CAT III	7.07 A	70.7 A	300 V	300 V

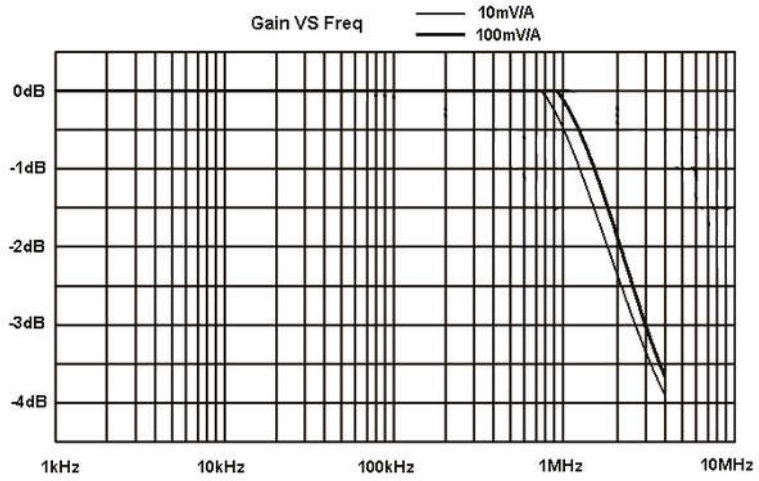


Figure 1: Bandwidth

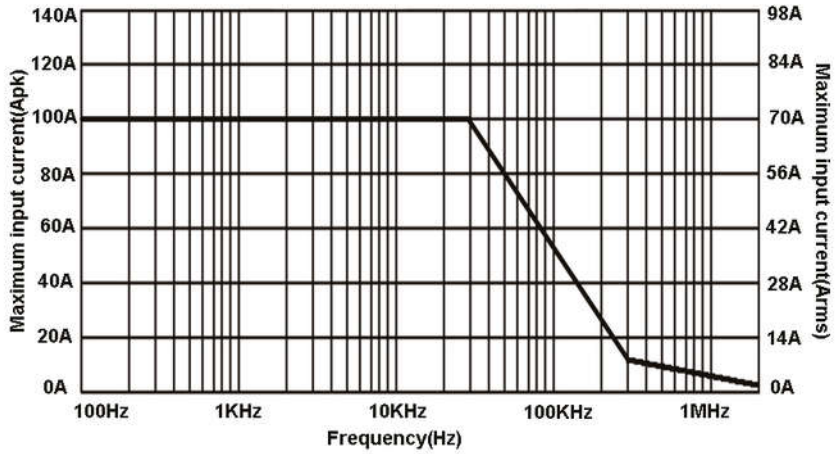


Figure 2: Maximum Current Versus Frequency

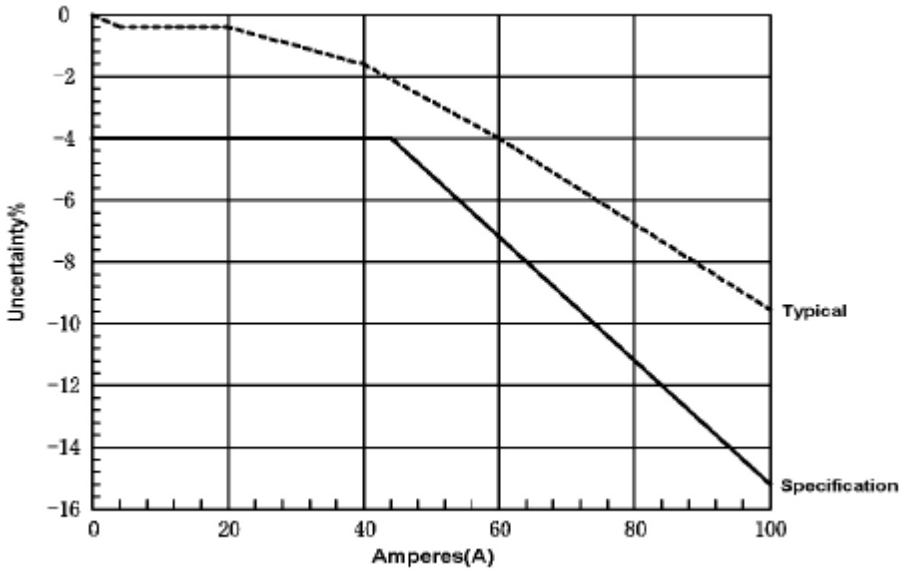


Figure 3: Typical DC Linearity (High Range)

Mechanical And Environmental Characteristics	Probe Characteristic
Current Clamp Dimensions	100 mm x 20 mm x 60 mm
Current Clamp Control Unit Dimensions	137 mm x 33 mm x 35 mm
Operating Altitude	0 – 2000 meters
Maximum Measurement Conductor Diameter	12 mm
Current Clamp To Control Unit Cable Length	1 meter
Output BNC to BNC Cable Length	1 meter
Weight	223 grams excluding 9 V Battery
Operating Temperature	0 °C – 50 °C
Storage Temperature	-20 °C – 80 °C
Operating Relative Humidity	0 °C – 40 °C ≤ 95 % RH +40 °C – 50 °C ≤ 45 % RH
Pollution Degree	Level 2

Ordering information

Description	10 Amps / 100 Amps, DC to 2 MHz Dual Range Current Probe	**T3CP100-2**
Standard Accessories	Universal Power supply, DC 12 V / 1 A – 1	
	1 m BNC to BNC cable – 1	
	Instruction Manual – 1	
	Calibration Report – 1	

ABOUT 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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T3 stands for Teledyne Test Tools.

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