

**LeCroy**

## Current Probes

**Accurately Measure  
AC, DC and Impulse  
Currents**



**DANGER 危険 裸导体**  
**DO NOT USE ON BARE**



# Measure Currents in a Wide Range of Applications

## Measuring AC and DC Currents

LeCroy current probes do not require the breaking of a circuit or the insertion of a shunt to make accurate and reliable current measurements. Based on a combination of Hall effect and transformer technology, LeCroy current probes are ideal for making accurate AC, DC, and impulse current measurements.

## Fully Integrated with Oscilloscope

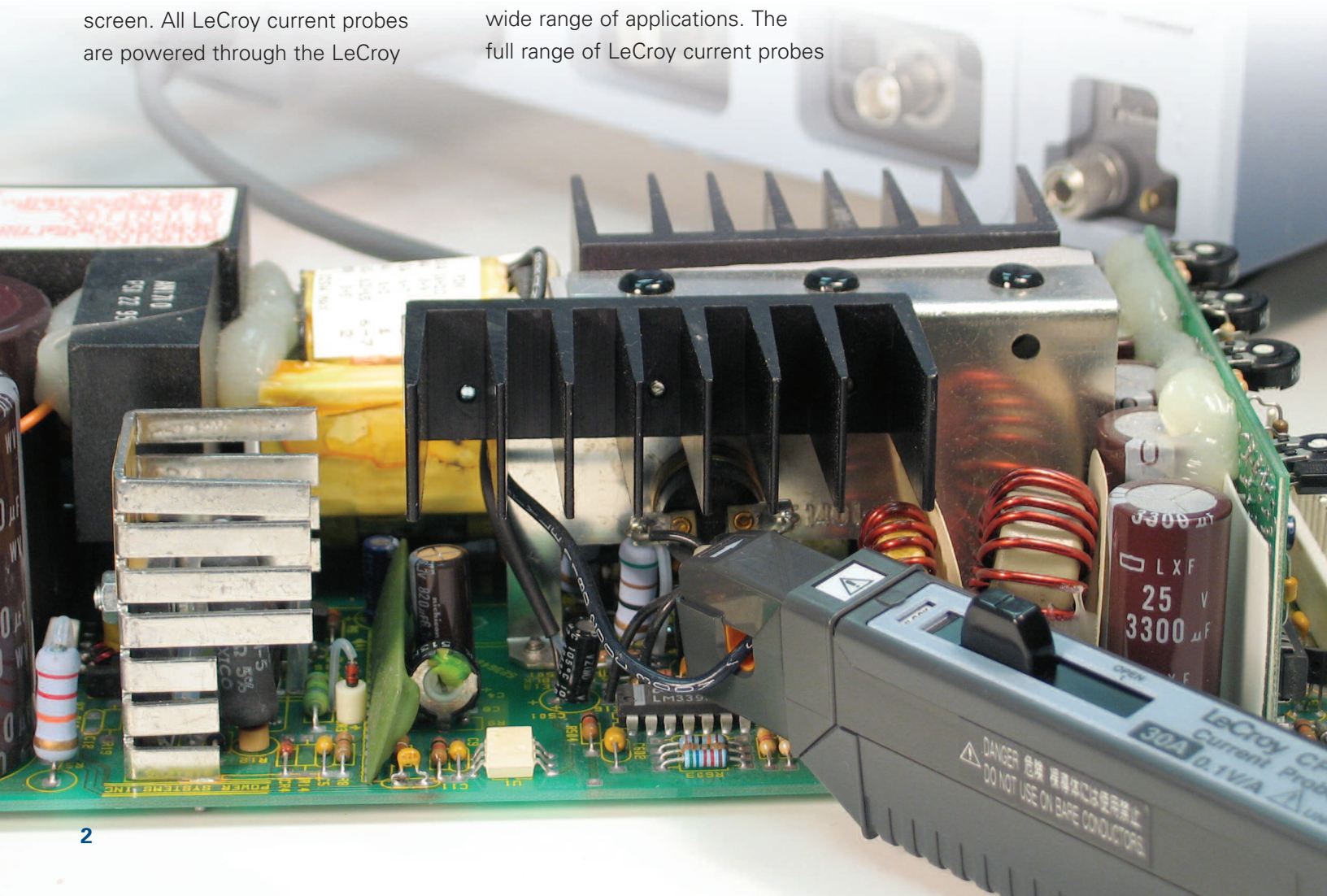
Many current probes require external power supplies or amplifiers to display a waveform on the oscilloscope screen. All LeCroy current probes are powered through the LeCroy

ProBus® connection and require no additional hardware. Along with providing power, the ProBus connection allows the current probe and oscilloscope to communicate, resulting in current waveforms automatically displayed on screen in Amps, and calculated power traces scaled correctly in Watts. This full integration also allows for Degauss and Autozero functions to be done directly from the oscilloscope with a single button press.

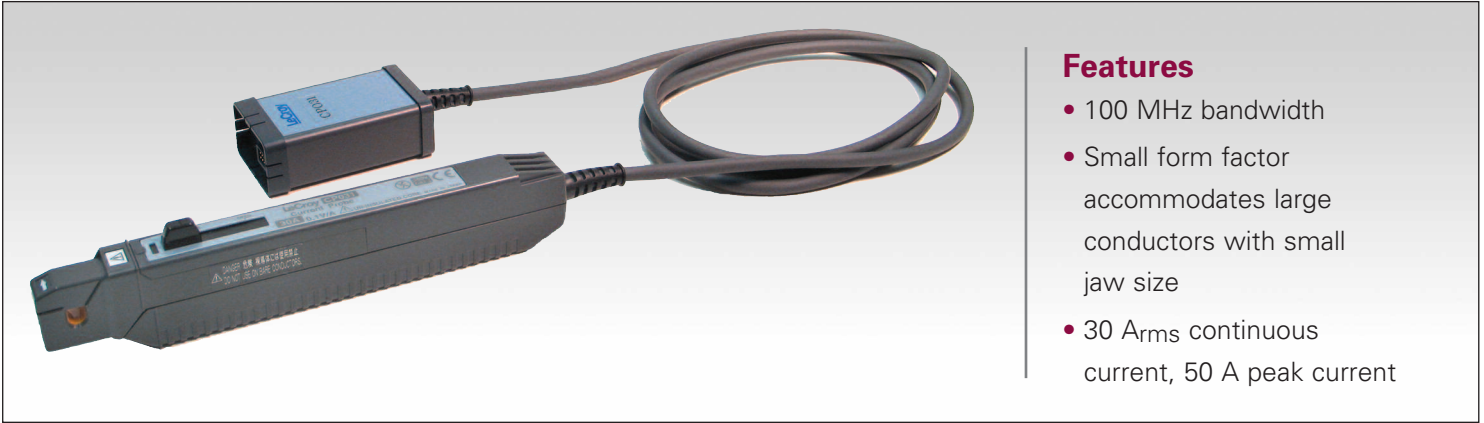
## Applications

LeCroy current probes are available in a wide range of models for a wide range of applications. The full range of LeCroy current probes

includes models with bandwidths up to 100 MHz, peak currents up to 700 A and sensitivities to 10 mA/div. Multiple current probes can be used together to make measurements on three-phase systems, or a single current probe can be used with a voltage probe to make accurate instantaneous power measurements. LeCroy current probes are often used in applications such as the design and test of switching power supplies, motor drives, electric vehicles, and uninterruptible power supplies.



# CP031 – 30A, 100 MHz Current Probe



## Features

- 100 MHz bandwidth
- Small form factor accommodates large conductors with small jaw size
- 30 A<sub>rms</sub> continuous current, 50 A peak current

The CP031 is LeCroy's highest bandwidth current probe. Along with the high 100 MHz bandwidth the CP031 can probe continuous currents of 30 A<sub>rms</sub> and peak currents up to 50 A. The CP031 features a small form factor making it easier to probe on a crowded, compact board.

## Electrical Characteristics\*

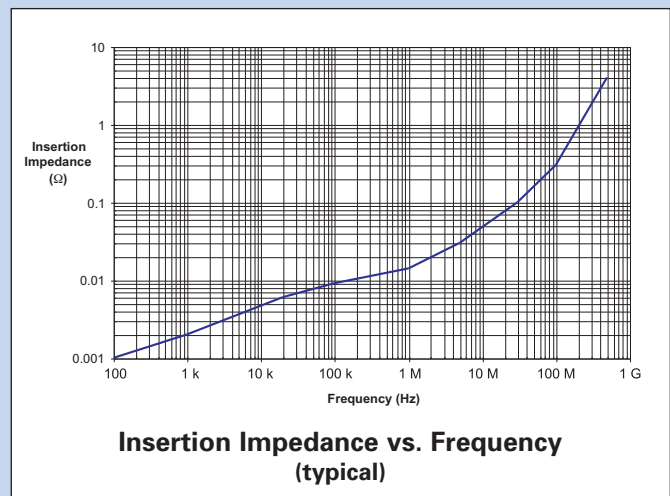
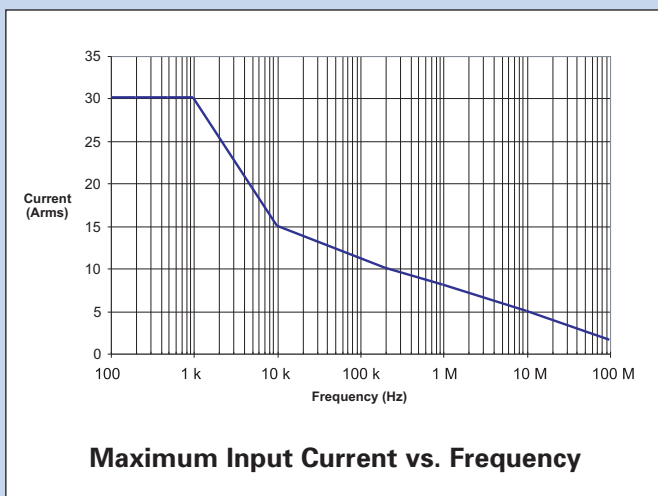
Max. Continuous Input Current	30 A
Bandwidth	100 MHz
Max. Peak Current at Pulse Width	50 A < 10 $\mu$ s
Rise Time (typical)	< 3.5 ns
Minimum Sensitivity	20 mA/div
Low Frequency Accuracy	1%
AC Noise	< 2.5 mA
Coupling	AC, DC, GND

\* Guaranteed at 23 °C  $\pm$ 3 °C

## General Characteristics

Cable Length	1.5 m
Weight	240 g
Max. Conductor Size (diameter)	5 mm
Interface	ProBus, 1 M $\Omega$ only <sup>†</sup>
Usage Environment	Indoors
Operating Temperature	0 °C to 40 °C
Max. Relative Humidity	80%
Max. Altitude	2000 m
Maximum Insulated Wire Voltage	300 V CAT I

<sup>†</sup> Requires AP-1M for use with 50  $\Omega$  input only oscilloscopes.



# CP030 – 30 A, 50 MHz Current Probe



## Features

- Small form factor accommodates large conductors with small jaw size
- 30 A<sub>rms</sub> continuous current, 50 MHz bandwidth
- 50 A peak current

The CP030 was designed with a small form factor for today's crowded boards. The small jaw can probe currents in tight spaces and still clamp onto conductors up to 5 mm in diameter. Continuous currents of 30 A<sub>rms</sub> and peak currents of 50 A can be measured by the CP030, which also features a 50 MHz bandwidth.

## Electrical Characteristics\*

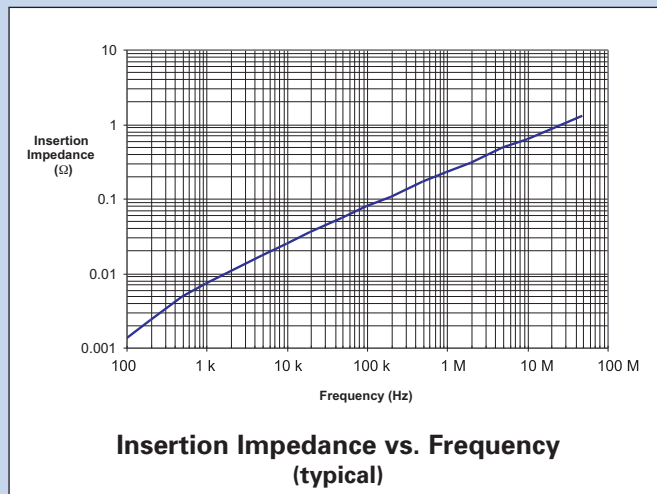
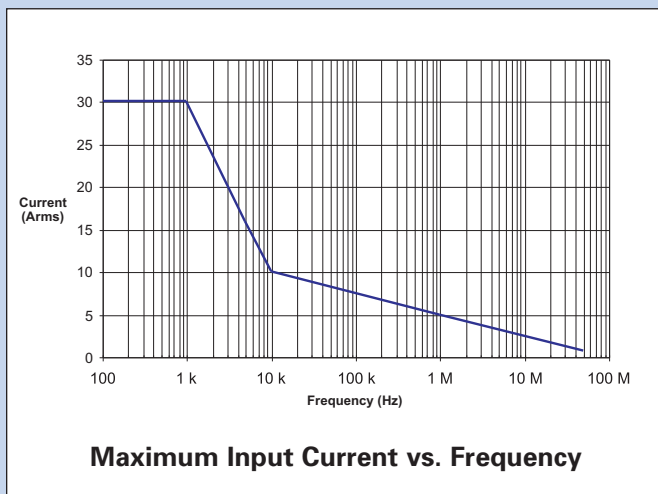
Max. Continuous Input Current	30 A
Bandwidth	50 MHz
Max. Peak Current at Pulse Width	50 A < 10 μs
Rise time (typical)	< 7 ns
Minimum Sensitivity	20 mA/div
Low Frequency Accuracy	1%
AC Noise	< 2.5 mA
Coupling	AC, DC, GND

\* Guaranteed at 23 °C ±3 °C

## General Characteristics

Cable Length	1.5 m
Weight	240 g
Max. Conductor Size (diameter)	5 mm
Interface	ProBus, 1 MΩ only†
Usage Environment	Indoors
Operating Temperature	0 °C to 40 °C
Max. Relative Humidity	80%
Max. Altitude	2000 m
Maximum Insulated Wire Voltage	300 V CAT I

† Requires AP-1M for use with 50 Ω input only oscilloscopes.





# AP015 – 30 A, 50 MHz Current Probe



## Features

- 30 A<sub>rms</sub> continuous current, 50 MHz bandwidth
- 50 A peak current for up to 10 seconds
- Overheating and Probe Unlock Detection

The AP015 current probe can measure continuous current of 30 A<sub>rms</sub> and peak pulses of up to 50 A for durations up to 10 seconds. This probe also features an overheating protection circuit, which will display an on-screen warning to the user to prevent damage. A probe unlock detection feature is also built in to the AP015 to ensure accurate measurements.

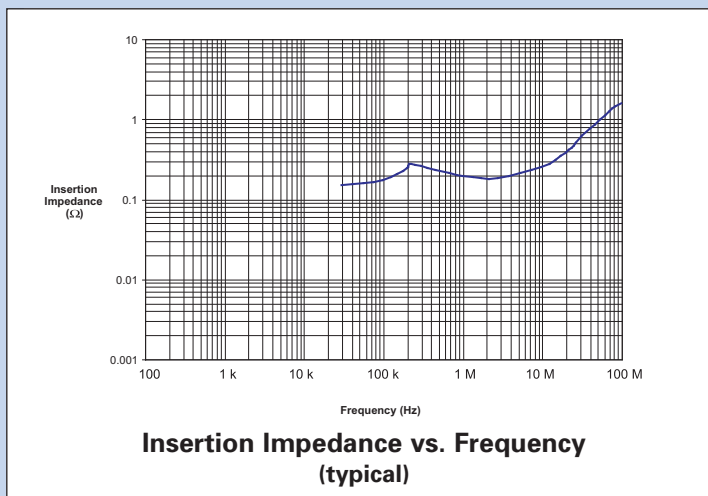
## Electrical Characteristics

Max. Continuous Input Current	30 A
Bandwidth	50 MHz
Max. Peak Current at Pulse Width	50 A < 10 s
Rise time (typical)	< 7 ns
Minimum Sensitivity	10 mA/div
Low Frequency Accuracy	1%
Coupling	AC, DC, GND

## General Characteristics

Cable Length	2 m
Weight	300 g
Max. Conductor Size (diameter)	5 mm
Interface	ProBus, 1 M $\Omega$ only <sup>†</sup>
Usage Environment	Indoors
Operating Temperature	0 °C to 40 °C
Max. Relative Humidity	80% (Max. 31 °C)
Max. Altitude	2000 m
Maximum Insulated Wire Voltage	300 V CAT I, 150 V CAT II

<sup>†</sup> Requires AP-1M for use with 50  $\Omega$  input only oscilloscopes.



# CP150 – 150 A, 10 MHz Current Probe

## CP500 – 500 A, 2 MHz Current Probe



### CP150 Features

- 150 Arms continuous current
- 500 A peak
- 10 MHz bandwidth

### Electrical Characteristics

Max. Continuous Input Current	150 A
Bandwidth	10 MHz
Max. Peak Current at Pulse Width	500 A < 30 $\mu$ s
Rise time (typical)	< 35 ns
Minimum Sensitivity	200 mA/div
Max. In-Phase Current	500 A
Low Frequency Accuracy	1%
AC Noise	25 mA
Coupling	AC, DC, GND

### General Characteristics

Cable Length	2 m
Weight (probe only)	500 g
Max. Conductor	20 mm
Size (diameter)	ProBus, 1 M $\Omega$ only†
Interface	
Usage Environment	Indoors
Operating Temperature	0 °C to 40 °C
Max. Relative Humidity	80%
Max. Altitude	2000 m
Maximum Insulated	600 V CAT II, 300 V CAT III

† Requires AP-1M for use with 50  $\Omega$  input only oscilloscopes.



### CP500 Features

- 500 Arms continuous current
- 700 A peak
- 2 MHz bandwidth

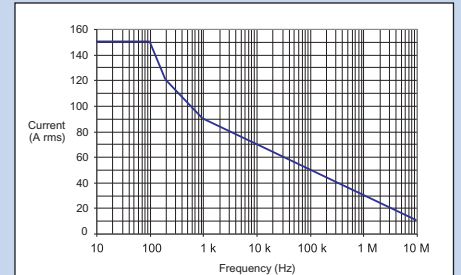
### Electrical Characteristics

Max. Continuous Input Current	500 A
Bandwidth	2 MHz
Max. Peak Current at Pulse Width	700 A
Rise time (typical)	< 175 ns
Minimum Sensitivity	200 mA/div
Max. In-Phase Current	1150 A
Low Frequency Accuracy	1%
AC Noise	25 mA
Coupling	AC, DC, GND

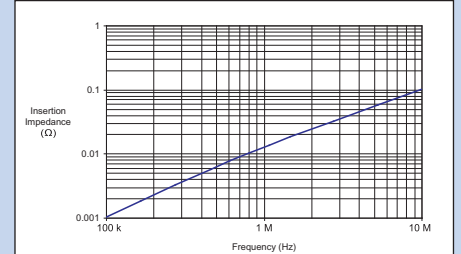
### General Characteristics

Cable Length	6 m
Weight (probe only)	630 g
Max. Conductor	20 mm
Size (diameter)	ProBus, 1 M $\Omega$ only†
Interface	
Usage Environment	Indoors
Operating Temperature	0 °C to 40 °C
Max. Relative Humidity	80%
Max. Altitude	2000 m
Maximum Insulated	600 V CAT II, 300 V CAT III

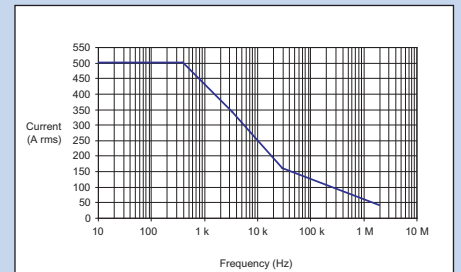
† Requires AP-1M for use with 50  $\Omega$  input only oscilloscopes.



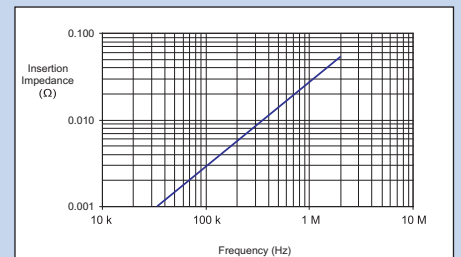
Maximum Input Current vs. Frequency



Insertion Impedance vs. Frequency (typical)



Maximum Input Current vs. Frequency



Insertion Impedance vs. Frequency (typical)

# Related Products and Ordering Information

## Related Products

### DA1855A – Differential Amplifier

The DA1855A high-performance differential amplifier provides 100 MHz bandwidth, industry leading overdrive recovery, and outstanding common mode rejection ratio. The fast overdrive recovery provides the ability to make critical saturation voltage measurements while the high CMRR enables upper gate drive measurements. Built into the DA1855A is a precision voltage generator for offset far greater than the oscilloscope can provide on its own. The DA1855A can be operated in true differential mode or switched to comparator mode.



### DCS015 – Deskew Calibration Source

To make accurate instantaneous power measurements it is critical that both the current and voltage waveforms be aligned in time. The DCS015 calibration source has both voltage and current time-aligned signals, which enables the precise deskew of voltage and current probes. Most voltage probes along with the AP015, CP015, CP030, and CP031 are compatible with the DCS015.



### ADP300 and ADP305 – Active Differential Probes

The ADP300 and ADP305 are high-voltage differential probes ideal for measuring power electronics. The 20 MHz bandwidth ADP300 is good for troubleshooting low frequency power devices and other circuits where the reference potential is elevated from the ground or the ground is unknown. The 100 MHz bandwidth ADP305 is designed for measuring the floating voltages found in today's high-speed power electronics.



### PMA2 – Power Measurement Analysis Software

The PMA2 software option is used to make critical power switching device measurements, perform control loop modulation analysis, and measure power harmonics. With PMA2, the display and setup of voltage waveforms, current waveforms, and necessary measurement parameters are done automatically. Important device measurements like power losses, saturation voltage dynamic-on resistance, and safe operating area are easily performed. Pre-compliance testing to EN 61000-3-2 with easy-to-read graphical and tabular pass/fail results is built in to PMA2.



## Ordering Information

### Description

30 A; 100 MHz Current Probe – AC/DC; 30 A<sub>rms</sub>; 50 A Peak Pulse  
30 A; 50 MHz Current Probe – AC/DC; 30 A<sub>rms</sub>; 50 A Peak Pulse  
30 A; 50 MHz Current Probe – AC/DC; 30 A<sub>rms</sub>; 50 A Peak Pulse  
150 A; 10 MHz Current Probe – AC/DC; 150 A<sub>rms</sub>; 500 A Peak Pulse  
500 A; 2 MHz Current Probe – AC/DC; 500 A<sub>rms</sub>; 700 A Peak Pulse

### Product Code

CP031  
CP030  
AP015  
CP150  
CP500

### Customer Service

LeCroy oscilloscopes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, our digital oscilloscopes are fully warranted for three years. This warranty includes: • No charge for return shipping • Long term 7-year support • Upgrade to latest software at no charge



1-800-5-LeCroy  
www.lecroy.com

Local sales offices are located throughout the world.  
To find the most convenient one visit [www.lecroy.com](http://www.lecroy.com)