

30 A AC/DC Current Probe

TCP0030A Datasheet



TCP0030A is a high-performance, easy-to-use AC/DC current probe designed for use and direct connection to oscilloscopes with the TekVPI™ probe interface. This AC/DC current measurement probe provides greater than 120 MHz of bandwidth with selectable 5 A and 30 A measurement ranges. It also provides exceptional low-current measurement capability and accuracy to current levels as low as 1 mA, important for meeting today's challenging current measurement needs.

Key features

- Easy-to-use and accurate AC/DC current measurements
- Intelligent communication with TekVPI™ oscilloscopes provides:
 - Units scaling and readout. Automatic, on-screen readout of amps and magnitude. Manual setup is not required. Hand calculation from volts to amps is unnecessary
 - Push button degauss and Autozero functionality
 - Probe status and diagnostic indicator LEDs
 - Remote GPIB/USB probe control

- Split-core construction allows easy circuit connection
- High accuracy with typically less than 1% DC gain error
- Low noise and DC drift
- 3rd party safety certification

Key performance specifications

- DC to >120 MHz bandwidth
- 30 A RMS maximum current capability
- 50 A peak pulse current capability
- High accuracy with typically less than 1% DC gain error
- Accurately measures current levels as low as 1 mA

Applications

- Power supplies
- Semiconductor devices
- Power inverters/converters
- Electronic ballasts
- Industrial/consumer electronics
- Mobile communications
- Motor drives
- Transportation systems

Specifications

All specifications apply to all models unless noted otherwise.

Electrical characteristics

Bandwidth	DC to ≥ 120 MHz
Rise time	≤ 2.92 ns
Maximum DC current	30 A
Maximum RMS current	30 A
Maximum peak pulse current	50 A
Maximum bare wire voltage	150 V CAT II, (insulated wire 300 V CAT II)
Sensitivity	1 mA (on oscilloscopes that support 1 mV/div setting)
DC accuracy	$\pm 3\%$ warranted
Accuracy, typical	DC: $\pm 1\%$ of reading DC to 60 Hz, ≤ 5 A: $\pm 1\%$ 60 Hz – 5 kHz, ≤ 5 A: $\pm 1.5\%$ DC – 5 kHz, > 5 A: $\pm 1.5\%$
Maximum Amp-Second product	500 A $\cdot\mu$ s (in 30 A range)
Insertion impedance	1 m Ω at 10 kHz 3.5 m Ω at 100 kHz 0.08 Ω at 1 MHz 0.15 m Ω at 10 MHz 0.7 Ω at 100 MHz 0.85 Ω at 120 MHz
Signal delay	14.5 ns
Current ranges	5 A and 30 A
Power requirements	TCP0030A is powered directly by oscilloscopes with the TekVPI™ interface. Note: For best support, download and install the latest version of the oscilloscope software from www.tek.com .

Physical characteristics

Probe head	
Length	20 cm (7.77 in)
Width	1.6 cm (0.625 in)
Height	3.2 cm (1.25 in)
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Maximum conductor size	5 mm (0.197 in)
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Cable length	200 cm (79 in)
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Shipping weight	1.55 kg (3.44 lb)
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EMC environment and safety

Temperature	
Operating	0 °C to 50 °C (32 °F to 122 °F)
Nonoperating	-40 °C to +75 °C (-40 °F to 167 °F)
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Humidity	
Operating	5% to 95% Relative Humidity (RH) at up to +30 °C; 5% to 85% RH above 30 °C up to +50 °C, noncondensing
Nonoperating	5% to 95% Relative Humidity (RH) at up to +30 °C; 5% to 85% RH above 30 °C up to +75 °C, noncondensing
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Altitude	
Operating	Up to 3,000 m (10,000 ft.)
Nonoperating	Up to 12,192 m (40,000 ft.)
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Compliance labeling	CE (European Union), WEEE (European Union)
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Ordering information

Models

TCP0030A	AC/DC Current Probe
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Standard accessories

Instruction manual	071-3006-xx
Probe ground lead - 6 in. length	196-3120-xx
Nylon carrying case	016-1952-xx

Recommended accessories

Current Loop, 1 Turn, 50 Ω with BNC connector used for Performance Verification	Order 067-2396-00
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Warranty

One year parts and labor.

Service options

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 (including warranty)
Opt. R3DW	Repair Service Coverage 3 Years (includes product warranty period). 3-year period starts at time of instrument purchase
Opt. R5	Repair Service 5 Years (including warranty)
Opt. R5DW	Repair Service Coverage 5 Years (includes product warranty period). 5-year period starts at time of instrument purchase
Opt. SILV600	Standard warranty extended to 5 years



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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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