30 A AC/DC Current Probe

TCP0030A Datasheet



Overview

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 are typical unless noted otherwise. All specifications apply to all models unless noted otherwise.

Electrical characteristics

Bandwidth (warranted)

DC to ≥120 MHz

Rise time (warranted)

≤3.05 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

±3% warranted

Accuracy

- DC: ±1% of reading
- DC to 60 Hz, ≤5 A: ±1%
- 60 Hz – 5 kHz, ≤5 A: ±1.5%
- DC – 5 kHz, >5 A: ±1.5%

Maximum Amp-Second product

500 A*µs (in 30 A range)

Insertion impedance

- 1 mΩ at 10 kHz
- 3.5 mΩ at 100 kHz
- 0.08 Ω at 1 MHz
- 0.15 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 dimensions

- Length: 20 cm
- Width: 1.6 cm
- Height: 3.2 cm

Maximum conductor size

5 mm

Cable length

200 cm

Shipping weight

1.55 kg

EMC environment and safety

Temperature

- Operating: 0 °C to 50 °C
- Nonoperating: -40 °C to +75 °C

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% RH at up to +30 °C; 5% to 85% RH above 30 °C up to +75 °C, noncondensing

Altitude

- Operating: Up to 3,000 m
- Nonoperating: Up to 12,192 m

Compliance labeling

CE (European Union), WEEE (European Union)

Ordering information

TCP0030A

AC/DC Current Probe

Standard accessories

Probe ground lead - 6 in. length

196-3521-XX

Nylon carrying case

016-2119-XX

Recommended accessories

Current Loop, 1 Turn, 50 Ω with BNC connector used for Performance Verification

067-2396-00

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

Certifications

Tektronix is registered to ISO 9001:2015 and ISO 14001:2015.

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51W-19042-13 October 2026