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

## Electrical characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bandwidth</strong></td>
<td>DC to ≥120 MHz</td>
</tr>
<tr>
<td><strong>Rise time</strong></td>
<td>≤2.92 ns</td>
</tr>
<tr>
<td><strong>Maximum DC current</strong></td>
<td>30 A</td>
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<tr>
<td><strong>Maximum RMS current</strong></td>
<td>30 A</td>
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<tr>
<td><strong>Maximum peak pulse current</strong></td>
<td>50 A</td>
</tr>
<tr>
<td><strong>Maximum bare wire voltage</strong></td>
<td>150 V CAT II, (insulated wire 300 V CAT II)</td>
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<tr>
<td><strong>Sensitivity</strong></td>
<td>1 mA (on oscilloscopes that support 1 mV/div setting)</td>
</tr>
<tr>
<td><strong>DC accuracy</strong></td>
<td>±3% warranted</td>
</tr>
<tr>
<td><strong>Accuracy, typical</strong></td>
<td>DC: ±1% of reading</td>
</tr>
<tr>
<td></td>
<td>DC to 60 Hz, ≤5 A: ±1%</td>
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<tr>
<td></td>
<td>60 Hz – 5 kHz, ≤5 A: ±1.5%</td>
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<tr>
<td></td>
<td>DC – 5 kHz, &gt;5 A: ±1.5%</td>
</tr>
<tr>
<td><strong>Maximum Amp-Second product</strong></td>
<td>500 A•µs (in 30 A range)</td>
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<tr>
<td><strong>Insertion impedance</strong></td>
<td>1 mΩ at 10 kHz</td>
</tr>
<tr>
<td></td>
<td>3.5 mΩ at 100 kHz</td>
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<tr>
<td></td>
<td>0.08 Ω at 1 MHz</td>
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<tr>
<td></td>
<td>0.15 mΩ at 10 MHz</td>
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<tr>
<td></td>
<td>0.7 Ω at 100 MHz</td>
</tr>
<tr>
<td></td>
<td>0.85 Ω at 120 MHz</td>
</tr>
<tr>
<td><strong>Signal delay</strong></td>
<td>14.5 ns</td>
</tr>
<tr>
<td><strong>Current ranges</strong></td>
<td>5 A and 30 A</td>
</tr>
<tr>
<td><strong>Power requirements</strong></td>
<td>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 <a href="http://www.tek.com">www.tek.com</a>.</td>
</tr>
</tbody>
</table>
Physical characteristics

- **Probes head**
  - Length: 20 cm (7.77 in)
  - Width: 1.6 cm (0.625 in)
  - Height: 3.2 cm (1.25 in)

- **Maximum conductor size**: 5 mm (0.197 in)

- **Cable length**: 200 cm (79 in)

- **Shipping weight**: 1.55 kg (3.44 lb)

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)

- **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

- **Altitude**
  - Operating: Up to 3,000 m (10,000 ft.)
  - Nonoperating: Up to 12,192 m (40,000 ft.)

- **Compliance labeling**: CE (European Union), WEEE (European Union)

Ordering information

**Models**

- TCP0030A
  - AC/DC Current Probe

**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

**Warranty**

One year parts and labor.
Service options

- **Opt. C3**: Calibration Service 3 Years
- **Opt. C5**: Calibration Service 5 Years
- **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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