

AC/DC Current Probes

TCP0020 • TCP2020 • TCP202A Datasheet



TCP0020 AC/DC Current Probe.

Features & Benefits

- Easy-to-Use and Accurate AC/DC Current Measurements
- DC to >50 MHz Bandwidth
- Core Jaw Diameter of 5 mm (0.2 in.)
- Accurately Measures Current Levels as Low as 10 mA per Division
- High Accuracy with Typically Less than 1% DC Gain Error
- Split-core Construction allows Easy Circuit Connection
- Low Noise and DC Drift

- TCP0020
 - 20 A_{RMS} Maximum Current Capability
 - 100 A Peak Pulse Current Capability
 - Connects Directly to Oscilloscopes with the TekVPI™ Probe Interface
 - Provides Automatic Units Scaling and Readout on the Oscilloscope Display
 - One-button Degauss and AutoZero Control for Ease of Use
 - Easy Access to Scope-displayed Probe Menu for Probe Setup Control and Operating Status Information
 - Remote Control Capability through TekVPI Oscilloscope
- TCP2020
 - 20 A_{RMS} Maximum Current Capability
 - 100 A Peak Pulse Current Capability
 - 10 mA/mV Sensitivity
 - BNC Output Connects to Most Oscilloscopes and Other Measurement Equipment (>100 kΩ Termination Required)
 - Degauss Button and Thumbwheel for DC Offset Adjustment
 - Powered by an AC Adapter
- TCP202A
 - 15 A_{DC} + Peak AC Maximum Current Capability
 - 50 A Peak Pulse Current Capability
 - Connects Directly to Oscilloscopes with the TekProbe™ Interface
 - Provides Automatic Units Scaling and Readout on the Oscilloscope Display
 - Degauss Button and Thumbwheel for DC Offset Adjustment
- Safety Certified

Applications

- Power Supplies
- Semiconductor Devices
- Power Inverter/Converters
- Electronic Ballasts
- Industrial/Consumer Electronics
- Mobile Communications
- Motor Drives
- Transportation Systems

TCP0020, TCP2020, TCP202A

The TCP0020, TCP2020, and TCP202A are a family of high-performance, easy-to-use AC/DC current probes designed for use with a variety of oscilloscopes. The TCP0020 is designed for direct connection to oscilloscopes with the TekVPI™ probe interface and the TCP202A is designed for direct connection to oscilloscopes with the TekProbe™ probe interface. The TCP2020 is designed for use with any instrument with BNC inputs and >100 kΩ input termination.

These AC/DC current probes provide sufficient performance to support 50 MHz measurement system bandwidth. The TCP0020 and TCP2020 provide a maximum 20 A_{RMS} measurement range, while the TCP202A provides a maximum 15 A_{DC + Peak AC} measurement range. These probes also provide excellent accuracy to current levels as low as 10 mA, important for meeting today's challenging current measurement needs.

Characteristics

General

| Characteristic | Description |
|------------------------|---|
| Bandwidth | DC to ≥50 MHz |
| Rise Time | ≤7 ns |
| Max Current | 20 A _{RMS} (TCP0020 and TCP2020) 15 A _{DC + Peak AC} (TCP202A) |
| Max Peak Pulse Current | 100 A (TCP0020 and TCP2020) 50 A (TCP202A) |
| Maximum Sensitivity | 10 mA (on oscilloscopes that support 1 mV/div setting) |
| Coupling | DC coupling only |
| Max Bare-wire Voltage | 150 V CAT II (300 V CAT II Insulated Wire) |

Typical

| Characteristic | Description |
|------------------------|---|
| DC Accuracy | ±1% typical, ±3% warranted |
| Max Amp-second Product | 1000 A*μs (TCP0020 and TCP2020) 500 A*μs (TCP202A) |
| Insertion Impedance | 0.036 Ω at 1 MHz 0.117 Ω at 10 MHz 0.54 Ω at 50 MHz |
| Signal Delay | 17 ns |

Environmental

| Characteristic | Description |
|----------------|--|
| Temperature | |
| Operating | 0 °C to +50 °C |
| Nonoperating | -40 °C to +75 °C |
| Humidity | |
| Operating | 5% to 95% RH, tested up to +30 °C (+86 °F) 5% to 85% RH, tested at +30 °C to +50 °C (+86 °F to +122 °F) |
| Nonoperating | 5% to 95% RH, tested up to +30 °C (+86 °F) 5% to 85% RH, tested at +30 °C to +75 °C (+86 °F to +167 °F) |
| Regulatory | |
| Safety | CSA1010.1:1997, CSA1010.2:032-96, IEC61010-1:2001, IEC61010-2-032 |

Physical Characteristics

| Probe Head Size | mm | in. |
|------------------|-------|--------------|
| Height | 30.5 | 1.2 |
| Width | 15.2 | 0.6 |
| Length | 148 | 5.8 |
| Other Dimensions | m | in. |
| Cable Length | 2 | 79 |
| Weight | kg | lb. |
| Probe Only | 0.227 | 0.5 |
| Shipping | 1.22 | 2 lb. 11 oz. |

Power Requirements

TCP0020 is powered directly by oscilloscopes with the TekVPI™ probe interface. TCP2020 is powered by AC adapter. (Specify power plug option when ordering.) TCP202A is powered directly by oscilloscopes with the TekProbe™ probe interface or through the TekVPI™ probe interface when used with the TPA-BNC adapter.

Standard Warranty

One-year parts and labor.

Ordering Information

TCP0020

AC/DC Current Probe.

Includes: Instruction Manual (English) (071-3002-xx), Probe Ground Lead – 6 in. length (196-3120-xx), Nylon Carrying Case (016-1952-xx).

TCP2020

AC/DC Current Probe.

Includes: Instruction Manual (English) (071-3002-xx), Probe Ground Lead – 6 in. length (196-3120-xx), Nylon Carrying Case (016-1952-xx), AC Adapter (specify power plug option when ordering).

TCP202A

AC/DC Current Probe.

Includes: Instruction Manual (English) (071-3002-xx), Probe Ground Lead – 6 in. length (196-3120-xx), Nylon Carrying Case (016-1952-xx).

Power Plug Options (TCP2020 Only)

| Option | Description |
|----------|--------------------------------------|
| Opt. A0 | North America Power, 115 V, 60 Hz |
| Opt. A1 | Universal Euro Power, 220 V, 50 Hz |
| Opt. A2 | United Kingdom Power, 240 V, 50 Hz |
| Opt. A3 | Australia Power, 240 V, 50 Hz |
| Opt. A5 | Switzerland Power, 220 V, 50 Hz |
| Opt. A6 | Japan Power, 100 V, 110/120 V, 60 Hz |
| Opt. A10 | China Power, 50 Hz |
| Opt. A11 | India Power, 50 Hz |
| Opt. A12 | Brazil Power, 60 Hz |
| Opt. A99 | No Power Cord |

Service Options

| Option | Description |
|---------|--|
| Opt. C3 | Calibration Service 3 Years |
| Opt. C5 | Calibration Service 5 Years |
| Opt. D1 | Calibration Data Report |
| 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 |
| Opt. R5 | Repair Service 5 Years |

Recommended Accessories

| Accessory | Description |
|-------------|--|
| 067-2396-xx | Current Loop, 1 Turn, 50 Ω with BNC connector used for performance verification |
| 067-1686-xx | Deskew/Calibration Fixture |

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