TEKTRONIX

TCPA400

The Tektronix TCPA400 is a high-performance, dedicated current probe amplifier designed specifically for use with the TCP404XL AC/DC current probe. It forms a complete current measurement system capable of measuring up to 500 A continuous RMS and 750 A peak current, supporting a bandwidth of DC to 2 MHz.

SPECIFICATIONS

General

Interfaces	TEKPROBE Interface (BNC output with scale factor coding pins)
Display	None (LED indicator lights only)
Oscilloscope Compatibility	Oscilloscopes with TEKPROBE interface or any 50 Ω BNC input
Cooling	Internal fan

Physical

Power Supply	90 V to 264 V AC, 47 Hz to 440 Hz, max 50 W
Operating Temperature	0 to 50 °C °C
Dimensions (W×H×D)	130 mm × 156 mm × 292 mm mm
Weight	1.75 kg kg
Form Factor	Benchtop (rackmountable with optional kit)

System Performance with Compatible Probes

Compatible Probe Model	TCP404XL
Bandwidth	DC to 2 MHz
Rise Time	≤ 175 ns
Maximum Continuous Current (RMS)	500 A
Maximum Peak Pulse Current	750 A
DC Gain Accuracy	±3% (warranted), ±1% (typical)
Display Noise (RMS)	≤ 250 mA
Maximum Bare-Wire Voltage	Insulated wire only
Amp-Second Product	50,000 A-µs

Amplifier Characteristics

Output Impedance	50 Ω
Output Termination	Requires 50 Ω oscilloscope input
Signal Coupling	AC, DC
Deflection Ranges	1 A/V, 10 A/V

Connectivity & Interfaces

Probe Input Connector Type	TEKPROBE current probe interface (proprietary multi-pin)
Signal Output Connector Type	50 Ω BNC

Control & Calibration Functions

Degauss and Autobalance Control	Single-button manual control with integrated auto-routine
Manual Balance Adjustment	Buttons
Overload Indicator LED	Yes (red LED)
Degauss Needed Indicator LED	Yes (yellow LED)
Probe Open Indicator LED	Yes (red LED)
Selected Range Indicator LEDs	LEDs for 1 A/V and 10 A/V

Power Specifications

AC Input Voltage Range	90 V to 264 V AC
AC Input Frequency	47 Hz to 440 Hz
Power Consumption	50 W maximum

Environmental Specifications

Non-Operating Temperature Range	-40 °C to +75 °C
Operating Humidity Range	5% to 95% RH (to +30 °C), 5% to 85% RH (+30 °C to +50 °C)
Non-Operating Humidity Range	5% to 95% RH (to +30 °C), 5% to 85% RH (+30 °C to +75 °C)
Operating Altitude	Up to 2,000 m
Non-Operating Altitude	Up to 12,192 m

Compliance & Certifications

Safety Certifications	UL61010-1, CSA C22.2 No. 1010.1, EN61010-1
Electromagnetic Compatibility (EMC)	EN61326 Class A, FCC Part 15 Subpart B Class A

Performance

Warm-Up Time	20 minutes
Degauss and Autobalance Cycle Time	5 seconds (typical)
DC Gain Drift	≤ 0.1%/°C (typically 0.05%/°C)
Output Offset Drift	≤ 100 µV/°C (typically 20 µV/°C)

Outputs

Full-Scale Output Voltage	1 V (into 50 Ω)

Compliance & Safety

Overvoltage Category	Category II
Pollution Degree	2

Power

Fuse Rating	3.15 A, 250 V, Time-Lag (T), 5x20 mm

Accessories

Standard Accessories	50 Ω BNC cable (012-0124-00), 50 Ω feedthrough termination (011-0049-02), Instruction manual, Certificate of Traceable Calibration
Optional Accessories	Travel case (016-1924-00), Rackmount kit (016-1922-00)

TECHNOLOGY

AC/DC Current Measurement

APPLICATIONS

Power electronics testing, motor drive analysis, power supply design