



Active oscilloscope probes

This range includes high-voltage probes that extend the input range of your scope, and high-frequency probes that boost its input impedance for more accurate measurements.

All active probes require a power supply or batteries. Our battery-powered probes are supplied complete with batteries, while optional AC adaptors are available for the externally powered types. Read our application note: [Choosing the right Pico Technology active differential probe](#).

For making differential measurements from millivolts to 1000 V CAT III also consider the [PicoScope 4444 differential input oscilloscope](#)

100 MHz 1400 V differential oscilloscope probe 100:1/1000:1

The TA042 is an active differential probe suitable for high common-mode voltage measurement applications up to ± 1400 V (DC + peak AC). It is capable of acquiring higher speed signals of up to 100 MHz.

This differential probe extends the functionality of standard single-ended input oscilloscopes to allow a safe and accurate method of making high-voltage differential measurements. Applications include making safe measurements in power circuit applications and acquisition of low speed balanced differential signals found in serial communications buses.

The TA042 is an active probe powered by either four AA batteries, included, or the [PS008 power supply](#), available as an optional extra.



Specifications

| TA042 active differential probe specifications | |
|--|---------------------------------------|
| Bandwidth | DC to 100 MHz (-3 dB) |
| Attenuation | 100:1/1000:1 |
| Rise Time | 3.5 ns |
| Accuracy | $\pm 2\%$ |
| Input impedance | 4 M Ω 7 pF each side to ground |

| Input voltage | |
|---|--|
| Max differential voltage input (100:1) | ± 140 V (DC + peak AC) or 140 V RMS |
| Max differential voltage input (1000:1) | ± 1400 V (DC + peak AC) or 1000 V RMS |
| Common mode range | ± 1400 V (DC + peak AC) or 1000 V RMS (100:1 and 1000:1) |
| Absolute max. voltage (differential or common mode) | ± 1400 V (DC + peak AC) or 1000 V RMS CAT III (1/100 & 1/1000) |
| Output voltage | |
| Swing (into 50 k Ω load) | ± 7 V |
| Offset (typical) | $< \pm 5$ mV |
| Noise (typical) | 0.9 mV RMS |
| Source impedance (typical) | 50 Ω |
| CMRR (typical) | 80 dB @ 60 Hz; 50 dB @ 1 MHz |
| Ambient operating temperature | -10 to 40 $^{\circ}$ C |
| Ambient storage Temperature | -30 to 70 $^{\circ}$ C |
| Power requirements | |
| Standard | 4xAA cells or 6 V DC / 200 mA mains adaptor or regulated 9 V DC / 120 mA mains adaptor |
| Option | Power leads |
| Length of input leads | 30 cm |
| Length of BNC lead | 90 cm |
| Weight | 500 g |
| Dimension (LxWxH) | 207 mm x 83 mm x 38 mm |