

## PicoScope® 3425 DIFFERENTIAL PC OSCILLOSCOPE

## For high-accuracy floating measurements

1 4 4 4 100x

TOSCO.

4 channels 12-bit precision 5 MHz bandwidth 20 MS/s sampling Spectrum analyzer Advanced digital triggering 400 V differential and common-mode range USB 2.0 Hi-Speed

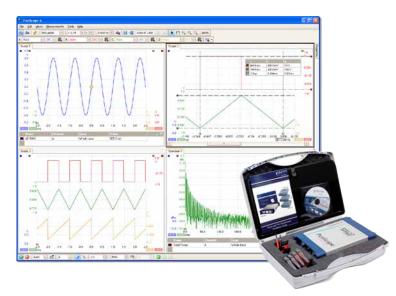
Supplied with a full SDK including example programs • Software compatible with Windows XP, Windows Vista and Windows 7 • Free technical support



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| Resolution 12 bits (16 bits in enhanced resolution mode)   Maximum sampling rate<br>Two channels<br>Three or four channels<br>Three or four channels<br>Two channels enabled<br>Two channels enabled<br>Three or four channels enabled<br>Three or four channels enabled 20 MS/s<br>10 MS/s   Input type Differential voltage<br>Selectable AC or DC coupling<br>Touch-prof BMC connects and 4 mm GND sockets   Input type 12 AM Q (on 100 mV to 5 V ranges)<br>Touch-prof BMC connects and 4 mm GND sockets   Input type 30 V (on 100 mV to 5 V ranges)<br>10.11 M Q (on 10 V to 400 V ranges)   Input tapacitance 12 AM Q (on 10 V to 400 V ranges)   Input tapacitance 30 V (on 100 mV to 5 V ranges)   Common-mode voltage range to ensure<br>measurement actegory rating 400 V (on 10 V to 400 V ranges)   Avoitage ranges ±100 mV to 2400 V in 12 ranges   Accuracy Voltage<br>Time 50 ppm   Linearity 12 bits   Noise <10 ISB   Operating environment 0° C to 40 °C (20 °C to 30 °C for quoted accuracy)<br>Maximum 80% RH non-condensing   Maximum 80% RH non-condensing Compatible with USB 1.1   Power supply Curage S 0° C to 40 °C (20 °C to 50 °C<br>For goot A   Connection Curpatible with USB 1.1   Power supply 4.6 V to 5.5 To max 100 mN No 8.2 To max 40 mM<br>No external power supply required  | Channels   | 4   |
|---|--|---|
| Maximum sampling rate Single channels   Three or four channels 20 M5/s   Buffer memory One channel enabled   Three or four channels 512 k samples per channel   Three or four channels enabled 128 k samples per channel   Input type Differential voltage   Selectable AC or DC coupling   Touch-proof BNC connectors and 4 mm GND sockets   Input type 12.4 M Q (n 100 mV to 5 V ranges)   Input capacitance 12.4 M Q (n 100 mV to 5 V ranges)   Input capacitance 12.4 M Q (n 100 mV to 5 V ranges)   Common-mode voltage range to ensure 30 V (on 100 mV to 5 V ranges)   Maximum safe voltages Differential   Any input above scope GND 400 V (c00 V transient)   Measurement category rating CAT I   Voltage ranges ± 1%   Accuracy Voltage   Time 12 bits   Noise < 10 LBB   | Bandwidth (–3 dB)  | 5 MHz (3 MHz on 100 mV range)                 |
| Single channel20 MS/sThree or four channels10 MS/sBuffer memoryOne channel enabled512 k samples per channelThree or four channels enabled256 k samples per channelInput typeBufferential voltageDifferential voltageInput impedance12.4 M Q (on 100 mV to 5 V ranges)Input impedance10.1 M Q (on 100 mV to 5 V ranges)Input capacitance10.1 M Q (on 100 mV to 5 V ranges)Input capacitance30 V (on 100 mV to 5 V ranges)Common-mode voltage range to ensure30 V (on 100 mV to 5 V ranges)Maximum safe voltage range to ensure30 V (on 100 to 400 V ranges)Maximum safe voltage range to ensure30 V (on 100 to 400 V ranges)Maximum safe voltage range to ensure30 V (on 100 to to 400 V ranges)Maximum safe voltage range to ensure30 V (on 100 to to 400 V ranges)AccuracyUnited State S   | Resolution   | 12 bits (16 bits in enhanced resolution mode) |
| One channel enabledS12 k samples per channelThree or four channels enabled128 k samples per channelInput typeDifferential voltage<br>Selectable AC or DC couping<br>Touch-proof BNC connectors and 4 mm GND socketsInput impedance12.4 M Q (on 100 mW to 5 V ranges)<br>10.1 M Q (on 100 mW to 5 V ranges)<br>10.1 M Q (on 100 mW to 5 V ranges)Input capacitance30 V (on 100 mW to 5 V ranges)<br>10.1 M Q (on 100 v to 400 V ranges)Input capacitance30 V (on 100 mV to 5 V ranges)Maximum safe voltage range to ensure<br>measurement accuracy400 V<br>400 V (on 10 V to 400 V ranges)Maximum safe voltagesDifferential<br>400 V (on 10 V to 400 V ranges)Maximum safe voltages2 f the second seco | Two channels   | 10 MS/s                                       |
| ActionSelectable AC or DC coupling<br>Touch-proof BNC connectors and 4 mm GND socketsInput impedance12.4 MQ (on 100 mV to 5 V ranges)<br>10.1 MQ (on 10 V to 400 V ranges)Input capacitance230 V (on 100 mV to 5 V ranges)<br>100 mV to 5 V ranges)Common-mode voltage range to ensure<br>measurement accuracy300 V (on 100 W to 5 V ranges)<br>400 V (on 10 V to 400 V ranges)Maximum safe voltagesDifferential<br>400 V<br>400 V (600 V transient)Measurement category ratingCAT I<br>Voltage<br>50 ppmVoltage ranges± 1%<br>50 ppmAccuracyVoltage<br>10 me<br>Temperature range<br>Humidity range0 °C to 40 °C (20 °C to 30 °C for quoted accuracy)<br>Minimum 5% RH non-condensing<br>Maximum 80% RH non-condensingOperating environment<br>Temperature range<br>Humidity range-20 °C to 60 °C<br>Altitude up to 2000 m,<br>No pollution, or only dry, non-conductive pollutionPC connectionUSB 2.0<br>Compatible with USB 1.1Pever supply-6 × 15 × 50 × 50 × 60 mA<br>No external power supply requiredDimensions255 mm x170 nm x 40 mm<br>(approximately 10 in x 6.7 in x 1.6 in)Weight920 g  | Two channels enabled                                     | 256 k samples per channel                     |
| input capacitance10.1 M Ω (on 10 V to 400 V ranges)Input capacitance12 pFCommon-mode voltage range to ensure<br>measurement accuracy30 V (on 100 mV to 5 V ranges)Maximum safe voltages400 V (on 100 v to 50 V ranges)Maximum safe voltages400 VMaximum safe voltages400 VMaximum safe voltages400 V (on 00 V transient)Measurement category ratingCAT IVoltage ranges±100 mV to ±400 V in 12 rangesAccuracyVoltage<br>TimeLinearity12 bitsNoise< 10 LSB  | Input type   | Selectable AC or DC coupling                  |
| Common-mode voltage range to ensure<br>measurement accuracy30 V (on 100 mV to 5 V ranges)<br>400 V (on 10 V to 400 V ranges)Maximum safe voltages<br>Maximum safe voltagesDifferential<br>400 V<br>400 V (c600 V transient)Measurement category ratingCAT I<br>Voltage<br>±100 mV to ±400 V in 12 rangesAccuracy<br>Voltage<br>Time±100 mV to ±400 V in 12 rangesAccuracy<br>NoiseVoltage<br>± 1%<br>50 ppmOperating environment<br>Humidity range0 °C to 40 °C (20 °C to 30 °C for quoted accuracy)<br>Minimum 5% RH non-condensing<br>Maximum 80% RH non-condensing<br>Maximum 80% RH non-condensing<br>Other environmentOther environmental conditionsOperating environments,<br>Humidity rangeOther environmental conditionsDry environments,<br>Altitude up to 2000 m,<br>No pollution, or only roy, non-conductive pollutionPC connectionUSB 2.0<br>Compatible with USB 1.1Power supplyFrom USB port<br>4.6 V to 5.25 V DC @ approx. 500 mA<br>No external power supply requiredDimensions255 mm x 170 mm x 40 mm<br>(approximately 10 in x 6.7 in x 1.6 in)<br>Yoight  | Input impedance  |   |
| measurement accuracy 400 V (on 10 V to 400 V ranges)   Maximum safe voltages 400 V   Any input above scope GND 400 V (600 V transient)   Measurement category rating CAT I   Voltage ranges ±100 mV to 400 V in 12 ranges   Accuracy 11%   Voltage Time 50 ppm   Linearity 12 bits   Noise <10 LSB  | Input capacitance  | 12 pF   |
| Differential400 VAny input above scope GND400 V (600 V transient)Measurement category ratingCAT IVoltage ranges±100 mV to ±400 V in 12 rangesAccuracyVoltage<br>TimeLinearity20 to 12 bitsNoise<10 LSB  | Common-mode voltage range to ensure measurement accuracy |   |
| Voltage ranges   ±100 mV to ±400 V in 12 ranges     Accuracy   ±1%     S0 ppm   50 ppm     Linearity   12 bits     Noise   <10 LSB  |  |   |
| AccuracyVoltage<br>Time± 1%<br>50 ppmLinearity12 bitsNoise< 10 LSB  | Measurement category rating                              | CAT I   |
| Voltage<br>Time± 1%<br>50 ppmLinearity50 ppmNoise< 12 bits  | Voltage ranges   | ±100 mV to ±400 V in 12 ranges                |
| Noise< 10 LSBOperating environment<br>Humidity range0 °C to 40 °C (20 °C to 30 °C for quoted accuracy)<br>Minimum 5% RH non-condensing<br>Maximum 80% RH non-condensing, decreasing linearly to 50% at 40 °CStorage environment<br>Temperature range<br>Humidity range-20 °C to 60 °C<br>5% to 90% RH non-condensingOther environmental conditionsDry environments,<br>Altitude up to 2000 m,<br>No pollution, or only dry, non-conductive pollutionPC connectionUSB 2.0<br>Compatible with USB 1.1Power supplyFrom USB port<br>4.6 V to 5.25 V DC @ approx. 500 mA<br>No external power supply requiredDimensions255 mm x 170 mm x 40 mm<br>(approximately 10 in x 6.7 in x 1.6 in)Weight920 g   |  |   |
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| 4.6 V to 5.25 V DC @ approx. 500 mA     No external power supply required     Dimensions   255 mm x 170 mm x 40 mm     (approximately 10 in x 6.7 in x 1.6 in)     Weight   920 g   | PC connection  |   |
| (approximately 10 in x 6.7 in x 1.6 in)       Weight     920 g  | Power supply   | 4.6 V to 5.25 V DC @ approx. 500 mA           |
|   | Dimensions   |   |
|   | Weight   | 920 g<br>(approximately 2 lb)                 |

## PicoScope 3425 4-Channel Differential Oscilloscope



The 3425 kit is packaged in a tough carry case and includes all the accessories you need:

- Four screened BNC to 4 mm plug leads
- 4 current clamp adaptors
- 2 test probes
- 8 large crocodile clips
- USB cable
- Software and Reference CD
- Quick Start Guide

The PicoScope 3425 has powerful display and analysis capabilities:

- Multiple scope and spectrum views
- Automatic measurements
- Data export in text, binary and graphical formats
- Waveform buffer for storing multiple events
- Mask limit testing
- Serial data decoding
- Spectrum analysis

Most oscilloscopes can only measure signals referenced to ground and have what are known as "single–ended inputs". The PicoScope 3425 has four fully differential inputs that allow you to measure signals that are not referenced to ground. With a maximum common mode and differential range of 400 V, the PicoScope 3425 is capable of measuring both high voltage and low level signals. Typical high voltage applications include capturing waveforms from switch mode power supplies, telephone cables, motor inverters and hybrid vehicles. The high impedance differential inputs also allow measurements on sensitive amplifiers and from bridge type sensors for pressure, load and strain. They also allow you to measure floating voltages, and signals where common-mode noise is present, with ease and without the need for expensive differential preamplifiers or probes.

The PicoScope 3425 USB Oscilloscope comes in a tough carry case complete with all the probes, leads, clips and adaptors you need to start taking differential measurements. Just install the user-friendly software, connect the oscilloscope to a USB port on your Windows PC and you're ready to go. No complicated setup procedures. No effort required.

Its small, lightweight design means the PicoScope 3425 doesn't need to be confined to your lab or workbench. It is the perfect portable differential oscilloscope, while the anti-slip case means that your scope can be used either horizontally or vertically – ideal when space is at a premium. The included accessories and easy-to-use software allow you to get the maximum from your PicoScope.



Distributed by:





The measurement website

99, rue Beranger 92320 Chatillon - France Tel : +33 (0)1 71 16 17 00 Fax : +33 (0)1 71 16 17 03 www.testoon.com