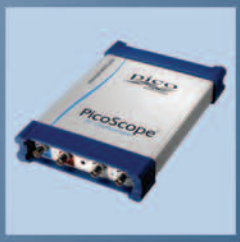
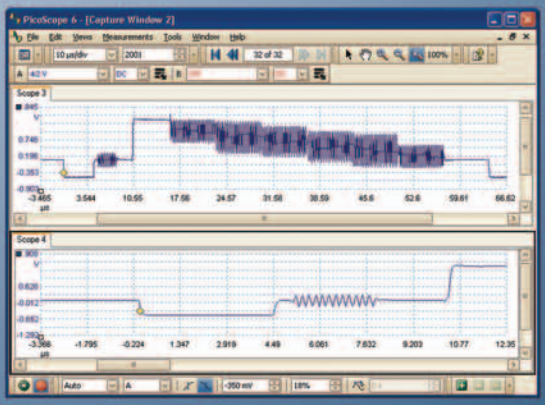
pico®
Technology

2007 Test & Measurement Catalogue





PC OSCILLOSCOPES
SPECTRUM ANALYSERS
DATA ACQUISITION
TEMPERATURE & HUMIDITY
EDUCATION

www.picotech.com

pico® Technology

Dear Customer,

Welcome to the latest catalogue from Pico Technology. This issue sees the launch of our **PicoScope 5000 Series** of High-Speed PC Oscilloscopes, along with some new money-saving oscilloscope kits. In addition, you will find our full range of PC Oscilloscope and Data Acquisition products, such as the entry-level PicoScope 2000 Series PC Oscilloscopes and the HumidiProbe Temperature and Humidity Logger.

We offer all of our customers unbeatable technical support, with our team of experts on call to assist you with your product selection. Our stringent quality controls ensure that you receive the highest-quality products with the very best level of service.

We would like to take this opportunity to thank all of our customers, who over the last 16 years have helped us become one of the leading manufacturers of PC-based Test & Measurement products. We look forward to helping you.

Yours faithfully,

The staff of Pico Technology

Contact Details

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Web :	www.picotech.com

PicoScope PC Oscilloscope Kits

Everything you need in one box

Available for these oscilloscopes:

3204	2202
3205	3224
3206	3424

Each kit includes:

- PicoScope PC Oscilloscope
- Two or four switchable x1/x10 probes
- Power supply (3204, 3205 and 3206 only)
- USB cable
- Installation guide
- Tough carry case

Amazing value for money.
See page 14.

PicoScope 5000 Series

High-speed USB PC Oscilloscopes

1 GS/s real-time sampling rate

32 M or 128 M sample memory

250 MHz probe-tip bandwidth

USB 2.0 Hi-Speed interface

All the convenience of a PC Oscilloscope with unprecedented performance. See page 8.

Support

- **Lifetime Technical Support…**
  Free lifetime technical support is available for all customers, whether you'd like one of our team of experts to answer your query or advise you on the most appropriate products to suit your needs.
- **Distributor Network…**
  Our network of distributors in over 60 countries makes ordering simple for international customers.
- **Worldwide Support…**
  Our software is supplied in English, French, German, Italian and Spanish.

Quality

- **ISO 9001:2000…**
  Pico Technology is an ISO 9001:2000 registered company, ensuring that the products we offer are of the highest quality at the most competitive price.

FM 52022

- **Compliance…**
  All of our products are CE marked where appropriate and comply with relevant European directives and FCC rules.
- **Warranty…**
  For your peace of mind we provide a two-year warranty with our own products.
- **Calibration Certificates…**
  Did you know that we offer a calibration service for a number of our products? Please call technical support for further details.

Online

- **Newsletter…**
  Keep up-to-date with the latest news, product developments and offers from Pico Technology by joining our mailing list. Please visit: ***www.picotech.com/maillist.html*** for details.
- **FREE Software Upgrades…**
  Free software upgrades are available on our website, for the lifetime of the product.
- **Secure E-commerce…**
  All products can be ordered online through our secure E-commerce service.
- **Help Forum…**
  Our online help forum is the easy way to get advice from our dedicated team of technical experts. Visit ***www.picotech.com/support***.

DO082-8

Ordering Information

How to Order

Ordering from Pico Technology is quick and easy.
We aim to despatch orders within 24 hours of receiving payment for products in stock from 9 am to 5 pm (Monday to Friday).
Whichever way you place your order, simply provide us with the following information: your full name, telephone number and email (if applicable), company name (if applicable), invoice address and postcode, delivery address and VAT number (for EU companies only).

Contact

Telephone: +44 (0) 1480 396 395
Fax: +44 (0) 1480 396 296
Post: Pico Technology Ltd
The Mill House
Cambridge Street
St Neots
Cambridgeshire
PE19 1QB, UK
Email: sales@picotech.com
Web: www.picotech.com

International Customers

Our extensive network of distributors in over 60 countries will be happy to take your order. You can find your local distributor by visiting: ***www.picotech.com/distribl.html***

If there is no local distributor in your country, you may order directly from Pico Technology. You will need to quote an order number, address and contact number as well as shipping instructions. Please note that you may be required to pay import duty, for which Pico Technology is not responsible.

Order Online

All of our products can be purchased through our secure e-commerce website at: ***www.picotech.com***

Payment

We accept payment in Sterling, Euros and US Dollars. Payment is also accepted by credit card (Visa or MasterCard) or debit card (Maestro/Switch or Delta).

Delivery

Destination	Economy			Courier		
	£	$	€	£	$	€
UK	5.00	9.50	7.50	15.00	28.50	22.00
USA & EU	15.00	28.50	22.00	25.00	47.50	37.00
Other	20.00	38.00	29.50	40.00	76.00	59.00

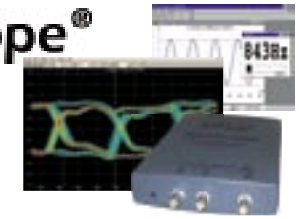
For same day or urgent delivery, large quantities or large parcels, please contact our sales department for special pricing.

Please note that all sales are subject to our standard terms and conditions printed inside the back cover of this catalogue. Prices are believed to be correct at the time of printing but are subject to change without notice. Errors and omissions excepted. US$ and € prices are subject to exchange rates. Please check the current price on our website before ordering.

PC Oscilloscopes

PicoScope PC Oscilloscope Software

PicoScope®



- Compact and portable units
- Large colour display using the computer's monitor
- Can be used with desktop or laptop computers
- Unlimited saving and printing of waveforms
- Supplied with PicoLog, transforming your computer into an advanced data logger

Pico Technology provides a range of PC Oscilloscopes that offer all the functions of conventional equipment, and also many features not normally available in this price range.

PC Oscilloscopes replace bulky and expensive test equipment, saving money and workbench space. Simple-to-use software and on-screen help makes you an expert within minutes.

By integrating several instruments into one small unit, a PC Oscilloscope is lighter and more portable.

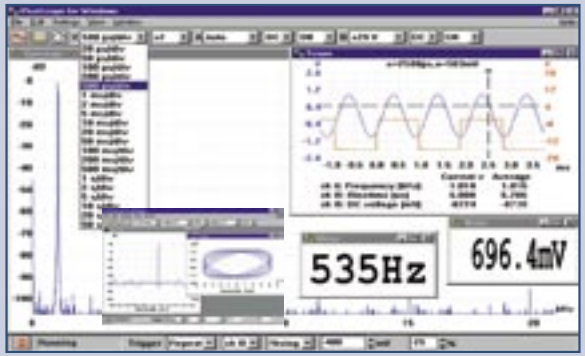
PicoScope

PC oscilloscopes are supplied with PicoScope, software that turns a PC into an oscilloscope, spectrum analyser and meter.

PicoScope is flexible, easy to use and offers many advantages over conventional instruments, such as multiple views of the same signal and on-screen display of voltage and time. New functions can be added by downloading FREE upgrades from our web site:

www.picotech.com/download.html

- Oscilloscope, spectrum analyser, XY scope and meter functions
- Easy to install and use
- Supplied with all oscilloscope units
- Windows XP SP2 and Vista
- International language versions
- **No licence fees.** Use on as many computers as you like. Free upgrades available from our web site



PicoScope Features

Oscilloscope

You can display data in PicoScope in a variety of formats. Some are based on the data from single cycles and others on multiple cycles. The multi-cycle display modes are:

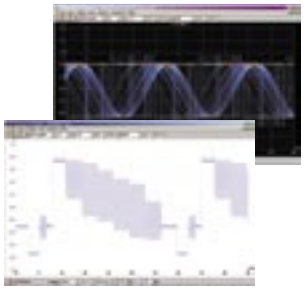
- Digital Colour

  Ideal for spotting intermittent glitches in digital signals
- Analogue Intensity

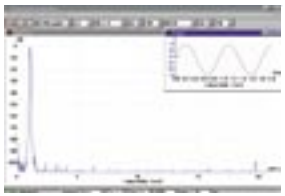
  Useful for displaying video waveforms and analogue modulation signals

For more information on other display modes please visit:

www.picotech.com/display_options.html



Spectrum Analyser



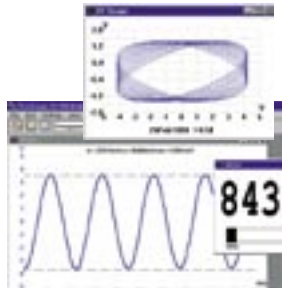
- Shows the amount of energy in each of a number of frequency bands
- Useful for tracking down the cause of noise in measured signals
- Averaging mode - provided to reduce the effects of random noise
- Peak detect mode - useful for testing amplifier bandwidths
- Rulers to show amplitude, frequency and phase
- Has the same trigger options as the oscilloscope
- Linear/Log scales for both amplitude and frequency

XY Scope

- Useful when comparing the phase of two signals
- Used to plot one parameter against another

Meter

- Displays one or more parameters numerically
- Optional bar graph
- The multimeter displays AC volts (true RMS), DC volts, decibels or frequency
- Ability to add custom ranges



Measurements

Measurements can be displayed at the foot of the trace, with a variety of statistical indicators: current value, average, standard deviation, min, max, pass/fail.

Available measurements:

Frequency, High pulse width, Low pulse width, Duty cycle, Cycle time, DC voltage, AC voltage, Peak to peak, Crest factor, Minimum, Maximum, Risetime, Falltime, Rising rate, Falling rate, Voltage at cursor, Time at cursor, Frequency at cursor, Amplitude at cursor, Peak frequency, Peak amplitude, Second to sixth harmonic amplitude, Total Power, THD, THD+N, SFDR, SINAD, SNR, IMD & Gain.

PC Oscilloscopes

PC Oscilloscope Selection Guide

High-speed scopes

1 GS/s sampling rate*
250 MHz bandwidth*

- 32 Msamples* — 
  PicoScope 5203
  See p8
- 128 Msamples — 
  PicoScope 5204
  See p8

General-purpose scopes

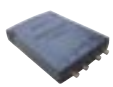
- 50 MS/s, 50 MHz, 256 ksamples — 
  PicoScope 3204
  See p10
- 100 MS/s, 100 MHz, 512 ksamples — 
  PicoScope 3205
  See p10
- 200 MS/s, 200 MHz, 1 Msample — 
  PicoScope 3206
  See p10

Entry-level scopes

- 1 channel
  - 10 MHz, 8 ksamples — 
    PicoScope 2104
    See p12
  - 25 MHz, 24 ksamples — 
    PicoScope 2105
    See p12
- 2 channels
  - 2 MHz, 32 ksamples — 
    PicoScope 2202
    See p13

High-precision scopes

10 MHz, 20 MS/s, 512 ksamples

- 2 channels — 
  PicoScope 3224
  See p10
- 4 channels — 
  PicoScope 3424
  See p10

* These terms are explained on page 7.

Choosing an Oscilloscope

What is a PC Oscilloscope?

A PC Oscilloscope is an instrument that consists of an electronic interface and some software. The interface plugs into a PC that runs the software. PC Oscilloscopes are beginning to replace larger bench-top scopes in many applications.

Why use a PC Oscilloscope?

1. Value for money. You buy only the special hardware and software you need, and use your existing PC with its monitor, hard drive, printer and networking.

2. Efficient use of space. A PC Oscilloscope occupies no more space than a small book in addition to the size of the PC.

3. Portability. You can add a PC Oscilloscope to your laptop PC to create a portable test instrument.

4. Future-proofing. If you need higher performance, you only need to upgrade the interface, not the whole computer.

5. Ergonomics. Bench-top scopes struggle to fit an efficient user interface in the limited space on their front panels. PC Oscilloscopes use the PC to deliver an easy-to-read display and convenient controls.

What the key specifications mean

Sampling rate

PC Oscilloscopes capture a signal by slicing it into time intervals called samples. You should choose a real-time sampling rate that gives you about ten samples for every cycle of a repetitive waveform or pulse. For example, to sample a 10 MHz sine wave or 100 ns pulse, you should aim for a sampling rate of about 100 MS/s. Do not confuse real-time sampling rate with "equivalent-time sampling rate", which is a useful specification but applies only when capturing repetitive, stable waveforms.

Record length

The record length of a scope is the number of points in the longest uninterrupted waveform that the scope can capture. If you want to capture a complex waveform on a long timebase, then you need to make sure that the scope's record length is adequate. Pico oscilloscopes are available with various record lengths, up to the PicoScope 5204's huge 128 Msample memory.

Bandwidth

This is the highest frequency of signal that the scope can measure with reasonable accuracy. Remember that square waves contain harmonics at frequencies well above the pulse repetition rate.

Vertical resolution

After slicing the signal into samples, the scope then slices each sample into hundreds, or sometimes thousands, of voltage levels. The more levels the scope has, the more accurately you can read the voltage from the display, and the smoother the waveform looks on the screen. The number of levels is specified as "resolution" in "bits", these terms referring to the type of electronic circuitry used in the scope.

Bits	Levels	Suitable applications
8	256	General-purpose use
12	4,096	High-resolution measurement, noise, vibration, ultrasound

PC Oscilloscopes

PicoScope 5000 Series High-Speed PC Oscilloscopes

1 GS/s sampling rate

- This is the single-shot sampling rate. It allows you to sample waveforms up to the full bandwidth of the scope without distortion or aliasing.
- In ETS (equivalent-time sampling) mode, the scope can reach an effective sampling rate of 20 GS/s for repetitive signals.

Built-in arbitrary waveform generator

- Outputs standard and user-defined waveforms at up to 125 MS/s

At last, a USB PC Oscilloscope fit to replace bench-top oscilloscopes...

...the **new** PicoScope 5000 Series

128 Msample memory

- Capture a waveform, then zoom in by a factor of a thousand or more to see pulses, glitches and edges in detail.
- Budget version, PicoScope 5203, with 32 Msample memory also available.

250 MHz probe-tip bandwidth

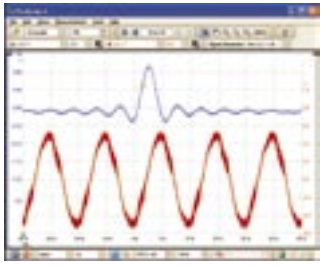
- Every scope is adjusted for optimal probe-tip bandwidth
- Two 250 MHz probes included

Microsoft Windows software

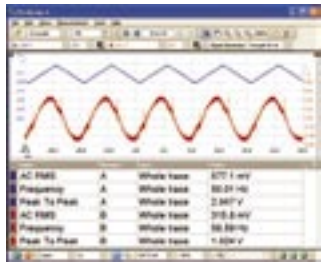
- Brand-new version: PicoScope 6
- Supports Windows XP SP2 and Vista

What's in the kit?

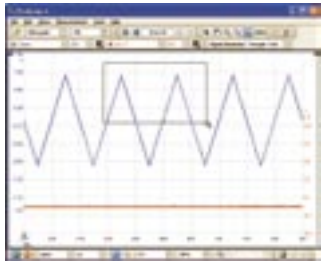
- PicoScope 5000 Series PC Oscilloscope
- Two 250 MHz probes
- USB cable
- Universal power supply with UK, US, EU and Australasian plug adaptors
- Hard plastic carry case
- Software CD
- Installation guide



Low clutter
Almost the whole screen is used for your waveforms.



Automatic measurements
Add as many as you like. Continuously updated.



Quick zoom
Zoom in just by drawing a box.

PicoScope 5000 Series Specifications

Product	PicoScope 5203	PicoScope 5204
Resolution	8 bits	
Inputs	3 x BNC (2 channels + ext. trig.)	
Voltage ranges	±100 mV to ±20 V in 8 ranges	
Overload protection (channels A & B, ext. trig. in)	±100 V	
Input characteristics	1 MΩ || 16 pF	
Sampling rate (real time, single channel)	1 GS/s	
Sampling rate (repetitive)	20 GS/s	
DC accuracy	±3%	
Scope timebases	5 ns/div (500 ps in ETS mode) to 100 s/div	
Spectrum ranges	DC to 250 MHz	
Analogue bandwidth at probe tip	250 MHz	
Memory	32 Msamples	128 Msamples
Arbitrary waveform generator	Up to 125 MS/s, 12 bits, 8192 samples	
Power supply	6 V DC from AC adaptor supplied	
External trigger output	BNC, 600 Ω	
Signal generator output	BNC, 50 Ω, ±2 V	
PC connection	USB 2.0	
Supplied software	See page 34	

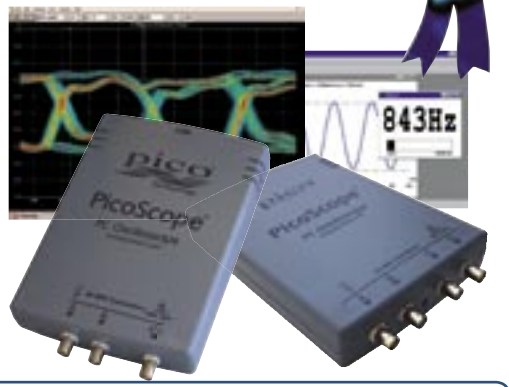
Description	Price £	Price $	Price €	Order No.
PicoScope 5203	1195	2271	1769	PP376
PicoScope 5204	1795	3411	2657	PP377
Replacement factory-calibrated probe	30	57	44	MI145

PC Oscilloscopes

PicoScope 3000 Series PC Oscilloscopes

- Two or four channels
- 20 MS/s to 200 MS/s sampling rates
- 10 MHz to 200 MHz bandwidths
- 8-bit and 12-bit resolutions
- 256 k to 1 M record lengths
- High-speed USB 2.0 interface
- Powered by USB port
- Advanced display & trigger modes
- Supplied with PicoScope and PicoLog software

PicoScope®



The PicoScope 3000 Series is the fourth generation of PC Oscilloscopes from Pico Technology. They offer excellent performance for general-purpose applications and are cost-effective replacements for traditional benchtop oscilloscopes.

The PC Oscilloscopes in the 3000 series feature a choice of high bandwidths and sampling rates, or high precision, previously unavailable with PC Oscilloscopes. Using the latest advances in electronics, the oscilloscopes connect to the USB port of any modern PC, making full use of the PC's processing capabilities, large screen and familiar graphical user interface.

Ideal for use in either the lab or in the field, the PicoScope 3000 PC Oscilloscope series is the perfect choice for users who demand high performance and portability in an easy-to-use, low-cost package.

Need an oscilloscope probe? See page 31 for our complete range.
Also available in kits: see page 14.

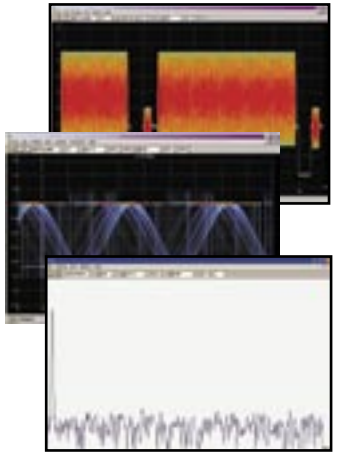
Description	Price £	Price $	Price €	Order No. UK (230 V)	Order No. EU (230 V)	Order No. US (110 V)
General-purpose oscilloscopes:						
PicoScope 3204	399	758	591	PP255	PP258	PP261
PicoScope 3205	599	1138	887	PP256	PP259	PP262
PicoScope 3206	799	1518	1183	PP257	PP260	PP263
High-precision oscilloscopes:						
PicoScope 3224	399	758	591	PP300	PP300	PP300
PicoScope 3424	699	1328	1035	PP298	PP298	PP298

General-purpose PC Oscilloscopes: powerful enough to replace benchtop oscilloscopes

The PicoScope 3204, 3205 and 3206 feature high bandwidths and sampling rates previously not available with PC Oscilloscopes.

High-precision PC Oscilloscopes: 12 bits of resolution

The PicoScope 3224 and 3424 bring unprecedented accuracy of measurement to PC Oscilloscopes.



Large record lengths allow the capture of fast and complex signals

With 1 M record length, the PicoScope 3206 can capture at least 30 times as much data as most other oscilloscopes in this price range, allowing complex waveforms to be captured in great detail.

USB 2.0 for fast data transfer

The fast USB 2.0 interface ensures a quick screen update rate, even when collecting large amounts of data.

Built-in signal generator

The PicoScope 3205 and 3206 models output sine, square and triangle waves up to 1 MHz in frequency.

Spectrum analyser mode

Ideal for measuring the distortion of a signal or for tracking down noise.

PicoScope 3000 Series Specifications

PicoScope variant	General-purpose			High-precision	
	PicoScope 3204	PicoScope 3205	PicoScope 3206	PicoScope 3224	PicoScope 3424
Bandwidth	50 MHz	100 MHz	200 MHz	10 MHz	
Sampling rate (single shot) Sampling rate (repetitive)	50 MS/s 2.5 GS/s	100 MS/s 5 GS/s	200 MS/s * 10 GS/s	20 MS/s * 20 MS/s *	
Channels	2 + External trigger / Signal generator			2	4
Signal generator	1 kHz square wave	100 Hz to 1 MHz square/sine/ triangle		None	
Oscilloscope timebases	5 ns/div to 50 s/div	2 ns/div to 50 s/div	1 ns/div to 50 s/div	500 ns/div to 50 s/div	
Timebase accuracy	50 ppm			100 ppm	
Spectrum ranges	DC to 25 MHz	DC to 50 MHz	DC to 100 MHz	DC to 10 MHz	
Record length	256 k samples	512 k samples	1 M samples	512 k samples	
Resolution/accuracy	8 bits / 3%			12 bits / 1%	
Ranges	±100 mV to ±20 V			±20 mV to ±20 V	
PC connection	USB 2.0 (USB 1.1 compatible)				
OS software support	See page 34				

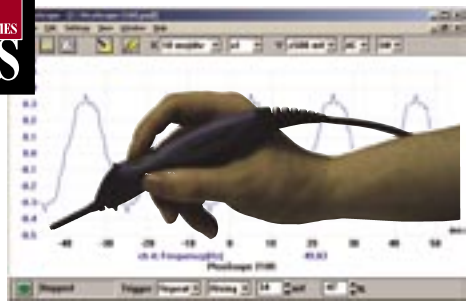
* Divide sampling rate by 2 for dual-channel use and by 4 for three or four-channel use.

PC Oscilloscopes

PicoScope 2000 Series PC Oscilloscopes for Enthusiasts and Educational Users

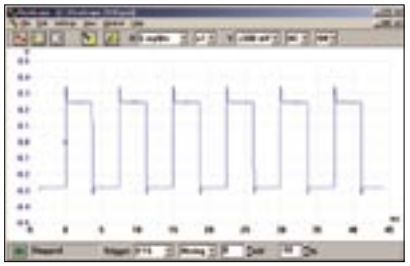
PicoScope 2105

- Ergonomically designed to fit in the hand
- 100 MS/s sampling rate
- 25 MHz bandwidth
- Digital ETS enhances repetitive signal sample rate to 2 GS/s
- 24 k record length
- Connected and powered by USB
- Supplied with PicoScope, PicoLog and 32-bit programming libraries
- Compatible with Windows XP SP2 and Vista



Small enough and light enough to carry with you anywhere

The PicoScope 2105 PC Oscilloscope combines features integral to many high-performance bench-top oscilloscopes, in a small, lightweight and ergonomic design that fits perfectly in the hand. When used in conjunction with the PicoScope software, the oscilloscope converts any laptop or desktop PC with USB support into a powerful oscilloscope, without the need for additional probes or power supplies. An entry-level version, the PicoScope 2104, is also available to accommodate less demanding applications.



Equivalent Time Sampling (ETS) boosts the 100 MS/s sampling rate of the PicoScope 2105 to 2 GS/s for repetitive signals.

For more detailed specifications, please see page 13 or visit:
www.picotech.com/handheld-oscilloscope.html

Price includes full versions of software, drivers, example programs and unlimited free updates from our website.
For information on software and drivers see page 34.

Confused?
Read our "Choosing an Oscilloscope" guide on page 7. There's also a longer article on our web site at:
www.picotech.com/applications.html

Description	Price £	Price $	Price €	Order No.
PicoScope 2104	125	238	185	PP317
PicoScope 2105	199	378	295	PP315

PicoScope 2202

- Priced for hobbyists and educational users
- Two channels
- Up to 20 MS/s sampling rate
- 2 MHz bandwidth
- 32 k sample record length
- Connected and powered by USB
- Supplied with PicoScope and PicoLog software
- Compatible with Windows XP SP2 and Vista

The inexpensive PicoScope 2202 dual-channel USB oscilloscope uses the same powerful technology as the acclaimed PicoScope 3000 series of professional PC oscilloscopes. Using this latest technology, Pico is able to provide you with an oscilloscope with specifications not previously available in this price range.

The PicoScope 2202 is proving highly popular for hobby and educational use. For more details visit:
www.picotech.com/low-cost-oscilloscopes.html

PicoScope 2000 Series Specifications

Product	PicoScope 2104	PicoScope 2105	PicoScope 2202
Resolution	8 bits		8 bits
Channels	1 built-in probe		2 BNC
Voltage ranges	±100 mV to ±20 V in 8 ranges		±50 mV to ±20 V in 9 ranges
Overload protection	±50 V input to GND		±100 V input to GND
Input impedance	1 MΩ		1 MΩ
Sampling rate (real time)	50 MS/s	100 MS/s	20 MS/s *
Sampling rate (repetitive)	1 GS/s	2 GS/s	20 MS/s *
DC Accuracy	±3%		±3%
Scope timebases	20 ns/div to 50 s/div	10 ns/div to 50 s/div	500 ns/div to 50 s/div
Spectrum ranges	DC to 10 MHz	DC to 25 MHz	DC to 2 MHz
Dynamic range	48 dB		48 dB
Analogue bandwidth	10 MHz	25 MHz	2 MHz
Record length	8 k samples	24 k samples	32 k samples
Power supply	not required		
Output connector	USB 2.0 (compatible with USB 1.1)		
Supplied software	See page 34		

* Divide sampling rate by 2 for dual-channel use

Description	Price £	Price $	Price €	Order No.
PicoScope 2202	199	378	295	PP296

Oscilloscope Kits

Buy a PicoScope PC Oscilloscope kit and save up to 20%

A PC Oscilloscope kit from Pico is designed to give you all the oscilloscope accessories you need in a hard carry case. Each oscilloscope kit contains a PicoScope PC Oscilloscope (PCO) together with one x1/x10 passive oscilloscope probe for each oscilloscope channel. Also included is a USB 2.0 cable to connect your PC to the oscilloscope, a Quick Start Guide, and a CD-ROM containing the latest PC Oscilloscope and data logging software.

A Pico oscilloscope kit is lightweight and compact, making it the ideal tool for use in the field. When you're not using the PicoScope, the scope, cable and probes can all be stored in the carry case – protecting your test equipment and making sure you don't have to hunt around for that elusive cable or probe.

Oscilloscope Kit Contents

Order Code	Oscilloscope	60 MHz Probes	250 MHz Probes	USB Cable	Power Supply	Installation Guide	Carry Case
PP350	PicoScope 2202	2	–	✓	–	✓	✓
PP353	PicoScope 3204	2	–	✓	✓	✓	✓
PP354	PicoScope 3205	–	2	✓	✓	✓	✓
PP355	PicoScope 3206	–	2	✓	✓	✓	✓
PP351	PicoScope 3224	2	–	✓	–	✓	✓
PP352	PicoScope 3424	4	–	✓	–	✓	✓

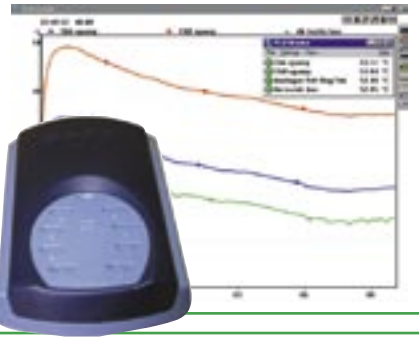
For PicoScope 5203 and 5204 Kits, see page 8.

You can find more information on the PicoScope 2000 Series and 3000 Series PC Oscilloscopes on pages 10 to 13, and on our website at ***www.picotech.com***.

Description	Price £	Price $	Price €	Order No.
PicoScope 2202 Kit	207	393	306	PP350
PicoScope 3204 Kit	407	773	602	PP353
PicoScope 3205 Kit	607	1153	898	PP354
PicoScope 3206 Kit	807	1533	1194	PP355
PicoScope 3224 Kit	407	773	602	PP351
PicoScope 3424 Kit	717	1362	1061	PP352

USB TC-08 Thermocouple Data Logger

- Measures and records up to 8 temperatures
- Works with all popular thermocouple types
- Wide temperature range (-270 ˚C to +1820 ˚C)
- USB interface ensures problem-free installation
- Built in Cold Junction Compensation
- High resolution (20 bits) and high accuracy
- No power supply required
- Multiple units can be run on a single PC
- Supplied with PicoLog data logging software



The USB TC-08 Thermocouple Data Logger offers industry-leading performance and a cost-effective solution for temperature measurement.

Offering 8 direct thermocouple inputs, the USB TC-08 is capable of taking accurate and fast readings, and up to 10 units can be used simultaneously on one PC. Temperatures ranging from -270 ˚C to +1820 ˚C can be measured and recorded using the appropriate thermocouple type (B, E, J, K, N, R, S, T).

The USB connection allows the USB TC-08 to be powered directly by the USB port of a Windows based PC, eliminating the need for an external power supply and making the USB TC-08 ideal for measuring temperatures both in the lab and in the field.

The USB TC-08 is used successfully throughout the industrial, scientific, medical and food industries. For examples please visit:
www.picotech.com/thermocouple.html

USB TC-08 Technical Specifications

No of channels	8
Accuracy of unit	Sum of ±0.2% and ±0.5 ˚C
Overload protection	±30 V
Conversion time	100 ms per active channel, plus 100 ms for cold junction compensation
Input voltage	±70 mV into 2 MΩ
Max. common-mode voltage	±7.5 V
Input connectors	Miniature thermocouple
Output connector	USB 1.1, cable supplied

USB TC-08 Resolution

Thermocouple type	Overall range (˚C)	0.1 ˚C resolution	0.025 ˚C resolution
B	+20 to +1820	+150 to +1820	+600 to +1820
E	-270 to +910	-270 to +910	-260 to +910
J	-210 to +1200	-210 to +1200	-210 to +1200
K	-270 to +1370	-270 to +1370	-250 to +1370
N	-270 to +1300	-260 to +1300	-230 to +1300
R	-50 to +1760	-50 to +1760	+20 to +1760
S	-50 to +1760	-50 to +1760	+20 to +1760
T	-270 to +400	-270 to +400	-250 to +400

Our range of thermocouples for the TC-08 is on page 32.

Description	Price £	Price $	Price €	Order No.
USB TC-08	249	473	369	PP222

PT-104 Temperature Data Logger

The PT-104 is a four-channel temperature data logger. It offers the ultimate in resolution (0.001 ˚C) and accuracy (0.01 ˚C) when used with PT100 sensors, and can also be used to measure resistance and voltage.

- Measures temperature, resistance and voltage
- 0.01 ˚C accuracy
- 0.001 ˚C resolution
- –200 ˚C to +800 ˚C temperature range
- 4-channel temperature measurement
- Compatible with 2, 3 and 4-wire sensors
- Software offers advanced features
- No power supply required

The PT-104 is supplied with PicoLog advanced data logging software. PicoLog automatically detects which sensor is connected and displays readings in the correct units. The PT-104 can be connected to a PC directly, or indirectly through a modem (radio or telephone) for remote access.

PT-104 Technical Specifications

	Temperature	Resistance	Voltage
Sensor	PT-100*, PT-1000	-	-
Range	-200 ˚C to +800 ˚C	0 to 375 Ω *	0 to 115 mV
		0 to 10 kΩ	0 to 2.5 V *
Linearity	10 ppm		
Accuracy @ 25 ˚C	0.01 ˚C ***	20 ppm ***	0.2 % ***
Temperature coefficient	3 ppm / ˚C	3 ppm / ˚C	100 ppm / ˚C
RMS noise (using filter)	0.01 ˚C	10 ppm	10 ppm
Resolution	0.001 ˚C	1 µΩ	0.156 µV
Conversion time per channel	720 ms **	720 ms **	180 ms **
Number of inputs	4		
Input connectors	4-pin mini DIN		
PC connection	RS-232 serial with 9-pin female D		

* Quoted accuracy is for options marked
** For four wire temperature and resistance measurement
*** Accuracy is for the unit only. Error of sensors must be added.

PT-100 Temperature Sensors

- Platinum Resistance Thermometers (PRTs)
- Excellent accuracy and stability
- Temperature range from -50 ˚C to +500 ˚C
- Sensors from different manufacturers are interchangeable

PT-100 Sensor Specifications

Parameter	SE011 (PT-100)	SE012 (PT-100)
Temperature range	–50 ˚C to +500 ˚C (tip temperature)	–50 ˚C to +250 ˚C
Accuracy	±0.15 ˚C at 0 ˚C (Class A**)	±0.03 ˚C at 0 ˚C (1/10th DIN**)
Terminations	MiniDIN 4 way male connector	
Dimensions	Ø6 x 150 mm (insertion length 100)	Ø4 x 150 mm
Material	Stainless steel probe, PVC cable	
Lead length	2 m	2 m

**IEC751:1983 Specifications

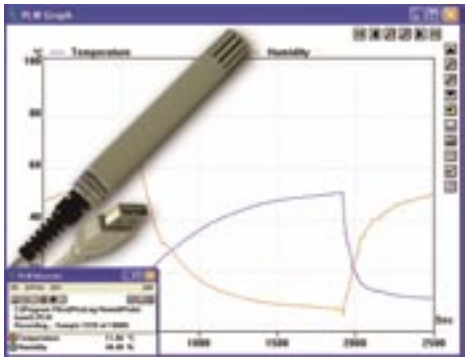
Description	Price £	Price $	Price €	Order No.
PT-104	399	758	591	PP161
PT-100 Class A Sensor	23	44	34	SE011
PT-100 1/10 DIN Sensor	48	92	72	SE012

HumidiProbe Temperature and Humidity Data Logger

The HumidiProbe temperature and humidity data logger measures and records humidity and temperature on a PC. It uses calibrated sensors to give highly accurate measurements. The HumidiProbe is particularly useful in applications such as: -

- horticulture
- heating and ventilation systems installation
- monitoring conditions of sensitive animals such as reptiles
- computer server room monitoring
- warehousing

The unit requires no power supply so is ideal for use in the field with a laptop.



- Measures 0% to 100% relative humidity, non-condensing
- ±2% accuracy for humidity
- ±0.5 ˚C accuracy for temperature
- 0 ˚C to 70 ˚C temperature range
- High resolution
- Simply plugs into the USB port
- No power supply required
- FREE software upgrades

HumidiProbe Technical Specifications

	Humidity	Temperature
Range	0% to 100%	0 ˚C to 70 ˚C
Accuracy	±2% RH	±0.5 ˚C
Resolution	0.03% RH	0.01 ˚C
Conversion time	2 seconds	
Response time	4 seconds	5 to 30 seconds
PC connection	USB 1.1 (USB 2.0 compatible)	
Power supply	From USB port	
Dimensions	Ø 22 x 170 mm (Ø 0.87 x 6.69 in) Cable length 4.5 m (14 ft 9 in)	

The HumidiProbe's compact, all-in-one design allows it to be used in various locations and in a wide range of applications. Up to 20 HumidiProbes can be connected to one PC, allowing you to accurately monitor the temperature and humidity in multiple locations at once, and at low cost.

The easy-to-use PicoLog data acquisition software is supplied with the HumidiProbe – this powerful, yet flexible, data acquisition software allows you to collect, manipulate, analyse, and display and export data. Software alarms can be configured for both temperature and humidity so as to provide a warning when measurements go out of a specified range. Updates to PicoLog can be downloaded for free from the Pico website.

Description	Price £	Price $	Price €	Order No.
HumidiProbe	149	283	221	PP299

Data Acquisition

Data Logger Selection Guide

Single-ended

- 8 channels
  - 20 bits 0.2 %
    - 
    - ADC-20
    - See p21
- 11 channels
  - 10 bits 1%
    - 
    - ADC-11/10
    - See p22
  - 12 bits 0.5 %
    - 
    - ADC-11/12
    - See p22
- 16 channels
  - 24 bits 0.1 %
    - 
    - ADC-24
    - See p21

Differential

- 4 channels
  - 20 bits 0.2 %
    - 
    - ADC-20
    - See p21
- 8 channels
  - 24 bits 0.1 %
    - 
    - ADC-24
    - See p21

Data Acquisition Products & Software

- Easy to install and use
- Ideal for low-cost data acquisition systems
- Supplied with PicoLog data logging software

Pico Technology provides a range of easy-to-use PC data acquisition products. The units simply plug into the USB port of a computer and require no power supply.

When connected to suitable sensors, Pico data acquisition products can be used to measure temperature, pressure, humidity, light, resistance, current, power, speed... in fact, any physical quantity.

PicoLog

PicoLog is a powerful and flexible program for collecting, analysing and displaying data. The software can be used with Pico's full product range up to and including the PicoScope 3000 Series. To learn more about PicoLog visit our web site, or download a free copy from:

www.picotech.com/download.html

- Collect up to a million samples
- Use with all Pico data loggers and oscilloscopes
- Easy and intuitive to use
- Data can be exported to spreadsheets and databases
- Supports multiple loggers
- Free upgrades and technical support
- Supports Windows XP SP2 and Vista
- International language versions

Data Acquisition

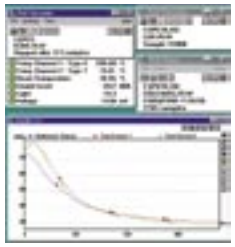
PicoLog Features

Program Modes

PicoLog for Windows works in two modes: player mode and recorder mode. You can have more than one copy of PicoLog for Windows running at once, so you can use the player to analyse old data whilst recording new data.

PicoLog can collect data from multiple converters at the same time. This allows a mix of voltage input units to be used on the same PC, and allows other PC-based instruments to be used at the same time.

Exporting Data

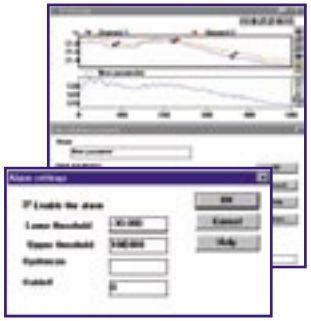


Data can be transferred as either graphs or raw data to other Windows applications using the clipboard (copy and paste). Graphs can also be saved to disk in JPEG, BMP or WMF format and data from the spreadsheet can be saved as a .CSV or a .TXT file. Current readings can also be transferred using Dynamic Data Exchange (DDE).

Multiple Views

PicoLog displays data in a number of views, which can be activated as required. These views can be activated both during and after data collection.

- Recorder View – Start or stop recording, show current readings and conditions, and control all the settings
- XY Graph View – Plot one parameter against another
- Notes View – For user information
- Spreadsheet View – For copying and pasting
- Player View – Review stored data, even while recording
- Graph View – One or multiple channels



Other Useful Features

Parameter scaling is used to convert raw data into standard engineering units.

Additional parameters can be calculated. For example, to calculate power output from a boiler, you may need to multiply a flow reading from one channel by the temperature difference between two further channels.

Alarm limits can be set for each channel to alert the user should a parameter go out of a specified range.

IP Networking enables remote data collection from Pico's full range of data acquisition products across a company network or even the Internet.

ADC-20 and ADC-24 High-Resolution Data Loggers

When you need the ultimate in precise and accurate data acquisition, the high-resolution ADC-20 and ADC-24 data loggers are the perfect solution. Even with their high specifications, these instruments have a low cost per channel. They are powered by your PC, so there is no power supply to carry around.

- Measure up to 8 differential voltages
- Galvanically isolated from PC
- 20-bit and 24-bit versions available
- ±39 mV to ±2.5 V input ranges
- 4 digital I/Os for control or alarm
- Interface to PC, and power, via USB cable
- Optional terminal board (shown at left) makes connection easier
- Each differential input can be reconfigured as two single-ended inputs

USB Data Logger Specifications

Product	ADC-20	ADC-24	USB ADC-11/10	USB ADC-11/12
Resolution	20 bits	24 bits	10 bits	12 bits
Channels	4 differential or 8 single-ended	8 differential or 16 single-ended	11	
Input ranges	±1.25 V & ±2.5 V	±39 mV to ±2.5 V	+2.5 V	
Sampling rate	60 ms to 660 ms per sample		20 kS/s *	
Accuracy	0.2%	0.1% (0.2% @ ±2.5 V)	±1%	±0.5%
Overload protection	±30 V		±30 V	
Input impedance	2 MΩ (differential) 1 MΩ (single-ended)		1 MΩ	
Input connector	DB25 female		DB25 female	
Output connector	USB 1.1		USB 1.1	
Supplied software	See page 34		See page 34	

* Sampling rate must be divided by the number of channels in use

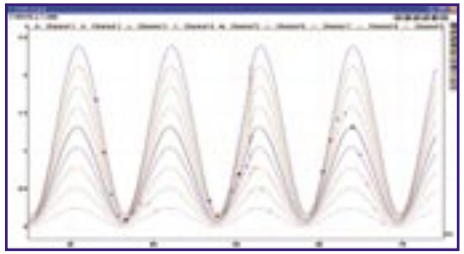
Description	Price £	Price $	Price €	Order No.
ADC-20 High-Resolution Data Logger	199	378	295	PP308
ADC-24 High-Resolution Data Logger	399	758	591	PP309
ADC-20 / ADC-24 Terminal Board	25	48	37	PP310
ADC-20 + Terminal Board	219	416	324	PP311
ADC-24 + Terminal Board	419	796	620	PP312

USB ADC-11 Data Logger

Used with any laptop or PC, the new and improved USB ADC-11 Data Logger is a low-cost solution for converting up to 11 voltage signals at a time into digital samples. The performance of the product has been upgraded from the parallel port version by providing a faster sampling rate of 20 kS/s and USB connectivity. An optional terminal board is available, allowing the logger to be customised for a wide range of applications.

See full specifications on page 21.

- Measure up to 11 voltages
- 10-bit and 12-bit versions available
- 20 kS/s sampling rate
- 0 V to 2.5 V input range
- 2 digital outputs for control or alarm
- Interface to PC and power via USB
- Supplied with PicoScope and PicoLog
- Detachable screw-terminal board



ADC-11 Terminal Board

The ADC-11 terminal board can be used with all versions of the ADC-11.

- Screw-terminal connections
- Provides basic PCB layouts
- Connects to the input socket of the ADC-11

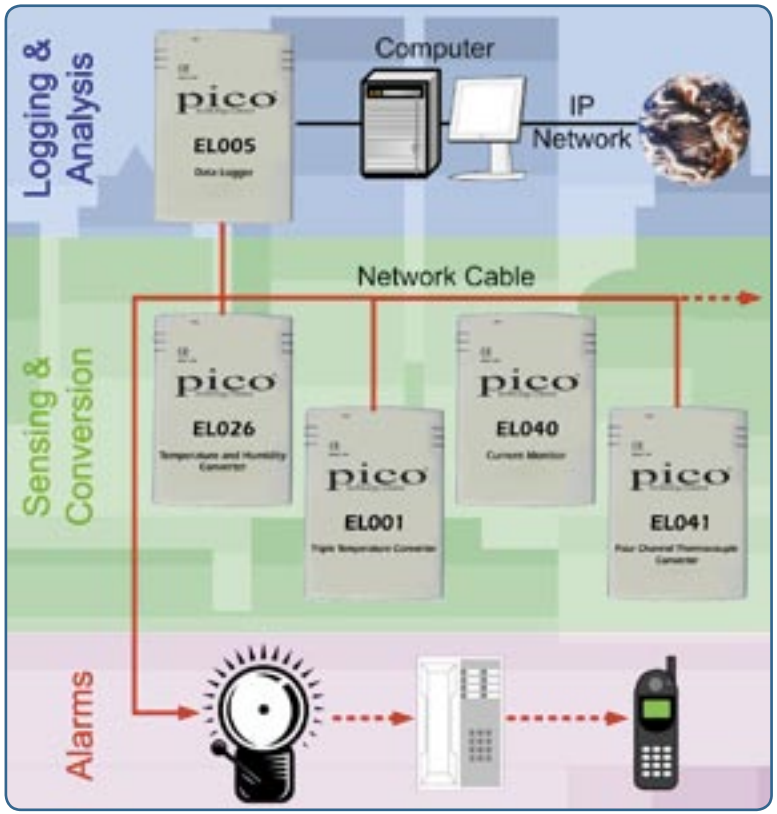
Instructions show how to:

- Change the input range (e.g. 0 V to 10 V)
- Measure current (e.g. 4–20 mA), light, temperature and pH

Description	Price £	Price $	Price €	Order No.
USB ADC-11/10	95	181	141	PP239
USB ADC-11/12	149	283	221	PP240
USB ADC-11/10 + Terminal Board	105	200	155	PP241
USB ADC-11/12 + Terminal Board	159	302	235	PP242
ADC-11 Terminal Board	15	29	22	PP053

Network Based Data Logging and Alarm System

The EnviroMon Network



EnviroMon is an extremely versatile and expandable data logging and alarm system. It is ideal for real-time monitoring of a wide range of parameters such as temperature, humidity and energy usage. It can take measurements over large areas such as warehouses, greenhouses, cold rooms and factories.

EnviroMon is made up of a number of different modules including sensors, converters, alarms and a logger. First, select a sensor suitable for the parameter that you want to measure. The converter type required will depend on the sensor you select. You can network up to ten mixed converters to a logger using EnviroMon's own cabling, and add alarm options to the system if required.

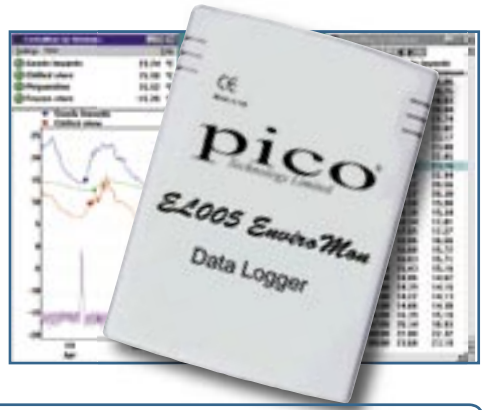
- Carries out routine measurements automatically
- Sounds an alarm when there is a problem
- Provides timely warnings of equipment failure
- Easy to install and use
- Operate with a PC or stand-alone
- Mains-powered with battery backup
- Operate and access your data via a radio GSM/phone modem
- Highly accurate sensors
- Software included

EnviroMon Systems

EnviroMon Data Loggers

EL005 Stand-alone Data Logger

- Large memory
- Internal rechargeable batteries
- Flash memory - easy software upgrade
- Connect to a PC via a serial port
- Up to 250,000 readings
- Connect up to 10 converters
- GSM/SMS support
- Print raw data, graphs and reports



At the heart of the EnviroMon system is the EL005 Data Logger, which takes readings at intervals from one minute to four hours. The logger can send reports to a printer at specified intervals or can transfer data to a computer for long term storage and graphical analysis. The logger contains back-up batteries so that it continues recording even if the mains power fails. The large memory (up to 250,000 readings) makes it ideal for recording data over long periods of time.

The logger can be used in a number of ways:

- As a local data logging system - the logger collects data unattended for a period of time, and is then connected to a PC to download.
- As a remote data logging system - the logger is sited remotely and data is downloaded periodically through a modem or the Internet.
- As a data acquisition system - the logger is permanently connected to a PC so that data can be monitored in real time or published to a website.

For more information on the EnviroMon system please visit: ***www.picotech.com***

EL005 Data Logger Specifications	
Sampling rate	1 to 240 minutes per sample
Max readings	250,000
Max no. of converters (sensors)	10 (up to 40 sensors)
PC connection	Serial port
Power	12 V DC
Backup battery	Internal rechargeable cells

EnviroMon Starter Kit

The starter kit contains everything you need to start measuring & monitoring temperature using the EnviroMon data logging system.

Contents: EL005 Data Logger, EL001 converter, 3 x EL015 sensors, power supply, EnviroMon software, cables and manual.

Description	Price £	Price $	Price €	Order No. UK (230 V)	Order No. EU (230 V)	Order No. US (110 V)
EL005 Logger	149	283	221	PP153	PP154	PP155
Starter Kit - EL005	279	530	413	PP156	PP157	PP158

EnviroMon Converters

EL040 Current Monitor Converter

The EL040 enables an EnviroMon network to monitor three AC current signals. This can be used to find out exactly where the highest power consumption is in your system.
An EL040 Kit is also available, containing all the products you need to start monitoring current. See page 29 for details.

EL040 Current Monitor Specifications	
No of channels	3
Sensor type	Current clamp
Max input voltage	1 V RMS
Input impedance	1 MΩ
Frequency range	20 Hz to 1 kHz
Accuracy	±1% (0 V to 200 mV) ±2.5% (200 mV to 1 V)
Operating temperature range	0 °C to +70 °C
Input connector	4 mm banana sockets

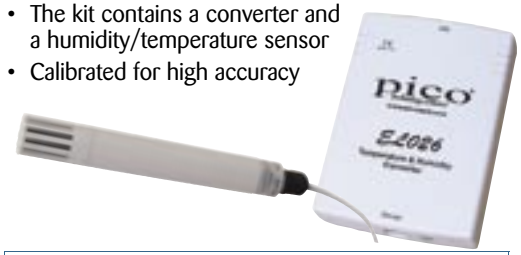
300 A AC Current Clamp

- 300 A current clamp
- No batteries required
- Monitor over long periods of time

For more detailed specifications please visit: ***www.picotech.com***

EL026 Converter and Sensor

- The kit contains a converter and a humidity/temperature sensor
- Calibrated for high accuracy



EL026 Temperature/Humidity Specifications	Temperature	Relative Humidity
Range	-20 °C to 70 °C	0 % to 95 % non-condensing
Accuracy	±0.2 °C (0 to +70 °C)	±2.5 % (0–90 %)
Resolution	0.01 °C	0.01 %

EL041 Thermocouple Converter

- The EL041 themocouple converter is designed to measure a wide range of temperatures when used with the EL005 Data Logger.
- Temperature range of –270 °C to +1820 °C.
- Features built-in Cold Junction Compensation (CJC).
- Works with all popular thermocouples.

Description	Price £	Price $	Price €	Order No.
EL040 Current Monitor	249	473	369	PP191
EL026 Converter and Sensor	199	378	295	PP047
EL041 Thermocouple Converter	199	378	295	PP217
300 A AC Current Clamp	49	93	73	TA011

EnviroMon Systems

EnviroMon Sensors

EL001 Three Channel Converter

The EL001 Three Channel Converter transforms the analogue signal from a sensor to the digital signal required by the data logger. The three channels on the EL001 can measure any mix of temperature and switch position.

- Measures temperature and switch position
- 3 input channels
- Compatible with EL015 and EL029 sensors

EL015 Temperature Sensor

- Precision resistive sensor
- Measures temperature from –30 ˚C to +70 ˚C
- Supplied with 5 m cable

EL029 Open Door Sensor

- Uses a reed switch or screw terminals
- Reports either 'Open' or 'Closed'
- Supplied with magnet

Need more help?

Our technical specialists are ready to answer your questions about the EnviroMon system or any of our products. Call us on:

+44 (0) 1480 396395

email us at:

support@picotech.com

or visit our forum at:

www.picotech.com/support

3-Channel Converter Sensor Specifications

Sensor	Parameter	Range	Resolution	Accuracy
EL015	Temperature	-30 to +70 ˚C	0.01 ˚C	±0.3 ˚C (0 to +70 ˚C)
EL029	Open door	0 % = closed 100% = open	-	-

These specifications are correct when the sensors are used with the EL001.

Description	Price £	Price $	Price €	Order No.
EL001 3 Channel Converter	99	188	147	PP124
EL015 Temperature Sensor	18	34	27	PP125
EL029 Open Door Sensor	20	38	30	PP066

Alarm and Warning Systems

As well as recording data, EnviroMon can be configured to sound an alarm if a parameter goes out of range (high or low) or if a sensor fails.

There are three main alarms:

- Remote audible alarm - use with the EL005 logger to provide an audible alarm
- Telephone autodialler - can send a voice message to a given number when there is a problem
- SMS text messages - when connected to a GSM modem, the EL005 Logger can send text messages to a mobile phone

EL006 Remote Alarm

- 65 dB alarm
- Sounds if any sensor goes out of range
- Multiple alarms can be connected to the network at any point

EL019 Autodialler

- Programmed with a list of emergency numbers
- Gives a recorded message detailing the problem

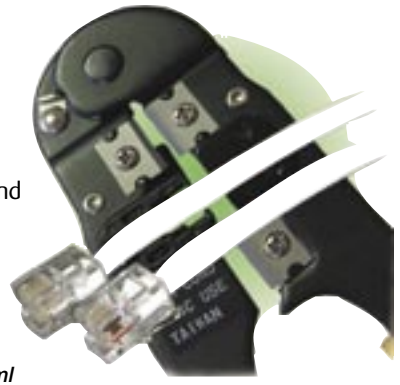
Description	Price £	Price €	Price $	Order No.
EL006 Remote Alarm	75	143	111	PP090
EL019 Autodialler	199	378	295	PP030

Cabling

Flat cable can be used for sensors and for small networks (up to three converters). Round cable can be used for larger networks. For larger networks, wall-mounted sockets and fixed cabling are more suitable than using network cables to connect each converter.

- Network connectors (PP220) are used with all network cables and are attached using the MI068 crimp tool.
- Sensor connectors (PP221) are used with all sensor cables and are attached using the MI041 crimp tool.
- Sensors can also be extended by 3 metres using the EL032 extension cable and EL020 adapter.

For more information, please visit: ***www.picotech.com/enviromon.html***



Description	Price £	Price $	Price €	Order No.
Wall Mount Socket	2.50	5	4	PP132
Network Connectors (100 off)	10	19	15	PP220
Modem Adapter	5	10	7	PP127
Crimp Tool for Sensor Connectors (4/4 Connectors)	15	29	22	MI041
Crimp Tool for Network Connectors (6/4 Connectors)	15	29	22	MI068
Network/Sensor Flat Cable (per 100 m)	20	38	30	WI001
Network Round Cable to connect to wall sockets (per 100 m)	20	38	30	WI003
Sensor Extension Connector	5	10	7	EL020
Sensor Extension Cable (3 m) and Adapter	10	19	15	PP219
Sensor Connectors (100 off)	10	19	15	PP221

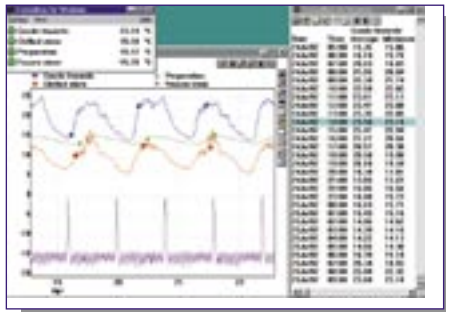
EnviroMon Systems

EnviroMon Software

EnviroMon software for Windows is included with each data logger. With EnviroMon you can:

- Configure the system: name sensors, set alarm thresholds
- Publish data to a web site
- Graphically analyse data
- Print out graphs, raw data and summary reports

For more information, please visit:
www.picotech.com/enviromon.html

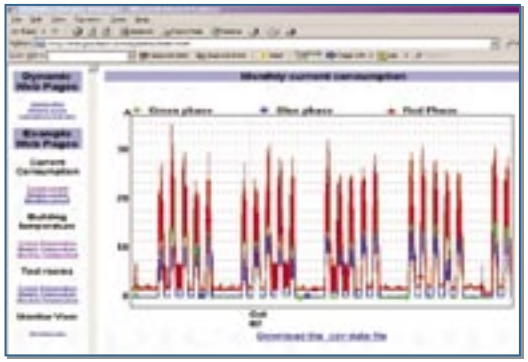


EnviroMon Dynamic Web Pages

Applications for this technology fall into two categories. The first is to publish data for the general public and your customers to view. For example, those users storing products or goods sensitive to heat, humidity or light may wish to publish measurements to demonstrate that the correct conditions have been maintained.

A second application area is the remote viewing of your own data. Examples include the remote monitoring of fridges, freezers and HVAC systems. Because the data is uploaded to a web site, it is possible to view data from several different sites simultaneously.

Even with basic web authoring tools and software it is easy to build pages that contain dynamic data. Example web pages show the data captured at our R&D facility. To view these pages and for more information on setting up your own dynamic web pages, including a simple installation guide, please visit: ***www.picotech.com/dynamic***



- Post data logger recordings on your own website
- Graphs can be viewed by anyone using standard web browsers
- Detailed results tables can be downloaded
- All enabled through easy-to-edit free software scripts
- Forms part of a powerful monitoring system

EL040 Current Monitoring Kit

The EL040 kit contains all the devices needed to start monitoring current. It includes the EL040 converter, which enables an EnviroMon network to monitor three AC current signals. This can be used to find out exactly where the highest power consumption is in your system, enabling you to improve energy efficiency and save money.

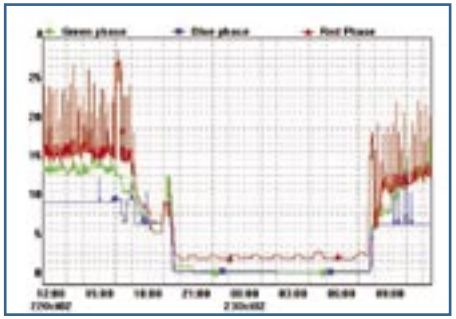
- Works with EnviroMon to monitor AC current signals
- Shows you where and when current flows
- Has extensive alarm functions that signal when current exceeds preset limits
- Can be expanded to measure more channels
- Is ideal for efficiency investigations
- Is ideal for three-phase mains measurement
- Can monitor three current transformers or current clamps at the same time

Kit Contents

- EL005 Data Logger (page 24)
- EL040 Current Monitor
- 3 x TA011 AC current clamps (page 30)
- EL003 network cable
- Power supply
- PC software, cables and manual

EL040 Current Monitor Specifications

No of channels	3
Sensor type	Current clamp
Max input voltage	1 V RMS
Input impedance	> 1 MΩ
Frequency range	20 Hz to 1 kHz
Accuracy	±1% (0 V to 200 mV) ±2.5% (200 mV to 1 V)
Operating temperature range	0 °C to +70 °C
Input connector	4 mm banana sockets



For more information on the Current Monitoring Kit, please visit:
www.picotech.com/current_monitoring.html

Description	Price			Order No.		
	£	$	€	UK (230 V)	EU (230 V)	US (110 V)
EL040 Kit	499	948	739	PP192	PP193	PP194

Sensors, Probes & Accessories

Current Clamps

Pico Technology supply a range of non-contact current clamps for applications ranging from automotive diagnostics to energy studies. All the current clamps can be used with our oscilloscopes and come with either BNC or 4 mm connectors. The clamps with 4 mm plugs can also be used with multimeters.

Choosing BNC or 4mm

The 60 A AC/DC and 600 A AC/DC current clamps are available with either BNC or 4mm connectors. The BNC versions give superior noise rejection, ideal for use in noisy environments, and can be connected directly to any of our oscilloscopes. The 4 mm versions are suitable for use with our EL040 Current Monitor Converter or with multimeters, or can be connected to an oscilloscope through our TA000 or TA020 test leads.

60 A AC/DC

- 10 mA to 60 A current clamp
- Measures both AC and DC current
- Selectable voltage output:
  1 mV per 10 mA, 1 mV per 100 mA
- 20 A and 60 A ranges

Description	Price £	Price $	Price €	Order No.
60 A AC/DC - BNC	99	188	147	PP264
60 A AC/DC - 4 mm	80	152	118	PP218

600 A AC/DC

- Measures currents up to 600 A
- Measures both AC (up to 400 Hz) and DC currents
- Low battery indicator

Description	Price £	Price $	Price €	Order No.
600 A AC/DC - BNC	99	188	147	PP266
600 A AC/DC - 4 mm	80	152	118	PP179

300 A AC

- 0.1 A to 300 A current clamp
- No batteries required
- Voltage output 1 mV AC per 1 A AC
- Supplied with 4 mm connectors

Description	Price £	Price $	Price €	Order No.
300 A AC	50	95	74	TA011

2000 A DC / 1500 A AC

- Suitable for measuring currents up to 2000 A DC or 1500 A AC.
- Supplied with 4 mm connectors

Description	Price £	Price $	Price €	Order No.
2000 A AC/DC	99	188	147	TA015

Oscilloscope Probes

Pico's ergonomically designed oscilloscope probes are suitable for use with the whole range of Pico PC Oscilloscopes.

The high-quality 60 MHz and 250 MHz passive oscilloscope probes offer accurate measurements at a low cost and are ideal for general-purpose use, whilst the active differential oscilloscope probe allows you to make floating voltage measurements using a standard oscilloscope.

Whether you require a passive or an active oscilloscope probe, the Pico range offers high-performance at an affordable price.

For more information on the oscilloscope probes Pico provides, please visit: ***http://accessories.picotech.com***

60 MHz Oscilloscope Probe x1/x10

- Standard x1 / x10 oscilloscope probe
- 60 MHz bandwidth
- 10 megohm / 15 pF input
- 600 V max. input
- 1.2 metre (4 foot) cable

250 MHz Oscilloscope Probe x1/x10

- Standard x1 / x10 oscilloscope probe
- 250 MHz bandwidth
- 10 megohm / 11 pF input
- 600 V max. input
- 1.2 metre (4 foot) cable
- Calibrated version available for use with PicoScope 5203 and 5204

Differential Oscilloscope Probe X10/X100

- Active circuitry
- x10 / x100 switchable
- ±70 V DC + peak AC (10:1)
- ±700 V DC + peak AC (100:1)
- DC to 25 MHz bandwidth
- Accuracy ±2%
- 4 megohm / 5.5 pF inputs to ground
- 4 AA cells or mains adapter

The probe permits a conventional earthed oscilloscope to measure signals that are not referenced to earth, enabling mains voltages to be tested. Ideal for investigation of motor speed controls, uninterruptible power supplies, switch mode power supplies and process controllers.

Description	Price £	Price $	Price €	Order No.
60 MHz Oscilloscope Probe, x1 / x10	15	29	22	MI007
250 MHz Oscilloscope Probe, x1 / x10	25	48	37	MI103
250 MHz probe calibrated for PicoScope 5203 & 5204	30	57	44	MI145
Differential Oscilloscope Probe, x10 / x100	195	371	289	MI053

Sensors, Probes & Accessories

Thermocouples

The Pico range of Type K thermocouples is ideal for industrial and educational use.

Thermocouple types available:

- Exposed Wire - PTFE/Fibreglass insulated
- Air Probe
- Insertion Probe
- Ribbon Surface Probe

Pico offers 1 metre Type K thermocouples as standard, and can also supply various lengths up to 10 m. Please call for further details.

SE000 SE001 SE002 SE003 SE004

Type K Thermocouple Specifications

Probe Type	Order Code	Material	Dimensions	Tip Temperature
Exposed junction wire	SE000	PTFE	Ø1.5 x 1000 mm	-75 °C to +250 °C
Exposed junction wire	SE001	Fibreglass	Ø1.5 x 1000 mm	-60 °C to +350 °C
Air	SE002	Steel	Ø4.5 x 120 mm	-50 °C to +250 °C
Penetration	SE003	Steel	Ø3.3 x 120 mm	-50 °C to +250 °C
Contact	SE004	Steel	Ø8 x 120 mm	-10 °C to +250 °C

Description	Price £	Price $	Price €	Order No.
Exposed Wire - PTFE, 1 m	6	12	9	SE000
Exposed Wire - PTFE, 2 m	8	15	11	SE027
Exposed Wire - PTFE, 3 m	9	17	13	SE028
Exposed Wire - PTFE, 10 m	18	35	27	SE029
Exposed Wire - Fibreglass, 1 m	6	12	9	SE001
Exposed Wire - Fibreglass, 2 m	8	15	11	SE030
Exposed Wire - Fibreglass, 5 m	12	23	17	SE031
Air Probe	30	58	45	SE002
General Purpose Insertion Probe	24	46	36	SE003
Ribbon Surface Probe	28	53	41	SE004

General Accessories

USB Adapters

The Pico range of USB adapters allows you to connect to parallel and serial devices through the USB port on your PC. Please note that the parallel port adapter can only be used with Pico Technology products.

PP196 MI069

- Use with PCs without serial or parallel ports
- Allow multiple units to be connected to one PC
- Can improve the performance of Pico converters
- No IRQ/COM port conflicts

Description	Price £	Price $	Price €	Order No.
USB-Parallel Port Adapter	50	95	74	PP196
USB-Serial Port Adapter	49	93	73	MI069

BNC to 4 mm Test Leads

- 3 or 5 metres (10 or 16 feet) long
- Fully screened to reduce noise pickup
- Suitable for interfacing 4 mm current clamps (see page 30) to a PC Oscilloscope

TA000

TA020

Description	Price £	Price $	Price €	Order No.
BNC to 4 mm Test Lead (3 m)	20	38	30	TA000
BNC to 4 mm Test Lead (5 m)	30	57	44	TA020

pH Electrode

- Low-cost replacement electrode for any pH meter
- BNC connector
- Operating temperature range of 0 °C to +60 °C
- Covers the full 0 to 14 pH range
- Size 12 mm x 120 mm

Description	Price £	Price $	Price €	Order No.
pH Electrode	35	67	52	DD011

PT-100 Temperature Sensors

- Platinum Resistance Thermometers (PRTs)
- Excellent accuracy and stability
- Temperature range from -50 °C to +500 °C

For more information please visit:
www.picotech.com/pt100_sensors.html

Description	Price £	Price $	Price €	Order No.
PT-100 Class A Sensor	23	44	34	SE011
PT-100 1/10 DIN Sensor	48	92	72	SE012

Additional accessories are available. Please visit our dedicated accessories website for further details: ***http://accessories.picotech.com***

Software, Drivers and Examples

Software Availability Chart

Product	Software	Drivers	Programming examples
PicoScope 2104 and 2105	PicoScope 5, PicoLog	Windows *	C, Delphi, VB, LabVIEW, Agilent VEE, Excel
PicoScope 2202	PicoScope 5, PicoLog	Windows *	-
PicoScope 3204, 3205 and 3206	PicoScope 5, PicoLog	Windows *	C, Delphi, VB, LabVIEW, Agilent VEE, Excel
PicoScope 3224 and 3424	PicoScope 5, PicoLog	Windows *	C, Delphi, VB, LabVIEW, Agilent VEE, Excel
PicoScope 5000 Series	PicoScope 6 only	Windows *	-
ADC-20 and ADC-24	PicoLog	Windows *	C, Delphi, VB, LabVIEW, Agilent VEE, Excel
USB ADC-11	PicoScope 5, PicoLog	Windows *	C, Delphi, VB, LabVIEW, Agilent VEE, Excel
USB TC-08	PicoLog	Windows *	C, Delphi, VB, LabVIEW, Agilent VEE, Excel
HumidiProbe	PicoLog	Windows *	C, Delphi, VB, LabVIEW, Agilent VEE, Excel
PT-104	PicoLog	Windows *	C, Delphi, VB, LabVIEW, Agilent VEE, Excel
EnviroMon	EnviroMon	Windows *, Linux	C, Delphi, LabVIEW

* All products are supplied with 32-bit Windows DLLs for Windows XP SP2 and Vista. Archived versions of our software supporting older versions of Windows are available from ***www.picotech.com***.

National Instruments LabVIEW

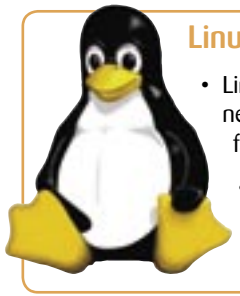
- Examples for LabVIEW are provided
- Compatible with LabVIEW versions 6.0 and 6.1

Microsoft Excel

- The example Excel macros show you how to collect data directly into the spreadsheet using our products.

Agilent VEE

- Examples for Agilent VEE
- Compatible with Agilent VEE Pro 6.1 and higher



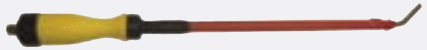
Linux Drivers

- Linux offers powerful networking and internet facilities
- No licence fees!
- Drivers developed for RedHat 6.0

Have you seen these Automotive Products?

NEW

Coil-on-plug probe



Signal pickup for ignition coils.

NEW

6-way Universal Breakout Leads

Just three sizes fit most blade-type connectors.

Oscilloscope Diagnostics Kit

This multi-award-winning kit pinpoints faults in most sensors, actuators and other electrical components.

NEW

Mixmaster

12-channel ignition signal mixer. Use with your scope to check engines with up to 12 cylinders, including wasted-spark systems.

NEW

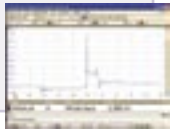
Pico Diagnostics

Free software for cylinder balance, relative compression testing and battery capacity testing.

NEW

PicoScope 6 Automotive

Now used in all our automotive oscilloscope kits. Free upgrade for PicoScope 5 Automotive users.



Ask for our Automotive Catalogue today.
Call +44 (0) 1480 396395,
email sales@picotech.com,
or visit our website

Standard Terms and Conditions of Sale

v6

1. Acceptance of Order
All contracts of sale made by Pico Technology shall be deemed to incorporate these Terms and Conditions which shall prevail over any other document or communication from the party with whom Pico Technology is dealing. All orders are accepted and fulfilled subject to these Conditions of Sale unless otherwise varied by agreement in writing.

2. Prices
Goods will be charged at the price in effect at the time of ordering. Where chargeable, VAT will be charged at the rate applicable at the time of despatch.

3. Delivery
Any time or date for delivery stated by Pico Technology shall be treated as an estimate only. Whilst every effort is made to despatch goods on time, no liability can be accepted by Pico Technology for failure to deliver within agreed times.

Pico Technology shall not be liable for any loss or damage whatsoever (including consequential loss or loss of profit) arising directly or indirectly from any delay in the delivery of all or any of the goods howsoever caused.

Pico Technology will accept no liability for shortages, damage to or non-delivery of goods unless the Customer notifies Pico Technology in writing within five days of receipt of goods.

All orders are subject to a delivery charge which includes postage, packing and insurance in transit. This charge will be added to the sales invoice. All import duties and taxes are the responsibility of the customer.

4. Payment
Pico will retain title to goods supplied until payment for the goods is received in full.

Payment Methods

When ordering direct from Pico Technology, payment will be to Pico Technology Limited. Payment terms for UK company orders (where allowed) are strictly 30 days from date of invoice.

i. Credit Card
We accept VISA, MASTERCARD and SWITCH/MAESTRO. We will need your card number, security code and expiry date (also the start date and/or issue number for Switch) and the full name and address of the cardholder with the cardholder's signature on the order. Your goods will be despatched upon receipt of your credit card details.

ii. Cheque
We can accept a Sterling, Euro or US Dollar cheque. You should ask us for a pro-forma invoice so that you can write a cheque for the correct amount including the carriage. We will despatch your goods as soon as we receive your order enclosing the cheque.

iii. Bank Draft
We can accept a bank draft made out in Sterling, Euros or US dollars. Your local bank will sell you a bank draft in one of these currencies. You should ask us for a pro-forma invoice so that you can arrange a bank draft for the correct amount including the carriage. We will despatch your goods as soon as we receive your order enclosing the bank draft.

iv. Telegraphic Transfer
We can accept payment by telegraphic transfer in Sterling, Euros or US Dollars. We will send you a pro-forma invoice against which to make payment. This will ensure that the correct amount is transferred. You should allow 7 to 10 days for the transfer. The goods will be despatched as soon as the transfer is received.

Our bank details are as follows:

Barclays Bank Plc
Hastings Branch
207/208 Queens Road
Hastings
TN34 1QP
Sort Code: 20-37-63
Account Number: 80617555

SWIFT Code: BARCGB22
GBP IBAN: GB52BARC20376380617555

If you have any queries regarding payment terms or methods, please e-mail our accounts department:

accounts@picotech.com

5. Product Specifications
Pico Technology reserve the right to alter or amend specifications without notice as part of our policy of continued improvement. Errors and omissions excepted.

6. Warranty
All Pico products are covered by a 24 month return-to-manufacturer repair warranty for parts and labour from the date of purchase against defective materials and/or workmanship provided the product has at all times been subjected to normal and proper use.

Pico Technology shall not be liable for a breach of the warranty if the defect has been caused by fair wear and tear, wilful damage, negligence, abnormal working conditions or failure to follow Pico Technology's spoken or written guidelines as to the storage, installation, commissioning, use or maintenance of the goods or (if there are none) good trade practice; or the customer alters or repairs such goods without the written consent of Pico Technology.

Extended warranty is available for an extra cost and is subject to the same warranty policy.

7. Returning an Unsuitable or Faulty Unit
In the event that your purchase does not prove suitable for your application, you can return the product within 14 days of the original dispatch date and in good-as-new condition for an exchange or refund.

If the unit becomes faulty within 24 months and has not been subject to abuse, then you may return the unit to Pico for repair or replacement free of charge.

You must contact Pico for a returns number before returning a product under warranty.

The customer is responsible for all shipping costs. Overseas customers should describe returns for customs purposes as "Customer-owned equipment for repair under warranty". Pico Technology Ltd accepts no responsibility for units returned without a returns number. The goods we send as replacements will be in a similar condition to those you returned, or better.

8. Liability
The Company's liability will be limited to the value of the goods only and not for any consequential damages or losses howsoever caused.

9. General
These terms and conditions shall be governed and construed in accordance with the Laws of England and subject to the non-exclusive jurisdiction of the English courts.

Trademarks

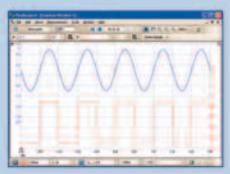
pico®
Technology

ADC-20/ADC-24
High-Resolution
Data Loggers

USB TC-08
Thermocouple
Data Logger

PicoScope 5000 Series
PC Oscilloscopes

PicoScope 6
PC Oscilloscope
software



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