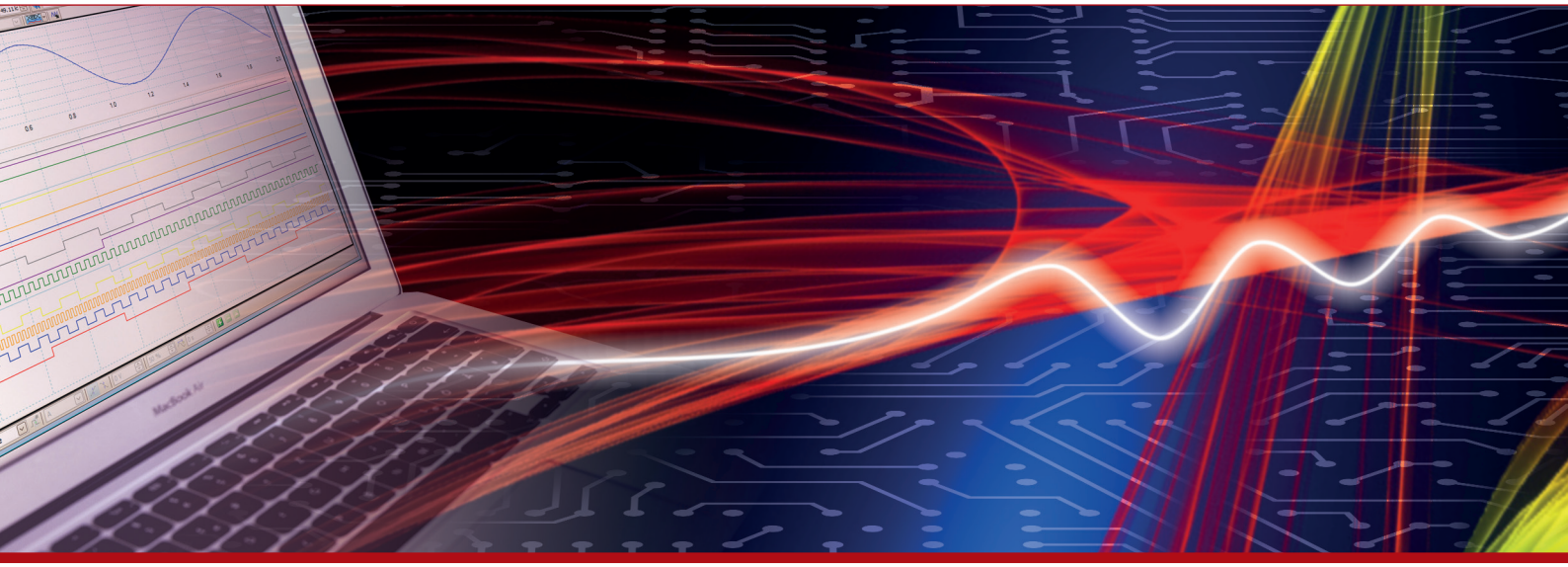
Product Datasheet - Technical Specifications



More information in our Web-Shop at ▸ **www.meilhaus.com** and in our download section.

Your contact

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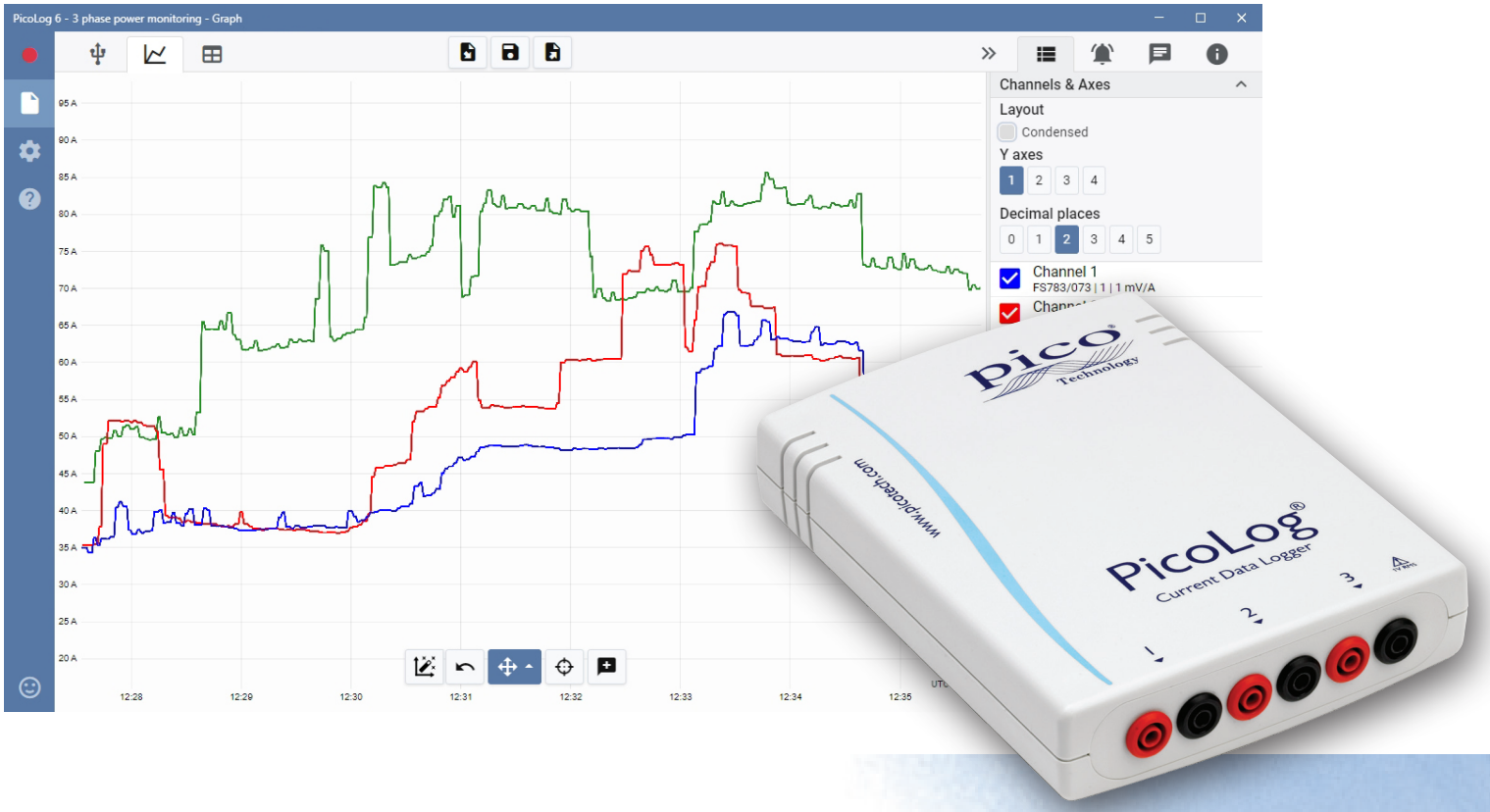
PicoLog® CM3

Current data logger



High accuracy with 24-bit resolution

Suitable for single or three-phase AC currents

Optional 0 to 200 A AC current clamps

Can also be used to measure AC RMS voltage

Up to 20 units can be run on a single PC

Connected via Ethernet (PoE compatible) or USB

Uses free PicoLog 6 data logging software

Typical applications

Mains current monitoring

Three-phase load balancing

Long-term energy use recording

Energy and cost saving / ISO14001 monitoring

PicoLog CM3 Current monitoring data logger

The new PicoLog CM3 USB/Ethernet Current Data Logger is a compact, easy-to-use instrument for measuring the current consumption of buildings and machinery. With three channels, high accuracy and low noise, it is ideal for recording data from both single-phase and three-phase AC supplies. The logger is supplied on its own or as a kit with three AC current clamps and the PicoLog software is free to download. The USB and Ethernet interfaces allow the logger to be used as a USB-only device, as a USB-powered device with Ethernet interface, or as a Power-over-Ethernet (PoE) device. Using the Ethernet interface, the PicoLog CM3 can be located anywhere on a LAN or on the internet.

Non-invasive current clamps

The CM3 measures current using industry-standard AC current clamps. These clamps have opening jaws to encircle a conductor in seconds with no direct connection to high voltages. AC current clamps require no power supply or batteries making them ideal for long-term energy-use monitoring and logging.

If you need to measure higher currents we will be happy to advise on suitable clamps for your application.

The CM3 is available on its own (and you can add your own current clamps) or as an optional cost-saving kit with three TA138 200 A AC current clamps included.

Flexible, expandable software included

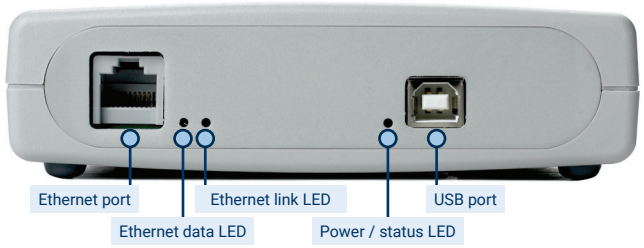
PicoLog is a complete data acquisition software package for the PicoLog CM3 current data logger. It provides a visual, easy-to-use interface to help you quickly set up simple or complex acquisitions, record, view and analyze data.

- Real-time data collection and display
- Visual logger and channel setup for easy configuration and viewing
- Available for Windows, macOS and Linux
- Virtually unlimited logging capacity to PC
- Robust database format minimizes data loss and corruption
- Simple and complex programmable alarms
- Up to 4 independent graph axes
- Data can be exported as CSV, clipboard image and PDF
- Supports multiple different PicoLog data loggers on the same PC

USB or Ethernet connection for local or remote logging

With both USB and Ethernet interfaces your PicoLog CM3 can be used in a variety of situations. If you need a portable instrument that can be used at various locations and is fast to set up and use, simply connect your laptop to the PicoLog CM3 by USB. No external power supply is required as the CM3 is powered from the USB port.

Need to monitor a situation over a period of hours or days, or from a remote location? Plug your PicoLog CM3 into a spare port on your network and then access it remotely either from your LAN or over the internet. When using Ethernet the CM3 can be powered either by Power over Ethernet (PoE) or by using the USB connection just for power.



PicoLog software – straightforward from the start

PicoLog is a complete data acquisition software package for the CM3 data logger, and is compatible with Windows, macOS and Linux. With its clear and user-friendly layout, ideal for use with a mouse or a touchscreen, PicoLog allows you to set up the logger and start recording with just a few clicks of the mouse, whatever your level of data logging experience. Set up simple or advanced acquisitions quickly, and record, view and analyze your data with ease.

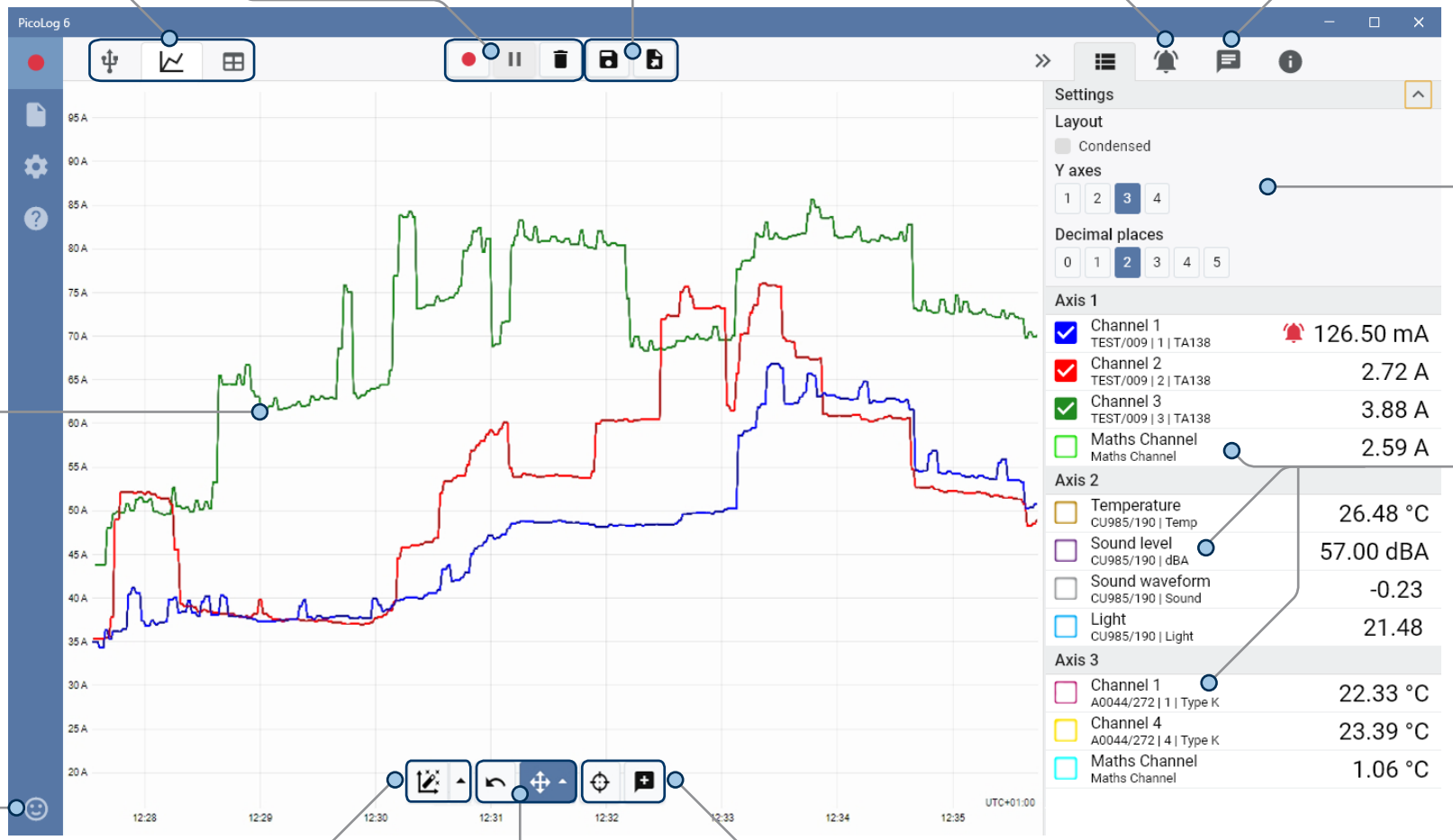
Device settings, Graph and Table
Easily set up and adjust acquisition and math channels on one or more data loggers and check their status at a glance. You can also select Graph view to see live data trend lines and Table view to see data in tabular form in real-time.

Capture controls
Separate **Record**, **Pause** and **Reset** buttons make it harder to press any of them by mistake.

Save and Export options
Copy your graph to the clipboard, save it as a PDF, export the raw data to a CSV file, or save the data and configuration as a robust picolog database file.

Alarms
Set up alarms to alert you to a range of events. Alarms can take the form of sounds, visual notifications, graph annotations and more.

Notes & annotations
Add notes about the dataset as a whole or annotations about particular points on the graph.



Pullout information panel
Manage your channel and axis settings, alarms, notes and capture information in this easy-to-read layout. Close the panel to make more room for the capture graph, and reopen it at any time.

Graph view
Display your data in real time, as it is collected, on up to four independent Y axes simultaneously: set them up by dragging and dropping the entries in the **Channels & Axes** panel on the right.

Multiple devices
Log data on up to 20 devices at the same time. Here, three separate data loggers are in use: one CM3, one DrDAQ and one TC-08.

Give instant feedback
We want to hear from you! Click here to contact Pico with your comments.

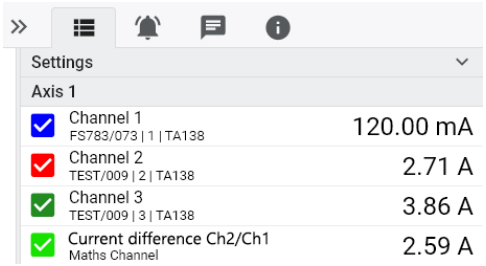
Data view
Display all the data collected so far or keep the graph scale the same and pan along as new samples appear.

Pan and zoom controls
Zoom in, zoom out, zoom to a selection or pan through the data with these tools. If you make a mistake, just click **Undo**.

Cursors and annotations
Use cursors to highlight the data value and time at any point on the graph, or click **Add annotation** to mark that point with a text note.

Math channels

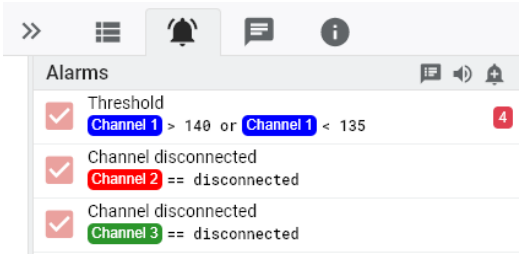
Sometimes you need to use data from one or more measurement channels to graph and record a calculated parameter. You can use the PicoLog equation editor to set up simple math channels such as A–B or more complex functions such as log, sqrt, abs, round, min, max, mean and median.



PicoLog treats math channels like any other channel, so you can still set alarms and annotate them.

Alarms

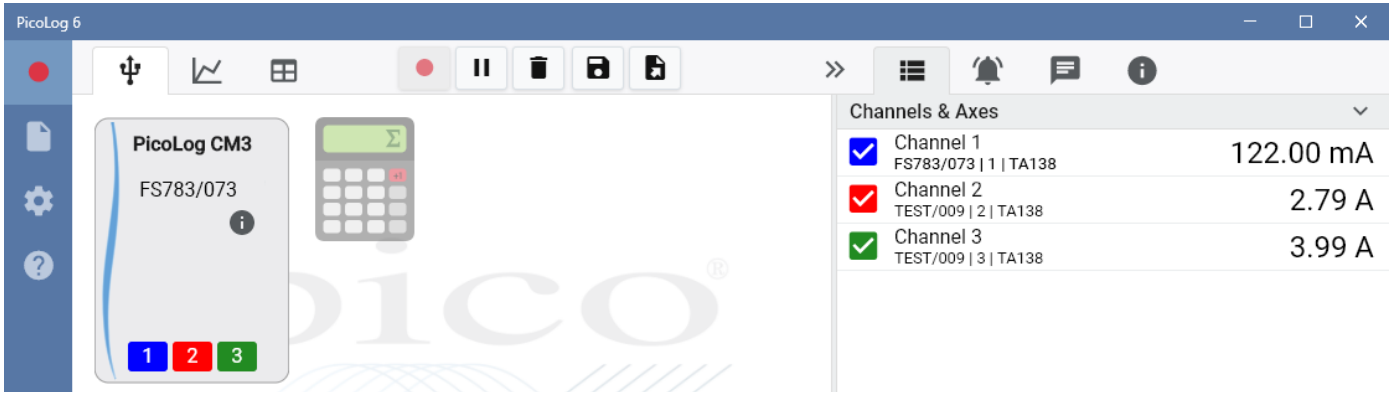
In PicoLog, you can set up alarms to alert you to various events. These can be as simple or as complex as you like: alarms can trigger on a signal threshold or disconnection of the data logger, or you can set up a logic expression of your own. Alarms can play sounds, display visual alerts, run applications or mark when the event occurred on the graph.



Intuitive logger and channel setup

The **Devices** view lets you set up a multichannel acquisition system in a simple way, with the option to use up to 20 different Pico data loggers simultaneously. PicoLog shows you an image of each connected device, so you can quickly and easily enable or disable channels and set up their properties.

On the right, you can see the device setup for current data logging on three channels.



Robust file format

At the heart of PicoLog is the file system, which stores live capture data directly to a robust database, rather than to a single file that is vulnerable to corruption and data loss. If the computer is shut down and rebooted, PicoLog will only lose the data during the outage – and will continue saving data when you restart the software.

This file system also means that the size of the dataset you can capture you is virtually unlimited – the only restriction is the size of your computer's hard disk!

The .picolog file format is compatible across all operating systems, and there is no need to set up a file to save to before the capture is complete. You can also save mid-capture if you wish to share the data collected so far. Since anyone can download and install PicoLog for free, you can easily share saved data with co-workers, customers and suppliers for offline post-analysis.

Data can be exported as CSV. In addition, you can export a PDF containing a graph, channel configuration, capture notes, annotation notes and alarm trigger history.

PicoSDK®

Pico's software development kit, PicoSDK, is available free of charge and allows you to write your own software and interface to third-party software packages.

Pico also maintains repositories of example code on GitHub (github.com/picotech), showing how to use PicoSDK with software packages such as Microsoft Excel and National Instruments LabVIEW, or with programming languages including C, C++, C# and Visual Basic .NET.

PicoSDK and the *PicoLog CM3 Programmer's Guide* are available to download from www.picotech.com/downloads.

Try the PicoLog software today!

PicoLog's built-in demo mode allows you to try out the full functionality of the software with a choice of virtual devices and simulated live data. You also can use PicoLog to view previously saved data, even with no device connected. Visit www.picotech.com/downloads and select **PicoLog Data Loggers** to get your copy.

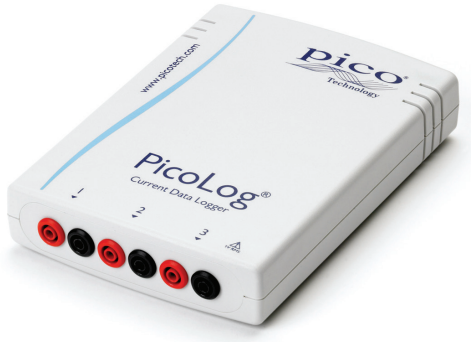
Specifications

Number of channels	3
Maximum number of units	20
Range (voltage input)	0 to 1 V AC true RMS, 20 Hz to 1 kHz
Accuracy (voltage input) **< 200 mV RMS** **< 1 V RMS**	 ±1% ±2.5%
RMS noise	60 µV
Resolution	24 bits
Conversion time per enabled channel	720 ms
Input connectors	4 mm sockets
Input impedance	> 1 MΩ, AC coupled
Overvoltage protection	±30 V DC
Software	
PicoLog and PicoSDK	Available from www.picotech.com/downloads
PicoSDK example code	Available from Pico's GitHub organization page, github.com/picotech
PicoLog user interface languages	English, French, Italian, German, Spanish, Chinese, Japanese, Korean, Russian
PC requirements	
PicoLog	Microsoft Windows 7, 8 or 10, 32-bit and 64-bit versions, macOS 10.9 (Mavericks) or later, 64-bit only, Linux*, 64-bit only Hardware requirements as operating system. * PicoLog for Linux is distributed as an AppImage, so you can install it without superuser permissions: see appimage.org for further information. The software has been tested on OpenSUSE and Ubuntu.
PicoSDK[1]	Only available for Windows. Drivers also available for 64-bit Linux and macOS.
PC interface	USB 2.0 full speed (USB 1.1 and 3.1 compatible) and Ethernet 10Base-T
[1]PicoSDK 10.6.11 are the last versions compatible with Microsoft Windows XP (SP3) and Vista SP2, and they are also compatible with the Windows versions above.	
Environmental	
Operating temperature range Operating humidity range	0 to 50 °C (20 to 28 °C for stated accuracy) 20 to 80 %RH, non-condensing
Storage temperature range Storage humidity range	–20 to +80 °C 5 to 95 %RH, non-condensing

General	
Additional hardware (supplied)	USB 2.0 cable, Ethernet cable, Quick Start Guide (three TA138 curent clamps are supplied in the optional PicoLog CM3 kit)
USB port	Conforms to USB 2.0 Full-Speed (12 Mbps)
Ethernet port	Conforms to IEEE 802.3 10Base-T. Compatible with 10/100/1000Base-T networks. Conforms to IEEE 802.3af Power-over-Ethernet (PoE).
Power requirements	Powered from USB port or Ethernet USB: 5 V ±10% @ <100 mA USB (Ethernet enabled): 5 V ±10% @ <200 mA Ethernet: 48 V ±20% @ <40 mA (< 2 W)
Dimensions	184 x 135 x 36 mm (approx 7.2 x 5.3 x 1.4 in)
Compliance	European EMC and LVD standards; FCC Rules Part 15 Class A; RoHS compliant
Warranty	5 years
Specifications - TA138 current clamp	
The TA138 current clamps supplied optionally with the PicoLog CM3 can also be connected to other brands of oscilloscopes and multimeters.	
Overvoltage protection	600 V CAT II 300 V CAT III
Range (1 mV/A)	0.1 A to 200 A AC RMS
Accuracy	±2% of reading, ±0.5 A
Maximum output impedance	1 kΩ
Bandwidth	40 to 400 Hz
Maximum conductor size	16 mm
Operating environment	0 °C to 50 °C
Storage environment	−30 °C to +60 °C
Dimensions (W x L x D)	111 x 50 x 33 mm (approx 4.3 x 1.9 x 1.3 in)
Weight	129 g (approx 4.5 oz)
Standards	EN 61010-1:2010 EN 61010-2-032:2012
For full information on current clamp specifications, characteristics and prices, go to: www.picotech.com/accessories/current-probes-clamps	

Ordering information

Product name	Description
PicoLog CM3	Three-channel current data logger
PicoLog CM3 kit	CM3 with 3 x 200 A AC current clamps



Optional accessories

Product name	Description
TA138 200 A AC current clamp (4 mm)	Current clamp for AC-only current measurements
MI106 USB 2.0 cable, 1.8 m**	Replacement Pico blue USB 2.0 cable, 1.8 m
TA268 USB 2.0 cable, 0.5 m**	Pico blue USB 2.0 cable, 0.5 m

** Pico blue USB cables are designed and built specifically for use with Pico Technology oscilloscopes and data loggers in order to minimize voltage drop and noise. Take care to use your PicoLog CM3 data logger with Pico blue USB cables only.

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