pico® Technology

TC-08

THERMOCOUPLE DATA LOGGER

LOW COST, HIGH RESOLUTION

- Measures and records up to 8 thermocouples
- Works with all popular thermocouple types
- Wide temperature range (–270°C to +1820°C)
- Built in cold junction compensation
- High resolution (20 bits) and high accuracy
- Up to 10 measurements per second
- No power supply required
- Supplied with PicoLog data logging software
- USB interface ensures problem-free installation
- Multiple units can be run on a single PC

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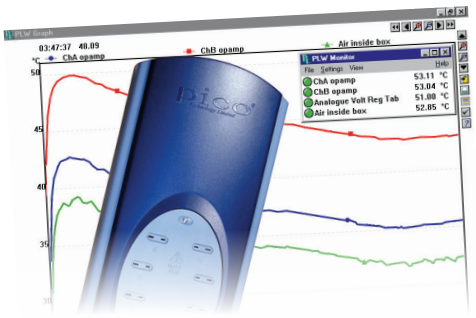
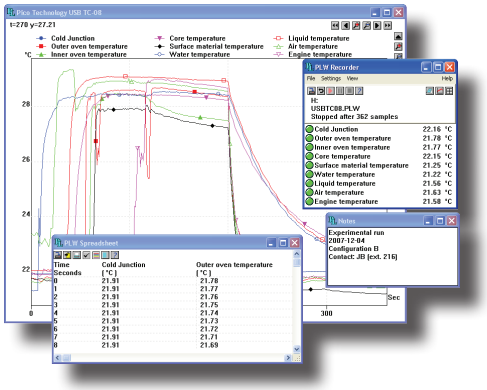
TC-08 THERMOCOUPLE DATA LOGGER

The TC-08 thermocouple data logger offers industry-leading performance and a cost-effective temperature measurement solution. With 8 direct thermocouple inputs, the TC-08 can take accurate, rapid readings. In addition, up to 20 units can be used simultaneously on one PC. The logger can measure and record temperatures ranging from –270°C to +1820°C using the appropriate thermocouple type (B,E,J,K,N,R,S,T). It draws power from the USB port, so no external power supply is needed.



PicoLog



In addition to the monitor view, PicoLog can also display a graph, a spreadsheet and user notes. It can display them all at once, as shown here, or individually in any combination.

PicoLog is a powerful but flexible data acquistion program designed for collecting, analyzing and displaying data over long or short periods of time. Data can be viewed both during and after data collection in spreadsheet or graphical format. If required, the data can also be easily exported to other applications.

SOFTWARE DRIVERS

For users who wish to write their own software or use our products with third party software, we provide, free of charge a range of software drivers and examples. Drivers are included for Windows XP (SP2), Vista and Windows 7 (32 and 64 bit). Programming examples are supplied for C, Delphi and Visual Basic, LabVIEW and Excel.

THERMOCOUPLES

Pico Technology offers both off the shelf and built to order thermocouples for use with our data logging products. The TC-08 is compatible with all popular thermocouples offering high accurance without compromising acquisition speed. Thermocouple types and temperature ranges are shown in the table below.

Type	Overall Range °C	0.1°C Resolution	0.025°C Resolution
B	20 to 1820	150 to1820	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

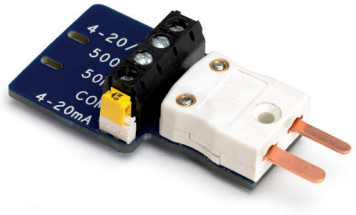
TC-08 SPECIFICATIONS

Number of channels	8
Temperature accuracy	The sum of ±0.2% and ±0.5% C
Voltage accuracy	The sum of ±0.2% and ±10 µV
Overload protection	±30 V
Voltage input	±70 mV
Reading rate	Up to 10 per second
Input connectors	Miniature thermocouple
PC connection	USB
Dimensions	201 x 104 x 34 mm

ORDER CODE

ORDER CODE	DESCRIPTION
PP222	TC-08
PP624	Terminal Board

*US dollar and euro prices are subject to exchange rate variations.
For latest prices see our website or contact us at the address below.

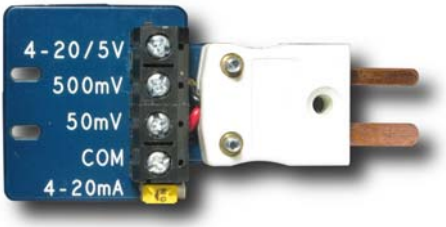


The PP624 is an optional terminal board for the TC-08. The screw terminals allow wires to be attached to the data logger without soldering and enable the TC-08 to measure voltages from 0 to +5 V, or 4-20 mA loop current.

Pico Technology James House Colmworth Business Park Eaton Socon St Neots PE19 8YP
T: +44 (0) 1480 396 395 **F**: +44 (0) 1480 396 296 **E**: sales@picotech.com
www.picotech.com

USB TC-08 Single-Channel Terminal Board

User's Guide



1 Safety notices

 You **MUST** observe the following safety notices to prevent damage to equipment and personal injury.

DO NOT do not connect the terminal board to any voltage source exceeding the maximum input range printed on the board.

DO NOT connect the terminal board to a mains (line voltage) electrical supply. The high voltage will damage or destroy the equipment and may cause serious or fatal injury.

2 Overview

2.1 Introduction

The USB TC-08 Single-Channel Terminal Board is an accessory for the Pico Technology USB TC-08 8-Channel Thermocouple Data Logger. The screw terminals allow wires to be attached to the data logger without soldering and enable the USB TC-08 to measure voltages from 0 to + 5 V or 4-20 mA loop currents.

The terminal board is designed for use with the USB TC-08 and is not guaranteed to work with other thermocouple data loggers.

2.2 Specifications

Dimensions	57 x 27 x 14 mm (approx. 2.3 x 1.1 x 0.6 in.)
Weight	12 g nominal (approx. 0.5 oz)
Terminal wire size	1.5 mm^2 solid, 1.0 mm^2 stranded, 16-26 AWG

2.3 Inputs and switch

Name	Function
4-20/5V	Input for the positive side of a 4-20 mA loop or 0 to 5 V signal
500mV	Input for the positive side of a 0 to 500 mV signal
50mV	Input for the positive side of a 0 to 50 mV signal
COM	Input for the negative side of any voltage or current signal.
4-20 mA	Set switch to "ON" for a 4-20 mA loop signal. Set switch to "OFF" for all voltage signals.

3 Measuring voltages and currents

1) Connect the negative side of your circuit to the COM terminal.
2) Connect the positive side of your circuit to the "5 V", "500 mV" or "50 mV" terminal depending on the voltage range of the signal. For a 4-20 mA loop signal, use the "5 V" input.
3) For a 4-20 mA loop signal, set the switch to "ON". For a voltage signal, set the switch to "OFF".
4) Plug the terminal board into the USB TC-08.
5) Connect the USB TC-08 to the computer using the USB cable supplied with the logger.
6) Run PicoLog on the computer.
7) Go to File -> New Settings.
8) Set the converter type to USB TC-08.
9) Edit one of the USB TC-08 channels and set the "Thermocouple" control to "mV".
10) PicoLog will display the voltage or current applied to the terminal board in the monitor window.

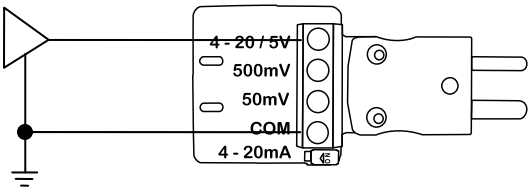


Figure 1: Example connection for measuring a 0 to 5 volt signal

Figure 2: The terminal board fitted to the USB TC-08

The voltage displayed in PicoLog corresponds to the input voltage as follows:

Input range	PicoLog voltage
0 – 5 V	0 – 50 mV
0 – 500 mV	0 – 50 mV
0 – 50 mV	0 – 50 mV
4 – 20 mA	9.6 – 48 mV

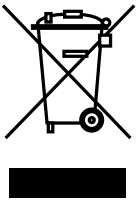
Issue history:

1) 14.9.09. New.

Pico Technology
James House
Colmworth Business Park
ST. NEOTS
Cambridgeshire
PE19 8YP
United Kingdom

Tel: +44 1480 396395
Fax: +44 1480 396296

www.picotech.com



Thermocouples

Thermocouples are an accurate yet inexpensive sensor for measuring temperatures. The Pico range of Type K thermocouples are ideal for industrial and educational use.

Thermocouple Quick Select

Cat No	Type	Temperature Range (°C)									
		-100	-50	0	50	100	150	200	250	300	350
SE000	Exposed wire										
SE001	Exposed wire										
SE002	Air										
SE003	Insertion										
SE004	Ribbon surface										

Type K Thermocouple (Exposed Wire, PTFE Insulated)

- Tip diameter: 1.5 mm
- Tip temperature: -75 to +250 °C

Cat No	Length
SE000	1 metre
SE027	2 metres
SE028	3 metres
SE029	10 metres

Type K Thermocouple (Exposed Wire, Fibreglass Insulated)

- Tip diameter: 1.5 mm
- Tip temperature: -60 to +350 °C

Cat No	Length
SE001	1 metre
SE030	2 metres
SE031	5 metres

SE002: Type K Thermocouple (Air Probe)

- Tip diameter: 4.5 mm
- Tip temperature: -50 to +250 °C
- Probe length: 120 mm

SE003: Type K Thermocouple (Insertion Probe)

- Tip diameter: 3.33 mm
- Tip temperature: -50 to +250 °C
- Probe length: 120 mm

SE004: Type K Thermocouple (Ribbon Surface Probe)

- Tip diameter: 8 mm
- Tip temperature: -10 to +250 °C
- Probe length: 120 mm