

C9040 Operator Instructions

1. INTRODUCTION

The C9040 is a handheld, thermocouple simulator. It has been designed specifically for the simple checking of thermocouple thermometers by simulating one of five selectable temperatures to give a reading on the test instrument. The C9040 is available in three versions.

C9040K type K sub-miniature plug.

C9040TM type T sub-miniature plug.

C9040TL type T lumberg plug.

The C9040 is highly stable and is supplied with a UKAS certificate of calibration.

2. PREPARATION FOR USE

A BATTERY TEST must be performed before use to ensure that enough power is available for temperature simulations.

Switch on the C9040 and set the rotary control to BATTERY TEST.

The LED on the front of the instrument marked TEST should glow brightly. If the LED is dim or does not glow at all, then the battery should be replaced.

Note: Do not leave the instrument in BATTERY TEST mode as this drains the battery quickly.

3. CONNECTING THE C9040 TO THE THERMOMETER TO BE TESTED.

Two calibration checks are possible with the C9040:

- a) A quick calibration check to an uncertainty $\pm 0.5^{\circ}\text{C}$
- b) A longer test giving readings to an uncertainty $\pm 0.2^{\circ}\text{C}$

The two types of test are described as follows:

- a) Quick Test to $\pm 0.5^{\circ}\text{C}$

This is the most likely test and will allow the instrument to be tested for basic functionality to an uncertainty of $\pm 0.5^{\circ}\text{C}$. The C9040 and the instrument on test must have been in the same ambient conditions for at least 15 minutes. Connect the C9040 to the thermometer to be tested at least 2 minutes prior to checking the calibration. Switch on the C9040 using the Blue button on the side of the instrument once. This will allow 3 minutes of continuous operation, before auto-switch off. Switch on the thermometer to be tested. Select the appropriate output on the C9040 using the rotary control. Check the reading on the thermometer to be tested. The reading should be within $\pm 0.5^{\circ}\text{C}$ \pm the instrument under test specification, of the selected temperature. No reference to the UKAS certificate is required.

b) Thorough Test to an uncertainty of +/- 0.2°C

This test is performed exactly as the above except for the following changes:

The two instruments must be left in the same environment for at least 2 Hrs and during this time the C9040 should remain connected. For best results the test should be conducted in a stable temperature environment.

NOTE (Thorough Test): When assessing the reading on the thermometer under test, an allowance must be made for the accuracy of the C9040. Refer to your UKAS certificate for details.

NOTE (All Tests): Just prior to auto-switch off readings may become erratic. To continue correct operation simply press the on/off button once more to provide another 3 minutes of continuous operation.

4. UKAS CERTIFICATION

The C9040 is supplied complete with a UKAS certificate of calibration produced in the Comark UKAS accredited calibration laboratory. To ensure continued correct operation and optimum performance it is recommended that the C9040 is returned at least annually for a calibration check and issue of new UKAS certificate.

5. SPECIFICATION

Temperature Range Type K Type T	-20°C, 0°C, +50°C, +100°C, +500°C -18°C, 0°C, +5°C, +70°C, +100°C
Each output is calibrated to be accurate to $\pm 0.2^\circ\text{C}$ at $+23^\circ\text{C}$. Refer to the UKAS certificate of calibration for calibrated results.	
Cold Junction Specification	0.05°C/°C away from +23°C
Ambient Operating Conditions Temperature Humidity	+18°C to +28°C 10-90%RH Non-condensing
Storage	0 to +40°C
Battery PP3,6LF22	
Battery life	500 hrs normal use.
Note: Extensive use of the BATTERY TEST function will seriously reduce battery life.	
EMC	Emission — EN 50081-1 No emissions above EN 55 022 Class B limits Immunity — EN 50082-1 Performance to Criterion B
Dimensions	L 117mm x W 70mm x D 35mm
Weight	120g excluding battery