

***PT100/3  
1/3 DIN PRT  
Probe***

***User Manual***

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# Guarantee

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This equipment is guaranteed against defects in materials and workmanship. This guarantee applies for twelve months from date of delivery. We will repair or replace products which prove to be defective during the guarantee period provided they are returned to us prepaid. The guarantee will not apply to:

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# PLEASE READ FIRST

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## About this manual

Please note that this manual was originally produced by Campbell Scientific Inc. primarily for the North American market. Some spellings, weights and measures may reflect this origin.

Some useful conversion factors:

<b>Area:</b> 1 in <sup>2</sup> (square inch) = 645 mm <sup>2</sup>	<b>Mass:</b> 1 oz. (ounce) = 28.35 g 1 lb (pound weight) = 0.454 kg
<b>Length:</b> 1 in. (inch) = 25.4 mm 1 ft (foot) = 304.8 mm 1 yard = 0.914 m 1 mile = 1.609 km	<b>Pressure:</b> 1 psi (lb/in <sup>2</sup> ) = 68.95 mb
	<b>Volume:</b> 1 UK pint = 568.3 ml 1 UK gallon = 4.546 litres 1 US gallon = 3.785 litres

In addition, while most of the information in the manual is correct for all countries, certain information is specific to the North American market and so may not be applicable to European users.

Differences include the U.S standard external power supply details where some information (for example the AC transformer input voltage) will not be applicable for British/European use. *Please note, however, that when a power supply adapter is ordered it will be suitable for use in your country.*

Reference to some radio transmitters, digital cell phones and aerials may also not be applicable according to your locality.

Some brackets, shields and enclosure options, including wiring, are not sold as standard items in the European market; in some cases alternatives are offered. Details of the alternatives will be covered in separate manuals.

Part numbers prefixed with a “#” symbol are special order parts for use with non-EU variants or for special installations. Please quote the full part number with the # when ordering.

## Recycling information



At the end of this product's life it should not be put in commercial or domestic refuse but sent for recycling. Any batteries contained within the product or used during the products life should be removed from the product and also be sent to an appropriate recycling facility.

Campbell Scientific Ltd can advise on the recycling of the equipment and in some cases arrange collection and the correct disposal of it, although charges may apply for some items or territories.

For further advice or support, please contact Campbell Scientific Ltd, or your local agent.



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# PT100/3 1/3 DIN PRT Probe

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Platinum resistance thermometers are high-stability temperature measurement devices suitable for very wide temperature ranges (-200°C to +650°C). The PT100/3 probe can be used for both 3-wire half bridge and 4-wire half bridge measurements when used with the appropriate Campbell Scientific Terminal Input Module (TIM).

## 1. Specifications

Element:	1/3 DIN (to IEC60751)
Typical PRT Element Error:	<±0.15°C @ -100°C <±0.1°C @ 0°C <±0.19°C @ +100°C <±0.31°C @ +200°C (excluding datalogger and bridge resistor accuracy)
Maximum temp. of standard probe:	+80°C (see Note below)
Standard cable length:	3m

### NOTE

The operating temperature range for the probe is limited by the type of cable and operating conditions. The PVC cable fitted to the standard probe should not be used at temperatures above 80°C. If the cable is subject to flexing, the lower temperature limit is -20°C. However, if the cable is rigidly fixed, without the possibility of flexing, the probe can be used in temperatures down to -50°C.

Other cable types are available to special order to cover temperatures in the range of -200°C to +650°C.

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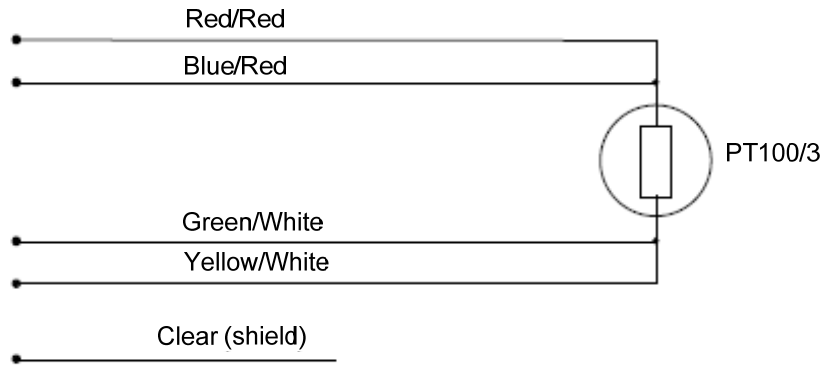
## 2. Installation

The probe can be connected in a 3-wire half bridge or a 4-wire half bridge configuration. To accomplish this it should be used with the appropriate Campbell Scientific Terminal Input Module (TIM) which contains the necessary completion resistors and connects directly to the datalogger's input terminals.

The 4-wire half bridge offers the best accuracy, and requires the 4WPB100 Terminal Input Module. This module contains both the 10kΩ and the 100Ω resistors needed. However, two differential (i.e. four single-ended) channels are required on the datalogger for 4-wire half bridge measurements. One 4WPB100 module can be shared by several probes when used with an AM416 multiplexer.

The 3-wire half bridge only requires two single-ended channels on the datalogger, and is used with the 3WHB10K Terminal Input Module, which contains the 10kΩ resistor.

For more information about the installation and use of the TIMs, please refer to the appropriate TIM manual.



*Figure 1 Schematic of PT100/3 Probe  
(two alternate colour schemes shown – depends on cable type)*

### 3. Programming

Program examples for using a PRT with all types of Campbell Scientific dataloggers are shown in the appropriate TIM manual. Additional examples are also given in the individual datalogger manuals.

### 4. Calibration

The PT100/3 probe and its associated TIM can be used without any additional calibration if that is appropriate to your field requirements. Note that the calibration at 0°C procedure described in the TIM manuals will remove offset errors in the PRT element and in the 0.01% tolerance of the 10kΩ completion resistor. However, it will not remove any temperature coefficient error in the bridge resistor in the 4-wire half bridge, nor any slope error inherent in the PT100 element.



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