

**SEMI-STANDARD PRT'S  
& SEMI-STANDARD NOBLE  
METAL THERMOCOUPLE'S**  
Instruction Leaflet

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The company is always willing to give technical advice and assistance where appropriate. Equally, because of the programme of continual development and improvement we reserve the right to amend or alter characteristics and design without prior notice. This publication is for information only.

# SEMI-STANDARD PLATINUM RESISTANCE THERMOMETERS & SEMI-STANDARD PLATINUM THERMOCOUPLES

## Guarantee

These thermometers are manufactured to exacting standards and is guaranteed for twelve months from date of shipment against electrical break-down or mechanical failure caused through defective material or workmanship, provided the failure is not the result of misuse. In the event of failure covered by this guarantee, the instrument must be returned, carriage paid, to the supplier for examination and will be replaced or repaired at our option.

If on receipt Isothermal Technology Ltd determine the failure is due to misuse, alteration, abnormal use or abnormal operating conditions then repair will be chargeable.

If there is any sign of damage on receipt keep all packing materials and immediately inform Isotech or your local supplier as appropriate.

## Warning

These thermometers contain fragile internal components that are easily damaged by mishandling. Such damage is not covered by the warranty, please handle with care and observe the recommendations in this guide.

- Do not drop, knock or expose the probe to vibration
- Do not expose the handle (or cable exit point if no handle fitted) to temperatures higher than 80°C
- Do not allow the probe to come into contact with a hazardous voltage
- Do not electrically connect the probe to anything other than a suitable measuring instrument
- Do not exceed the stated temperature ranges or damage will occur
- Do not bend the thermometer stem

Users sometimes report the internals are 'loose'. This is not the case, clearances internally allow for temperature expansion which can be considerable over the working temperature range.

## Introduction

These semi-standard platinum resistance thermometers are ideal for field and lab use. They are suitable for use as working standards in Dry Blocks and Liquid Baths or as high accuracy probes for our range of True Temperature Indicators.

All the thermometers use handmade coil wound platinum sensing elements to give high accuracy and low drift. Calibration is not included but should be specified to suit the particular operating range and application. Isotech's UKAS accredited lab can offer advice and calibrate to the smallest of uncertainties.

## PRT Universal Specifications

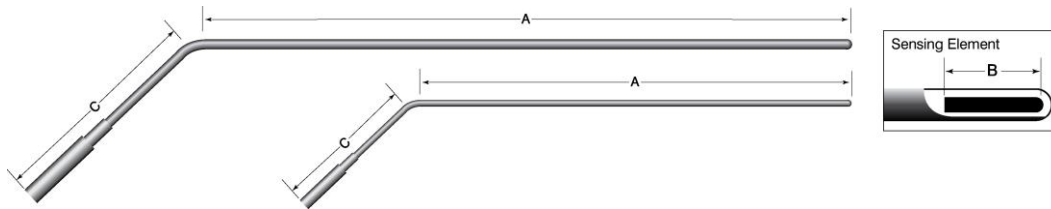
R<sub>0</sub> 100Ω ± 0.05 Ω  
Alpha 0.003850 ± 0.000005  
Standard IEC 6075 I  
Stability 0.010 Ω/year  
Recommended Current 1mA  
Self Heating at 1mA 0.004°C  
Connection Four Wire  
Max. Handle Temperature 80°C

## PRT Specifications

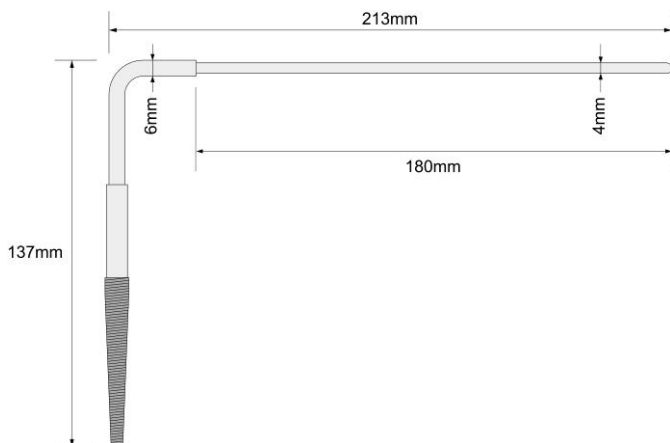


Model	Range	Diameter	Length (A)	Sensing Length (B)	Handle (C)	Cable	Application
935-14-112	-50°C to 250°C	3mm	225mm	6mm	No Handle	2m PTFE	General Purpose/TTI-10
935-14-61	-50°C to 250°C	4mm	300mm	6mm	19 x 120mm	2m PTFE	Fast Response, Low Stem Conduction
935-14-13	-196°C to 250°C	6mm	350mm	25mm	19 x 120mm	2m PTFE	Low Temperature
935-14-113	-100°C to 250°C	6mm	350mm	25mm	19 x 120mm	2m PTFE	General Purpose
935-14-16	-100°C to 450°C	6mm	450mm	25mm	19 x 120cm	2m PTFE	General Purpose
935-14-116	-100°C to 450°C	6mm	350mm	25mm	19 x 120mm	2m PTFE	General Purpose/fits milliK Carry Case
935-14-72	-50°C to 670°C	6mm	375mm	25mm	No Handle	2m PTFE	Fits Jupiter/Gemini Carry Case
935-14-98	-50°C to 350°C	4mm	300mm	8mm	No Handle	2m PTFE	Low Stem Conduction
935-14-95L	-200°C to 165°C	6mm	480mm	25mm	25 x 115mm	2m PTFE	Working Standard
935-14-95H	-80°C to 670°C	6mm	480mm	25mm	19 x 120mm	2m PTFE	Working Standard

## Angled Probes

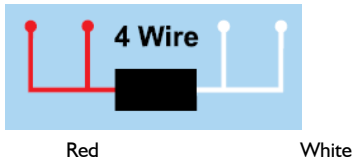


Model	Range	Diameter	Length (A)	Sensing Length (B)	Handle (C)	Cable	Application
935-14-82	-50°C to 250°C	4mm	165mm	6mm	50mm	1.5m PTFE	Europa, Venus, Calisto
935-14-85	-50°C to 250°C	6mm	385mm	25mm	35mm	0.54m PTFE	Oceanus-6



Model	Range	Sensing Length	Cable	Application
935-14-75	-50°C to 250°C	6mm	2m PTFE	Europa, Venus, Calisto
935-14-78	0 to 600°C	25mm	2m PTFE	Gemini, Jupiter

## Lead Wire Identification



## General Tips

As stated above, always handle probes carefully, avoiding knocks. For high temperature probes allow the probe to cool below 450°C, or lower, before moving the thermometer. Keep the probe clean and take care not to immerse the handle or cable in liquid. Check the probe regularly in between calibrations, ideally at the Water Triple Point or against a second probe or a carefully maintained ice point. In order to make good measurements, ensure adequate immersion to eliminate or minimise immersion errors or stem losses. The Isotech website has useful information on this subject.

## Noble Metal Semi Standard Thermocouples

Model	Range	Diameter	Length (A)	Application	Type
935-14-91/R	0°C to 1300°C	5mm	300mm	Pegasus	R
935-14-91/S	0°C to 1300°C	5mm	300mm	General Purpose	S
Termination: IM extension cable to miniature plug					
935-14-88/R	0°C to 1300°C	5mm	300mm		S
Termination: IM platinum cable to miniature plug					

Isotech Noble Metal Semi Standard Thermocouple probes are made from high purity platinum wires in a ceramic sheath construction. These thermocouples are suitable for use as high temperature reference probes in Isotech Dry Blocks and for general purpose measurement with Isotech Indicators such as the milliK.

Calibration is not included but should be specified to suit the particular operating range and application. Isotech's UKAS accredited laboratory can offer advice and calibrate to the smallest of uncertainties.

Always handle with care as the sheath is fragile and easily broken. Protect the thermocouple from sources of contamination such as metal vapours and keep the sheath clean.

In addition to Semi Standard models Isotech can supply Laboratory Standard Thermocouples both with and without external cold junctions, refer to website.