

# ISOCAL - 6 Range Europa • Venus • Calisto

- 35 x 160mm Calibration Volume
- The Most Flexible Temperature Calibrator
- S model includes Universal Input Temperature Indicator
- Windows Software and PC Interface

These models will calibrate temperature probes from -45°C to 250°C with unrivalled flexibility. As a traditional Dry Block, several thermometers can be quickly calibrated. Accessories are available to convert to a stirred liquid bath, for surface sensor calibration, to calibrate infrared thermometers and even to use as an ITS-90 Fixed Point System with calibration uncertainties as small as 0.0005°C.

These award winning calibrators are easy to use - see the pictorial guide. For simple tests and checking of probes, these can be compared to the values shown on the advanced digital temperature controller. The SITE model includes an independent temperature indicator which, combined with a reference probe, ensures traceability, best practise, adherence to quality standards and calibration to the smallest of uncertainties. A three point traceable calibration certificate is included as standard with all models.

Isotech is a world leader in temperature calibration, providing many nations with their Primary Standards and operates a full scale UKAS accredited calibration laboratory. UKAS calibration at five points is optional and is provided from our in-house laboratory.

Benefit from our experience and understanding in calibration at all levels, our evaluation reports, our tutorials and uncertainty calculations.

These models meet the calibration capacity requirements of EURAMET/cg-13/v.01, "EA Guidelines on the Calibration of Temperature Block Calibrators, formerly EA10/13.



<http://www.isotech.co.uk/industrial/>



## Specification

Model	Europa 6 <sup>PLUS</sup>	Venus <sup>PLUS</sup>	Calisto <sup>PLUS</sup>
Temperature Range	-45°C to 140°C (1)	-35°C to 140°C (2)	30°C to 250°C (3)
Stability	Dry Block: ±0.03°C, Blackbody: ±0.3°C, Surface Sensor: ±0.5°C, Liquid Bath: ±0.025°C, ITS-90 Cells: ±0.0005°C, Ice Bath: ±0.001°C (not Calisto)		
Accuracy (4)	0.15°C	0.15°C	0.25°C
Uniformity - Between Wells Dry Block Mode (Radial)	<0.008°C	<0.008°C	<0.02°C at 250°C
Uniformity - Radial Liquid Bath Mode	<0.02°C	<0.02°C	<0.011°C at 250°C
Uniformity - Lower 40mm (Axial) Dry Block Mode	<0.040°C	<0.040°C	<0.25°C
Uniformity - Lower 40mm (Axial) As Liquid Bath	<0.026°C	<0.026°C	<0.02°C at 250°C
Heating Time	-30°C to 140°C: 15 Mins	-30°C to 140°C: 15 Mins	25°C to 250°C: 15 Mins
Cooling Time	140°C to 0°C: 15 Mins	140°C to 0°C: 15 Mins	250°C to 30°C: 25 Mins
Insert Diameter	35mm		
Immersion Depth	160mm		
Insert Types	Choice of Three - See Accessories		
PC Interface	Included - Supplied with PC Cable and Software		
Power	300 Watts	150 Watts	300 Watts
Voltage	115Vac or 230 Vac 50/60Hz		
Dimensions	302 x 176 x 262 mm		
Weight	14kg	10.2kg	8kg

(1) In ambient of 20°C: Minimum Temperature is 65°C Below Ambient, Absolute Minimum -55°C

(2) In ambient of 20°C: Minimum Temperature is 55°C Below Ambient, Absolute Minimum -45°C

(3) In ambient of 20°C

(4) Dry Block Mode only: Comparing 4.5mm Well to Controller Display Value.

A three point traceable calibration certificate is included. UKAS calibration options available, contact Isotech for advice and options.

Features (Basic & Site)	Europa 6 <sup>PLUS</sup>	Venus <sup>PLUS</sup>	Calisto <sup>PLUS</sup>
Dry Block	✓	✓	✓
Stirred Liquid Bath Option	✓	✓	✓
Stirred Ice Bath Operation	✓	✓	–
Surface Sensor Option	✓	✓	✓
Infrared Calibration Option	✓	✓	✓
ITS-90 Fixed Point Cells	Mercury, Water, Gallium	Water, Gallium	Gallium
Additional 8mm Pre-heat Pocket	✓	✓	✓
Configurable Units: °C, °F and K	✓	✓	✓
Supply Voltage Power Correction with Digital Filtering	Provides High Stability protecting against noise and supply voltage variation		
Additional Features (Site)			
Independant Temperature indicator	✓	✓	✓
Universal Input Types PT100	✓	✓	✓
Thermocouples Types K,N,R,S,L,PL2,T,J,E	✓	✓	✓
Linear Process Inputs Including 4-20 mA	✓	✓	✓
Stand Alone Thermostat Testing	✓	✓	✓
Thermostat Testing With PC	✓	✓	✓
Five Point Digital Probe Matching	✓	✓	✓
Configurable Units: °C, °F and K	✓	✓	✓

# Isocal-6 Ultimate Flexibility - Europa, Venus & Calisto

Calibrate all sensor types - Thermocouples, PRT's, Thermistors, Thermostats, Infrared, Surface Sensors...

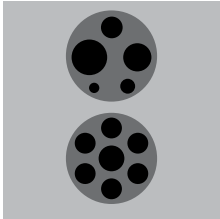


## 1 Dry Block Mode with Inserts

**951-02-15** An Insert is included: (2 x 4.5mm, 2 x 6.4mm, 1 x 8mm & 1 x 9mm) x 157mm Deep.

All Inserts have a 4mm tapped hole to suit supplied extractor tool.

### Alternative Inserts



**951-06-07** Standard Insert type B 13mm, 10mm, 8mm, 5mm and 3.5mm dia. holes, all 157mm deep

**951-06-08** Special Insert type C 8mm, 6 x 6.5mm dia. holes, all 157mm deep

**951-02-15A** Blank Insert without pockets for local machining. Includes M4 tapped hole for supplied extractor tool.

**951-02-15C** Custom insert. Isotech can provide custom drilled pockets, minimum of 3mm separation between holes. Contact with your requirements.

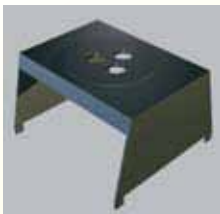


## 2 Stirred Liquid Mode with Liquid Container Kit

Allows liquid bath use, includes container, magnetic stirrer, probe guide and sealing cap. **951-06-01**

## 3 Stirred Ice Bath Mode with Liquid Container Kit

Uses same liquid kit to provide 0°C reference as a stirred ice bath (Not Calisto)



### Additional Accessories for use with the above kit

#### Thermometer Support Kit

**951-06-03** Allows three thermometers to be suspended in the bath, including liquid in glass types

#### Oils

**520-05-01** C10 Oil -35°C – 140°C 0.1L

**951-06-06** C20 Oil 20°C – 200°C 0.1L

**953-04-01** VH Oil 150°C – 250°C 0.1L



## 4 Infrared Calibration Mode with Blackbody Target

**951-06-04** Use optional Probe 935-14-82 placed in the auxiliary block pocket for use as a reference.



## 5 Surface Sensor Calibration with Surface Sensor Kit

**951-06-02** Includes angled platinum resistance thermometer.

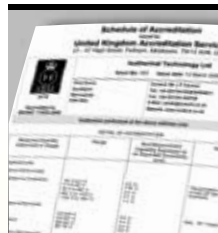


## 6 ITS-90 Fixed Point Cells

**17724M** Slim Mercury Cell (Europa Only).

**B8** Water Triple Point Cell (Venus and Europa)

**17401M** Slim Gallium Cell (Europa, Venus and Calisto)



### UKAS Calibration

UKAS Calibration available to order, legally traceable in more than 70 countries.



### Standard Probe

**935-14-82/DB** Platinum Resistance Thermometer.

4.5mm diameter  
Angled head feature avoids sensors in block.



### Carrying Case

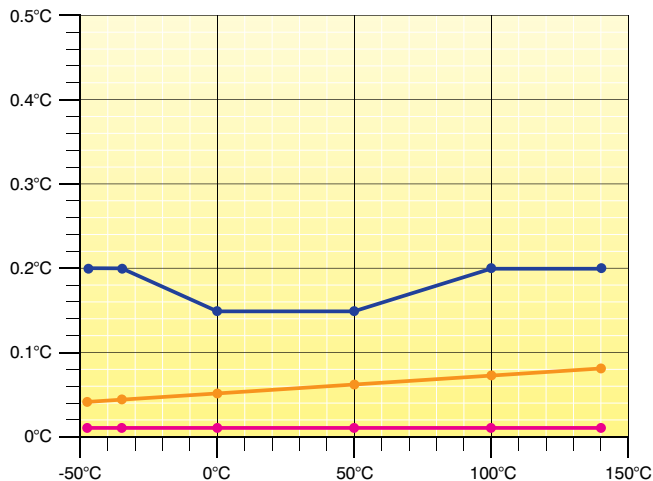
**931-22-64** Sturdy case accommodates the unit with room for accessories

### How To Order

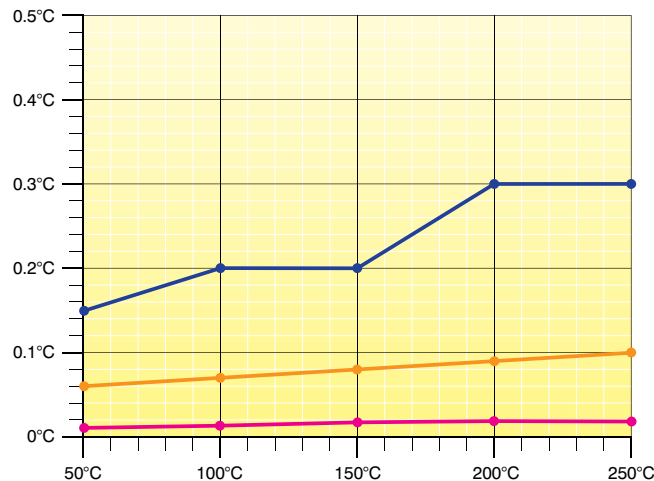
Specify Model, Basic or Site, Supply Voltage, Accessories and if UKAS Calibration is required.

# Isocal-6 Performance and Use

**Venus and Europa**



**Calisto**



- Uncertainty of Site Model and Reference Probe with optional UKAS Calibration
- Audit Calibration: Method comparing a PRT to UKAS Calibrated S model
- Radial Homogeneity. Use for similar probes and external indicator

See Evaluation Reports for full details  
<http://www.isotech.co.uk/refer.html>

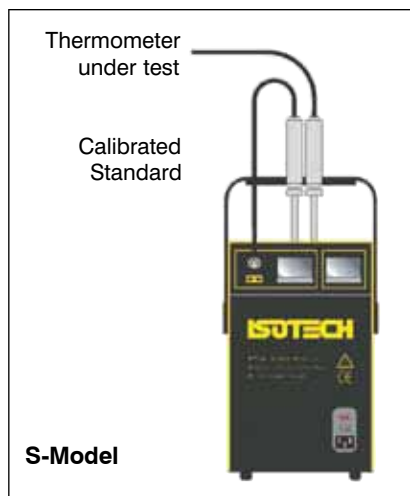
## Alternative Methods of Calibrating with an Isocal-6



### A Basic Dry Block Calibrator

For quick and easy Testing and Calibration. Relies on using the temperature controller value, "controller accuracy".

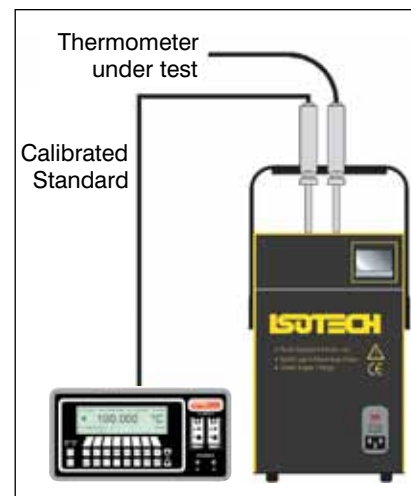
Using a standard thermometer (not shown) compensates for temperature gradients and loading errors giving best performance.



### An ISO 9000 Calibration System

Thermometer under test is compared to a calibrated standard and inbuilt independent temperature indicator.

For best practice calibration with established traceability and uncertainty.



### Using an External Indicator

Thermometer under test is compared to a calibrated standard and external temperature indicator.

For best practice calibration with established traceability and uncertainty.

One indicator may be used with several Isocal-6 or similar.

Calibration is needed only for the probe and indicator.

*For liquid bath, surface sensor or black body always use a standard thermometer connected to the S-model or stand alone indicator as above.*



**UKAS Calibration** available for these systems - *International Traceability - Best Practice*