

# PTCt-350

## Professional Temperature Calibrator

33 to 350 °C / 91 to 662 °F



The PTCt-125 is shown with  
option RG

Professional temperature calibration from 33 to 350 °C (91 to 662 °F)  
Reliable performance for laboratory and field calibration of temperature sensors.

# Product overview

The PTCt-350 Series builds on the proven PTC platform and introduces an updated user interface, enhanced calibration functionality, and extended connectivity, while maintaining the accuracy, stability, and flexibility of the original PTC design.

The PTCt-350 is a dry-block temperature calibrator designed for calibration tasks in the medium temperature range. It provides a stable and repeatable temperature source for testing and calibration of temperature sensors, including RTDs, thermocouples, transmitters, and temperature switches.

## PTCt platform – value highlights

The PTCt Series introduces a set of improvements focused on practical calibration work:

- Touchscreen user interface with configurable views
- Built-in automation features such as Auto Step and switch testing
- Dual sensor-under-test capability for parallel calibration (model B)
- Graphical calibration indication (Option RG)
- Integrated connectivity with support for documentation and data transfer (Option RG)



*The PTCt-125 is shown with  
option RG*

## Typical applications

The PTCt-350 is designed for industrial calibration applications requiring stable and accurate temperature control in the medium to high temperature range.

Typical applications include:

- Calibration of process temperature sensors used in autoclaves, sterilization processes, and UHT systems
- Verification of temperature uniformity in sterilizers, ovens, process chambers, and powder processing equipment
- Calibration of sensors in chemical and manufacturing processes
- Calibration of transmitters and temperature switches in maintenance and service

The PTCt-350 is well suited for applications where consistent temperature control is critical for process quality, validation, and compliance in industrial environments,

# Specifications for PTCT-350

## Functional Specifications

### Temperature Range

@ ambient temp. 23°C / 73°F ..... **33 to 350°C / 91 to 662°F**

Patented heating technology: Patent No. EP2399107/US8721173

### Accuracy with External STS Ref. Sensor

**± 0.08°C / ± 0.14°F**

**± 0.14°C / ± 0.25°F**

\*12-month period. Relative to reference standard. Specifications by use of the external JOFRA STS-150 A 935 reference sensor.

\*\* Total system accuracy, 12 months, incl. STS-150 A 935 sensor and calibration uncertainty with accredited system calibration (ISO/EN/IEC 17025)5

### Accuracy with Internal Ref. Sensor

**± 0.2°C / ± 0.36°F**

Specification when using the internal reference. (Load 4 mm OD reference probe in the center of the insert).

### Stability

**± 0.02°C / ± 0.036°F**

Measured after the stability indicator has been on for 10 minutes.  
Measuring time is 30 minutes.

### Radial Homogeneity

(difference between holes)

**0.02°C / 0.036°F**

### Resolution (user selectable)

All Temperatures ..... **1° or 0.1° or 0.01°**

### Temperature Unit in Display

User Selectable ..... **°C, °F, or K**

### Heating Time

33 to 350°C / 91 to 662°F ..... **7 minutes**

### Cooling Time

350 to 100°C / 662 to 212°F ..... **19 minutes**

100 to 50°C / 212 to 122°F ..... **12 minutes**

### Time to Stability (approx.)

**10 minutes**

## Electrical

### Mains Specifications

Voltage ..... **115V (90-127) / 230V (180-254)**

Frequency, non US Deliveries ..... **50 Hz ±3, 60 Hz ±3**

Frequency, US Deliveries ..... **60 Hz ±3**

Power Consumption (max.) ..... **1150 VA**

### Switch Input (model B)

#### Switch Dry Contacts

Test Voltage ..... **Maximum 2.5 VDC**

Test Current ..... **Maximum 0.7 mA**

### Communications Interface

Serial Data Interface ..... **USB 2.0 Device Port**

Serial Data Interface ..... **USB 2.0 Host Port (3x)\***

LAN ..... **Ethernet MAC 10/100 Base-T\***

## Physical Specifications

### Weight and Instrument Size

Weight ..... **8.3 kg / 18.3 lb**

(LxWxH) ..... **363 × 171 × 360 mm / 14.3 × 6.7 × 14.2 in**

### Shipping

In cardboard box,

Weight ..... **10.3 kg / 22.7 lb**

(LxWxH) ..... **520 × 320 × 480 mm / 20.5 × 12.6 × 18.9 in**

In carrying case in cardboard box

Weight ..... **16.0 kg / 35.3 lb**

(LxWxH) ..... **600 × 350 × 530 mm / 23.6 × 13.8 × 20.9 in**

In wheeled carrying case in cardboard box with pallet

Weight ..... **23.5 kg / 51.8 lb**

(LxWxH) ..... **530 × 450 × 620 mm / 20.9 × 17.7 × 24.4 in**

### Well Diameter

**26 mm / 1.02 in**

### Immersion Depth

**140 mm / 5.5 in**

### Insert Dimensions

Diameter ..... **25.8 mm / 1.02 in**

Length ..... **150 mm / 5.91 in**

### Miscellaneous

Operating Temperature ..... **0 to 40°C / 32 to 104°F**

Storage Temperature ..... **-20 to 50°C / -4 to 122°F**

Humidity ..... **0 to 90% RH**

Protection Class ..... **IP-10**

# Specifications

## STS-150-A-935 External Reference Sensor

### Temperature Range

0 to 350°C/32 to 662°F

### Accuracy

Hysteresis @ 0°C/32°F ..... **0.01°C / 0.02°F**  
Long Term Stability @ 0°C/32°F ..... **typ. 0.016°C / 0.029°F**  
Repeatability ..... **0.004°C / 0.007°F**  
Stability when exposed to maximum temperature for 100 hours.

### Sensing Element

Pt100

### Response Time

t<sub>05</sub> (50%) ..... **7 seconds**  
t<sub>09</sub> (90%) ..... **18 seconds**  
Liquid in motion, 0.4 m/sec.

### Dimensions

Diameter ..... **4 mm / 0.157 in**  
Length ..... **165 mm / 6.50 in**

## Input Specifications

All input specifications apply to the dry-block of the calibrator running at the respective temperature (stable plus an additional 20 minute period).  
Input specifications are **not** applicable to the A models.

### RTD Reference Input (models B and C)

Type ..... **4-wire RTD with true ohm measurements (1)**  
F.S. (Full Scale) ..... **400 ohm**  
Accuracy (12 months) ..... **±(0.003% rdg. + 0.0007% F.S.)**

| RTD Type           | Temperature |     | 12 Months |       |
|--------------------|-------------|-----|-----------|-------|
|                    | °C          | °F  | °C        | °F    |
| Pt100<br>Reference | 0           | 32  | ±0,02     | ±0,03 |
|                    | 155         | 311 | ±0,03     | ±0,04 |
|                    | 350         | 662 | ±0,03     | ±0,06 |
|                    |             |     |           |       |

(1) True ohm measurement is an effective method to eliminate errors from induced thermoelectrical voltage.

### RTD Sensor Under Test Input (model B)

F.S. (range) ..... **400 ohm**  
Accuracy (12 months) ..... **±(0.006% Rdg.+0.002% F.S.)**  
F.S. (range) ..... **4000 ohm**  
Accuracy (12 months) ..... **±(0.006% Rdg. + 0.005% F.S.)**  
2-wire ..... **add 50 mOhm**

| RTD Type           | Temperature |     | 12 Months |       |
|--------------------|-------------|-----|-----------|-------|
|                    | °C          | °F  | °C        | °F    |
| Pt1000<br>(90) 385 | 0           | 32  | ±0,07     | ±0,12 |
|                    | 155         | 311 | ±0,08     | ±0,15 |
|                    | 350         | 662 | ±0,10     | ±0,18 |
| Pt500<br>(90) 385  | 0           | 32  | ±0,12     | ±0,22 |
|                    | 155         | 311 | ±0,14     | ±0,24 |
|                    | 350         | 662 | ±0,16     | ±0,28 |
| Pt100<br>(90) 385  | 0           | 32  | ±0,04     | ±0,07 |
|                    | 155         | 311 | ±0,05     | ±0,08 |
|                    | 350         | 662 | ±0,06     | ±0,11 |

Supported resistance sensors types: Pt10(90)385, Pt50(90)385, Pt100(90)385, Pt200(90)385, Pt500(90)385, Pt1000(90)385 Pt50(90)391, Pt100(90)391, M50(90)428, M100(90)428, Pt100(90)392, H120(90)672, PT100 Mill and YSI-400.

### Thermocouple Input

Range ..... **± 78 mV**  
F.S. (Full Scale) ..... **78 mV**  
Accuracy (12 months) ..... **±(0.02% Rdg. + 0.01% F.S.)**

Refer to the table in the next column.

| TC Type | Temperature |     | 12 Months* |       |
|---------|-------------|-----|------------|-------|
|         | °C          | °F  | °C         | °F    |
| E       | 0           | 32  | ±0,14      | ±0,24 |
|         | 155         | 311 | ±0,14      | ±0,25 |
|         | 350         | 662 | ±0,17      | ±0,30 |
| J       | 0           | 32  | ±0,16      | ±0,28 |
|         | 155         | 311 | ±0,18      | ±0,31 |
|         | 350         | 662 | ±0,22      | ±0,38 |
| K       | 0           | 32  | ±0,20      | ±0,36 |
|         | 155         | 311 | ±0,23      | ±0,41 |
|         | 350         | 662 | ±0,26      | ±0,46 |
| N       | 0           | 32  | ±0,31      | ±0,55 |
|         | 155         | 311 | ±0,28      | ±0,50 |
|         | 350         | 662 | ±0,28      | ±0,50 |
| R       | 0           | 32  | ±1,48      | ±2,65 |
|         | 155         | 311 | ±0,97      | ±1,74 |
|         | 350         | 662 | ±0,83      | ±1,50 |
| S       | 0           | 32  | ±1,45      | ±2,61 |
|         | 155         | 311 | ±1,01      | ±1,81 |
|         | 350         | 662 | ±0,89      | ±1,61 |
| T       | 0           | 32  | ±0,21      | ±0,37 |
|         | 155         | 311 | ±0,19      | ±0,33 |
|         | 350         | 662 | ±0,19      | ±0,34 |

\* Excludes CJC accuracy ± 0.35°C / ±0.63°F

# Predrilled Inserts PTCt-350

## Predrilled Inserts

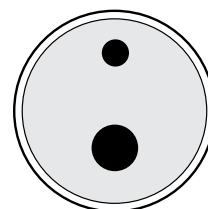
All predrilled inserts have holessensor under test selected diameter and for: 4 mm reference sensor

| Sensor Diameter          | Ordercode |
|--------------------------|-----------|
| 3 mm                     | 127990    |
| 4 mm                     | 127991    |
| 5 mm                     | 127992    |
| 6 mm                     | 127993    |
| 7 mm                     | 127994    |
| 8 mm                     | 127995    |
| 9 mm                     | 127996    |
| 10 mm                    | 127997    |
| 11 mm                    | 127998    |
| 12 mm                    | 127999    |
| 13 mm                    | 128000    |
| 14 mm                    | 128001    |
| 15 mm                    | 128002    |
| Package of Above Inserts | 128004    |

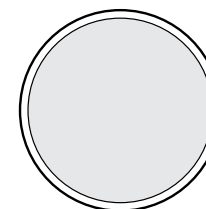
| Sensor Diameter          | Ordercode |
|--------------------------|-----------|
| 1/8 in                   | 128005    |
| 3/16 in                  | 128006    |
| 1/4 in                   | 128007    |
| 5/16 in                  | 128008    |
| 3/8 in                   | 128009    |
| 7/16 in                  | 128010    |
| 1/2 in                   | 128011    |
| 9/16 in                  | 128012    |
| 5/8 in                   | 128013    |
| Package of Above Inserts | 128014    |

## Undrilled Inserts

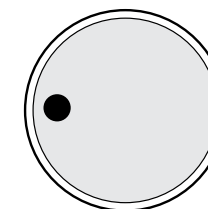
| Inserts                                                               | Ordercode |
|-----------------------------------------------------------------------|-----------|
| 5-pack, undrilled inserts with no holes                               | 127988    |
| 5-pack, undrilled inserts with 1 hole for STS reference sensors (4mm) | 127989    |
| Undrilled insulation plug                                             | n/a       |



Predrilled Insert



Undrilled Insert



Undrilled Insert

Inserts for PTCt-350 are made of aluminum. All specifications on hole sizes refer to the outer diameter of the sensor-under-test.

The correct clearance size is applied in all predrilled inserts.

## Ordering information

Inserts are not included with the instrument and must be ordered separately.

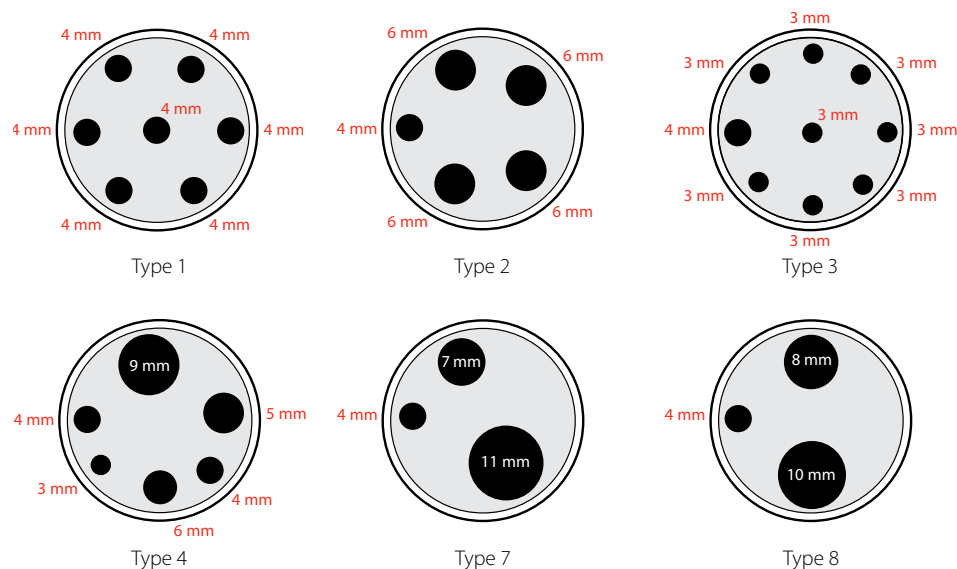
Please refer to the insert selection table to ensure compatibility with your sensor type and diameter.

# Multi-Hole Inserts PTCt-350

## Multi-Hole Inserts—Metric (mm)

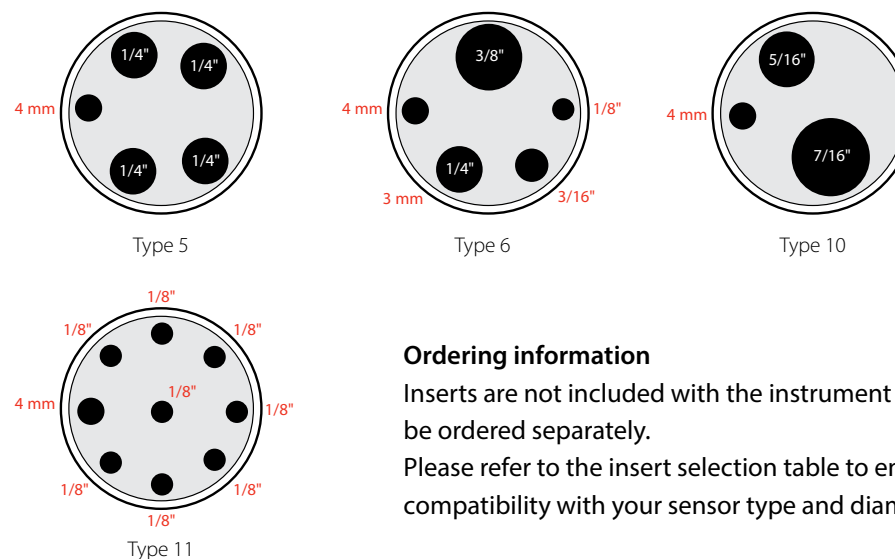
All predrilled inserts have holessensor under test selected diameter and for: 4 mm reference sensor  
All inserts are supplied with an insulation plug drilled with the necessary holes.

| Insert Type                   | PTCt-350 |
|-------------------------------|----------|
| Multi-hole Type 1             | 128015   |
| Multi-hole Type 2             | 128016   |
| Multi-hole Type 3             | 128017   |
| Multi-hole Type 4             | 128018   |
| Multi-hole Type 7             | 128019   |
| Multi-hole Type 8             | 128020   |
| Set of 4 Inserts, 3 to 12 mm. | 128022   |



## Multi-Hole Inserts—Imperial (in)

| Insert Type                      | PTCt-350 |
|----------------------------------|----------|
| Multi-hole Type 5                | 128023   |
| Multi-hole Type 6                | 128025   |
| Multi-hole Type 10               | 128026   |
| Multi-hole Type 11               | 128024   |
| Set of 3 Inserts, 1/8 to 1/2 in. | 128027   |



### Ordering information

Inserts are not included with the instrument and must be ordered separately.

Please refer to the insert selection table to ensure compatibility with your sensor type and diameter.

# Options & Accessories

## Standard Delivery

### Models A, B, and C Include:

- PTCt dry-block calibrator (user specified).
- Mains power cable (user specified).
- Traceable certificate - temperature performance.
- Tool for insertion tubes.
- USB cable.
- USB key containing JofraCal software package and reference manual.

### Model B Instruments Also Include:

- Test cables (2 x red, 2 x black).
- Traceable certificate - input performance for reference sensor.
- Traceable certificate - input performance for sensor-under-test inputs.

### Model C Instruments Also Include:

- Traceable certificate - input performance for reference sensor.

## Accessories

Reference sensor for PTCt-350. .... **STS150A915EH**

Extra fixture for sensor grip. .... **125066**

Extra sensor grip. .... **125067**

Thermocouple Male Plug — Type J — Black. .... **120516**

Thermocouple Male Plug — Type K — Yellow. .... **120517**

Thermocouple Male Plug — Type N — Orange. .... **120514**

Thermocouple Male Plug — Type T — Blue. .... **120515**

Thermocouple Male Plug — Type R / S — Green. .... **120518**

Thermocouple Male Plug — Type Cu-Cu — White. .... **120519**

## Optional STS-150 A 935

### Temperature Range

0 to 350° C / 32 to 662° F

### Accuracy

Hysteresis<sup>(1)</sup> @ 0°C/32°F ..... **0.01°C / 0.02°F**

Long Term Stability<sup>(2)</sup> @ 0°C/32°F ..... **typ. 0.016°C / 0.029°F**

Repeatability<sup>(1)</sup> ..... **0.004°C / 0.007°F**

(1) When used in the range 0 to 350° C / 32 to 662° F (2) When exposed to the maximum temperature shown above for 100 hours. Stability will depend on actual use of the sensor.

### Sensing Element

PT100

### Dimensions

Diameter ..... 4 mm / 0.16 in

Length ..... 165 mm / 6.49 in

### Standard Delivery

STS-150 A Sensor, Plastic Protection Case, Accredited Certificate, Cable, and manual.



Model A



Model B



Model C



## Functional Comparison

|                                                     | Model A | Model B     | Model C |
|-----------------------------------------------------|---------|-------------|---------|
| Input                                               | None    | ref and SUT | ref     |
| Dual-zone heating/cooling block                     | ■       | ■           | ■       |
| MVI — Mains Variance Immunity (or similar)          | ■       | ■           | ■       |
| Stability indicator                                 | ■       | ■           | ■       |
| Automatic step function                             | ■       | ■           | ■       |
| USB communication                                   | ■       | ■           | ■       |
| Display resolution 0.01°C/F/K                       | ■       | ■           | ■       |
| Programmable max. temperature                       | ■       | ■           | ■       |
| External precision reference sensor input           |         | ■           | ■       |
| "SET" follows "TRUE"                                |         | ■           | ■       |
| Input for RTD, TC, mA                               |         | ■           |         |
| 4-20 mA transmitter input incl. 24 VDC supply       |         | ■           |         |
| All inputs scalable to temperature                  |         | ■           |         |
| Automatic switch test (open, close, and hysteresis) |         | ■           |         |

# Ordering Information

|                                                                   |                                                                                        |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Base Model Number</b>                                          |                                                                                        |
| PTCt-350.....                                                     | PTCt-350, 33 to 350° C (91 to 662° F)                                                  |
| <b>Model Version</b>                                              |                                                                                        |
| A.....                                                            | Basic model, without input                                                             |
| B.....                                                            | Full model, incl. Reference sensor input, Sensor-under-test input                      |
| C.....                                                            | Middle model, incl. Reference sensor input                                             |
| <b>Power Supply (US deliveries 60 Hz only)</b>                    |                                                                                        |
| 115.....                                                          | 115 VAC                                                                                |
| 230.....                                                          | 230 VAC                                                                                |
| <b>Mains Power Cable</b>                                          |                                                                                        |
| A.....                                                            | European, 230 V                                                                        |
| B.....                                                            | USA/Canada, 115 V                                                                      |
| C.....                                                            | UK, 240 V                                                                              |
| D.....                                                            | South Africa, 220 V                                                                    |
| E.....                                                            | Italy, 220 V                                                                           |
| F.....                                                            | Australia, 240 V                                                                       |
| G.....                                                            | Denmark, 230 V                                                                         |
| H.....                                                            | Switzerland, 220 V                                                                     |
| I.....                                                            | Israel, 230 V                                                                          |
| <b>Insert Type and Size</b>                                       |                                                                                        |
| NON.....                                                          | No insert (The inserts must be ordered separately.)                                    |
| <b>User Interface Functionality (optional)</b>                    |                                                                                        |
| RG.....                                                           | Remote and Graph package (Option)                                                      |
| <b>External Reference Sensor (B and C models only – optional)</b> |                                                                                        |
| R12.....                                                          | STS-150-A-935 Ref. sensor for PTCt-350                                                 |
| <b>Calibration Certificate</b>                                    |                                                                                        |
| F.....                                                            | Traceable Certificate to International standards                                       |
| H.....                                                            | Accredited Certificate – ISO17025                                                      |
| EA.....                                                           | Full EURAMET Accredited Certificate – ISO17025                                         |
| HS.....                                                           | System Calibration – Accredited Certificate – ISO17025 (B & C model only)              |
| EAS.....                                                          | System Calibration – Full EURAMET Accredited Certificate – ISO17025 (B & C model only) |
| <b>Accessories</b>                                                |                                                                                        |
| CX..                                                              | Solid Protective Carrying Case                                                         |
| CR..                                                              | Solid Protective Carrying Case with Support Rod Set                                    |
| CT..                                                              | Solid Protective Carrying Case with Trolley                                            |
| SR..                                                              | Support Rod Set                                                                        |
| TR..                                                              | Solid Protective Carrying Case with Trolley & Support Rod Set                          |

PTCt 350 B 230 A NON RG R12 EA TR

## Ordering information

Inserts are not included with the instrument and must be ordered separately.

Please refer to the insert selection table to ensure compatibility with your sensor type and diameter.

## Sample Order Number

PTCt350B230ANONRGR12EAGTR

JOFRA PTCt-350 B with 230VAC, EU power cord, RG Remote and graph package, 4 mm diameter STS-150 reference sensor, full EA temperature calibration certificate, and carrying case with trolley plus support rod set.

# The PTCT Series



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