

# PTCt-425

## Professional Temperature Calibrator

33 to 425 °C / 91 to 797 °F



The PTCt-425 is shown with option RG

Professional temperature calibration from 33 to 425 °C (91 to 797 °F)  
Reliable performance for laboratory and field calibration of temperature sensors.

# Product overview

The PTCt-425 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-425 is a dry-block temperature calibrator designed for industrial calibration tasks requiring stable, accurate, and repeatable temperature control in the extended medium to high temperature range. It provides a reliable temperature source for testing and calibration of temperature sensors, including RTDs, thermocouples, transmitters, and temperature switches, in both field and laboratory environments.

## 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-425 is shown with option RG

## Typical applications

The PTCt-425 is designed for industrial calibration applications requiring stable and accurate temperature control across an extended temperature range.

The PTCt-425 is designed for industrial calibration applications requiring stable and accurate temperature control in the medium to high temperature range, including process validation and sterilization environments.

Typical applications include:

- Calibration of process temperature sensors used in autoclaves and sterilization processes
- Verification of temperature profiles in sterilizers, ovens, and process equipment
- Calibration of sensors in chemical, pharmaceutical, and manufacturing processes
- Calibration of transmitters and temperature switches in maintenance and service

The instrument is well suited for applications where precise temperature control and documentation are critical for process quality, validation, and regulatory compliance.

# Specifications for PTCT-425

## Functional Specifications

### Temperature Range

@ ambient temp. 23°C / 73°F ..... **33 to 425°C / 91 to 797°F**  
Patented heating technology: Patent No. EP2399107/US8721173

### Accuracy with External STS Ref. Sensor

33 to 425°C / 91 to 797 °F ..... **\*±0.13°C / ±0.23°F**  
33 to 350°C / 91 to 630 °F ..... **\*\*±0.14°C / ±0.25 °F**  
350 to 425°C / 630 to 797°F ..... **\*\*±0.16 °C / ±0.29°F**  
\*12-month period. Relative to reference standard. Specifications by use of the external JOFRA STS-150 A 966 reference sensor.  
\*\* Total system accuracy, 12 months, incl. STS-150 A 966 sensor and calibration uncertainty with accredited system calibration (ISO/EN/IEC 17025)

### Accuracy with Internal Ref. Sensor

@ 33 to 350°C ..... **± 0.20°C / ± 0.36°F**  
@ 350 to 425°C ..... **± 0.25°C / ± 0.45°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 425°C / 91 to 797°F ..... **10 minutes**

### Cooling Time

425 to 100°C / 797 to 212°F ..... **25 minutes**  
100 to 50°C / 212 to 122°F ..... **16 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 ..... **9.1 kg / 20.1 lb**  
(LxWxH) ..... **363 × 171 × 360 mm / 14.3 × 6.7 × 14.2 in**

### Shipping

In cardboard box,

Weight ..... **12.9 kg / 28.4 lb**  
(LxWxH) ..... **520 × 320 × 480 mm / 20.5 × 12.6 × 18.9 in**

In carrying case in cardboard box

Weight ..... **17.9 kg / 39.5 lb**  
(LxWxH) ..... **600 × 350 × 530 mm / 23.6 × 13.8 × 20.9 in**

In wheeled carrying case in cardboard box with pallet

Weight ..... **25.0 kg / 55.1 lb**  
(LxWxH) ..... **530 × 450 × 620 mm / 20.9 × 17.7 × 24.4 in**

### Well Diameter

**26 mm / 1.02 in**

### Immersion Depth

**150 mm / 5.91 in**

### Insert Dimensions

Diameter ..... **25.8 mm / 1.02 in**  
Length ..... **155 mm / 6.1 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-966 External Reference Sensor

### Temperature Range

0 to 660°C/32 to 1220°F

### Accuracy

Hysteresis @ 0°C/32°F ..... **0.01°C / 0.02°F**  
 Long Term Stability @ 0°C/32°F ..... **typ. 0.014°C / 0.025°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%) ..... **8 seconds**  
 t<sub>09</sub> (90%) ..... **26 seconds**  
 Liquid in motion, 0.4 m/sec.

### Dimensions

Diameter ..... **4 mm / 0.157 in**  
 Length ..... **201 mm / 9.1 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 Reference	0	32	±0,02	±0,03
	155	311	±0,03	±0,04
	350	662	±0,03	±0,06
	425	797	±0,04	±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 (90) 385	0	32	±0,07	±0,12
	155	311	±0,08	±0,15
	350	662	±0,10	±0,18
	425	797	±0,11	±0,19
Pt500 (90) 385	0	32	±0,12	±0,22
	155	311	±0,14	±0,24
	350	662	±0,16	±0,28
	425	797	±0,17	±0,30
Pt100 (90) 385	0	32	±0,04	±0,07
	155	311	±0,05	±0,08
	350	662	±0,06	±0,11
	425	797	±0,07	±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.)**

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
	425	797	±0,18	±0,32
J	0	32	±0,16	±0,28
	155	311	±0,18	±0,31
	350	662	±0,22	±0,38
	425	797	±0,23	±0,41
K	0	32	±0,20	±0,36
	155	311	±0,23	±0,41
	350	662	±0,26	±0,46
	425	797	±0,27	±0,48
N	0	32	±0,31	±0,55
	155	311	±0,28	±0,50
	350	662	±0,28	±0,50
	425	797	±0,29	±0,51
R	0	32	±1,48	±2,65
	155	311	±0,97	±1,74
	350	662	±0,83	±1,50
	425	797	±0,82	±1,47
S	0	32	±1,45	±2,61
	155	311	±1,01	±1,81
	350	662	±0,89	±1,61
	425	797	±0,89	±1,59
T	0	32	±0,21	±0,37
	155	311	±0,19	±0,33
	350	662	±0,19	±0,34
	400	752	±0,20	±0,35

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

# Predrilled Inserts PTcT-425

## Predrilled Inserts

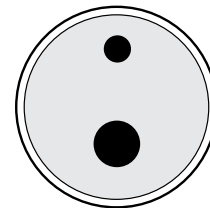
All predrilled inserts have hole for sensor under test selected diameter and for: 4 mm reference sensor.

Sensor Diameter	Order Code
3 mm	129722
4 mm	129723
5 mm	129724
6 mm	129725
7 mm	129726
8 mm	129727
9 mm	129728
10 mm	129729
11 mm	129730
12 mm	129731
13 mm	129732
14 mm	129733
15 mm	129734
Package of Above Inserts	129743

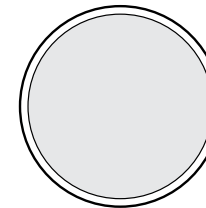
Sensor Diameter	Order Code
1/8 in	129735
3/16 in	129736
1/4 in	129737
5/16 in	129738
3/8 in	129739
7/16 in	129740
1/2 in	129741
9/16 in	129742
5/8 in	n/a
Package of Above Inserts	129744

## Undrilled Inserts

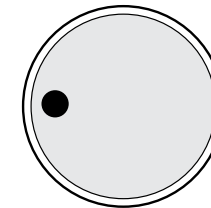
Inserts	Order Code
5-pack, undrilled inserts with no holes	129720
5-pack, undrilled inserts with 1 hole for STS reference sensors (4mm)	129721
Undrilled insulation plug	n/a



Predrilled Insert



Undrilled Insert



Undrilled Insert

Inserts for PTcT-425 are made of brass. All specifications on hole sizes refer to the 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.

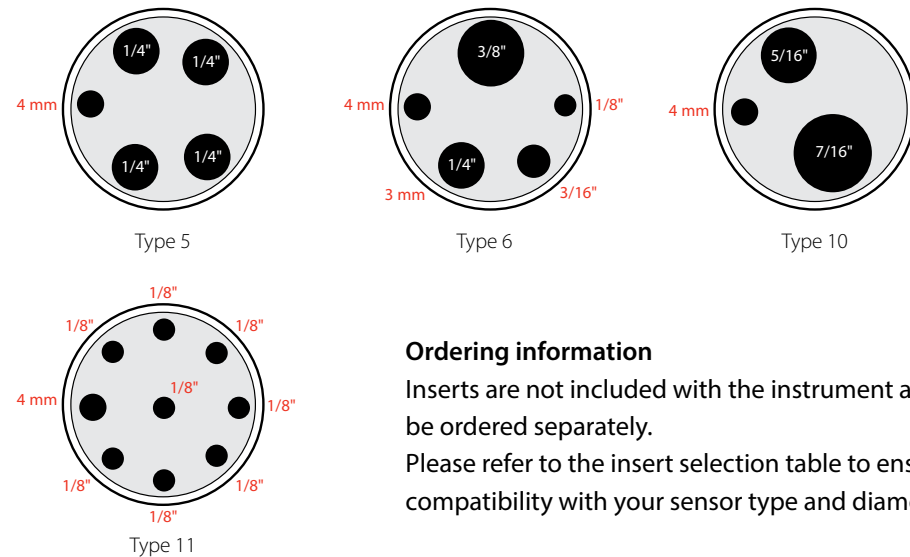
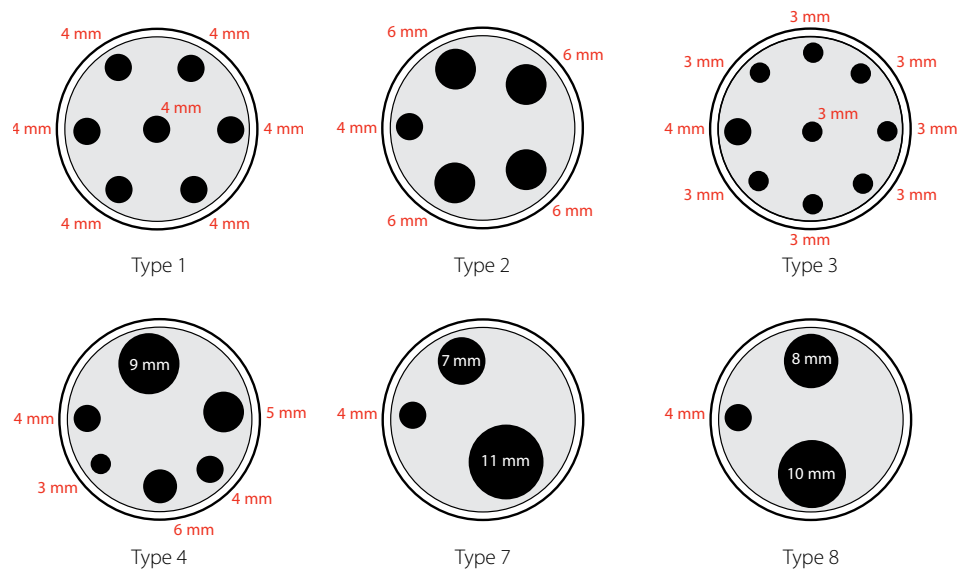
# Multi-Hole Inserts PTcT-425

## Multi-Hole Inserts—Metric (mm)

Insert Type	PTcT-425
Multi-hole Type 1	129697
Multi-hole Type 2	129698
Multi-hole Type 3	129699
Multi-hole Type 4	129700
Multi-hole Type 7	129701
Multi-hole Type 8	129702
Set of 4 Inserts, 3 to 12 mm.	129748

## Multi-Hole Inserts—Imperial (in)

Insert Type	PTcT-425
Multi-hole Type 5	129703
Multi-hole Type 6	129704
Multi-hole Type 10	129705
Multi-hole Type 11	129706
Set of 3 Inserts, 1/8 to 1/2 in.	129749



### 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-425.....	<b>STS150A966EH</b>
Extra fixture for sensor grip.....	<b>125066</b>
Extra sensor grip.....	<b>125067</b>
Thermocouple Male Plug – Type J – Black.....	<b>120516</b>
Thermocouple Male Plug – Type K – Yellow.....	<b>120517</b>
Thermocouple Male Plug – Type N – Orange.....	<b>120514</b>
Thermocouple Male Plug – Type T – Blue.....	<b>120515</b>
Thermocouple Male Plug – Type R / S – Green.....	<b>120518</b>
Thermocouple Male Plug – Type Cu-Cu – White.....	<b>120519</b>

## Optional STS-150-966-E-H

### Temperature Range

0 to 425°C / 32 to 797°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 425°C / 32 to 797°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..... 203 mm / 7.99 in  
 Max Height on Calibrator Top ..... 33 mm / 1.50 in

### Standard Delivery

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



## 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-425.....	PTCt-425, 33 to 425° C (91 to 797° 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 (B model only – optional)</b>	
RG.....	Remote and Graph package
<b>External Reference Sensor (B and C models only – optional)</b>	
R13.....	STS-150-A-966 Ref. sensor for PTCt-425
<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 425 B 230 A NON RG R13 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

PTCt425B230ANONRGR13EAGTR

JOFRA PTCt-425 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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