JOFRA calibration
AMETEK

PTCt-125

Professional Temperature Calibrator

-90 to 125 °C/-130 to 257 °F



The PTCt-125 is shown with option RG

Professional temperature calibration from –90 to 125 °C
Reliable performance for laboratory and field calibration of temperature sensors.

Product overview

Precise, efficient temperature calibration

The PTCt-125 Series builds on the proven PTC platform and introduces an updated user interface, enhanced calibration functionality, and extended connectivity.
The series combines stable dry-block temperature generation with modern workflow support, enabling efficient and repeatable calibration of temperature sensors across a wide range of applications.

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-125 is designed for applications requiring reliable and accurate calibration in the lower temperature range, including sub-zero conditions and controlled environments.

Typical applications include:

- Calibration of sensors in pharmaceutical cold storage, freezers, and validation processes
- Verification of temperature stability in environmental chambers and laboratory equipment
- Calibration of sensors used in food storage, cold chain, and refrigeration systems
- Testing of transmitters and temperature switches ioperating at low and sub-zero temperatures

Specifications for PTCt-125

Functional Specifications

Temperature Range

@ ambient temp. 0°C /32°F..... **-90 to 125°C/-130 to 257°F**

@ ambient temp. 23°C /73°F ..... **-90 to 125°C/-130 to 257°F**

@ ambient temp. 40°C /104°F ..... **-73 to 125°C/-99 to 257°F**

Patented heating technology: Patent No. EP2074374/US8342742

Accuracy with External STS Ref. Sensor (models B and C)

-90 to 125°C/ -130 to 257 °F ..... ***±0.07°C/±0.13°F**

23 to 125°C/73.4 to 257 °FF..... ****±0.09 °C / ±016 °F**

-90 to 23°C/-130 to 73.4°F ..... ****±0.10 °C / ±0.18**

12-month period. Relative to reference standard. Specifications by use of the external JOFRA STS-150 A 912 reference sensor.

** Total system accuracy, 12 months, incl. STS-150 A 912 sensor and calibration uncertainty with accredited system calibration (ISO/EN/IEC 17025)

Accuracy with Internal Ref. Sensor

±0.25°C / ±0.45 °F

Total accuracy, 12 months, calibration uncertainty with accredited calibration (RTCt calibrator) / ISO/EN/IEC 17025).

Stability

±0.02 °C / ±0.04 °F

Measured after the stability indicator has been on for 15 minutes. Measuring time is 30 minutes.

Radial Homogeneity (difference between holes)

0.01°C /0.02°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

-90 to 23°C /-130 to 73°F ..... **15 minutes**

23 to 125°C / 73 to 257°F ..... **13 minutes**

Cooling Time

125 to 23°C / 257 to 73°F ..... **35 minutes**

23 to -80°C / 73 to -112°F..... **75 minutes**

(Typ. 65 min.)

-80 to -90°C / -112 to -130°F ..... **30 minutes**

(Typ. 20 min.)

125 to -90°C / 257 to -130°F ..... **140 minutes**

(Typ. 120 min.)

Time to Stability (approx.)

10 minutes

Immersion Depth

190mm /6.3 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 PTCt-125A model.

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.)**

	Temperature		12 Months	
RTD Type	°C	°F	°C	°F
Pt100 Reference	-90	-130	±0,02	±0,03
	0	32	±0,02	±0,03
	125	257	±0,03	±0,04

(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**

	Temperature		12 Months	
RTD Type	°C	°F	°C	°F
Pt1000	-90	-130	±0,06	±0,11
	0	32	±0,07	±0,12
	125	257	±0,08	±0,14
Pt500	-90	-130	±0,11	±0,20
	0	32	±0,12	±0,22
	125	257	±0,14	±0,24
Pt100	-90	-130	±0,03	±0,06
	0	32	±0,04	±0,07
	125	257	±0,05	±0,08

The PTCt B calbrator has input for resistance sensors supported standard curves: 392, H120(90)672, Pt10(90)385, Pt50(90)385, Pt200(90)385, Pt500(90)385, Pt50(90)391, M50(90)428, M100(90)428, Pt100 Mill and YSi-400.

Specifications

Thermocouple Input

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

	Temperature		12 Months*	
TC Type	°C	°F	°C	°F
E	-90	-130	±0,19	±0,34
	0	32	±0,14	±0,24
	125	257	±0,14	±0,25
J	-90	-130	±0,21	±0,37
	0	32	±0,16	±0,28
	125	257	±0,17	±0,30
K	-90	-130	±0,27	±0,48
	0	32	±0,20	±0,36
	125	257	±0,22	±0,39
N	-90	-130	±0,38	±0,69
	0	32	±0,31	±0,55
	125	257	±0,28	±0,51
R	-50	-58	±2,13	±3,82
	0	32	±1,48	±2,65
	125	257	±1,01	±1,82
S	-50	-58	±1,97	±3,54
	0	32	±1,45	±2,61
	125	257	±1,05	±1,88
T	-90	-130	±0,29	±0,52
	0	32	±0,21	±0,37
	125	257	±0,19	±0,33

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

Transmitter Supply

Output Voltage ..... **24VDC ±10%**
Output Current ..... **Maximum 28 mA**

Transmitter Input mA (model B)

Range ..... **0 to 24 mA**
Accuracy (12 months) ..... **±(0.02% Rdg. +0.01% F.S.)**

Switch Input (model B)

Switch Dry Contacts
Test Voltage ..... **Maximum2.5 VDC**
Test Current ..... **Maximum 0.7 mA**

Mains Specifications

Voltage ..... **115V (90-127) / 230V (180-254)**
Frequency, non US Deliveries ..... **50/60 Hz (47-63 Hz)**
Frequency, US Deliveries ..... **60 Hz (57-63 Hz)**
Power Consumption (max.) ..... **350 VA**

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*
* For future expansion.

Miscellaneous

Operating Temperature ..... **0 to 40°C /32 to 104°F**
Storage Temperature ..... **-10 to 50°C /14 to 122°F**
Humidity ..... **0 to 90% RH**
Protection Class **IP-10**

Physical Specifications

Weight and Instrument Size

Weight ..... **14.2 kg / 31.3 lb**
(LxWxH) ..... **530 x 170 x 432 mm /20.87 x 6.73 x 17.0 in**

Shipping (with carrying case)

Weight ..... **40 kg / 88.2 lb**
(LxWxH) ..... **775 × 600 × 700 mm / 30.5 × 23.6 × 27.6 in**
Shipped on half-pallet, bound.

Inserts

Insert Dimensions

Outer Diameter ..... **29.7 mm /1.17 in**
Inner Diameter ..... **25.6 mm /1.01 in**
Length ..... **150 mm /5.91 in**

Weight of Non-Drilled Insert

290 g /10.2 oz

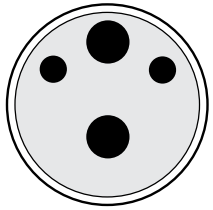
Use of other inserts may reduce the performance of the calibrator. To get the best results out of the calibrator, the insert dimensions, tolerance, and material is critical. We highly advise using JOFRA inserts, as they guarantee trouble free operation.

Predrilled Inserts PTCt-125

Predrilled Inserts

All predrilled inserts have holes for: 4 mm reference sensor • ¼" reference sensor • 3 mm hole for a sensor. All inserts are supplied with an insulation plug drilled with the necessary holes.

Sensor Diameter	Order Code
3 mm	128477
4 mm	128478
5 mm	128479
6 mm	128480
7 mm	128481
8 mm	128482
9 mm	128483
10 mm	128484
11 mm	128485
12 mm	128486
13 mm	128487
14 mm	128488
15 mm	128489
16 mm	128490
Package of Above Inserts	128492

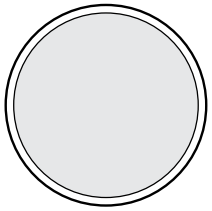


Sensor Diameter	Order Code
1/8 in	128468
3/16 in	128469
1/4 in	128470
5/16 in	128471
3/8 in	128472
7/16 in	128473
1/2 in	128474
9/16 in	128475
5/8 in	128476
Package of Above Inserts	128491

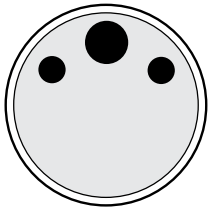
Undrilled Inserts

All undrilled inserts include insulation plugs.

Inserts	Order Code
5-pack, undrilled inserts with no holes	128453
5-pack, undrilled inserts with 2 holes for STS reference sensors (4mm & ¼")	128455
Undrilled insulation plug	126040



128453



128455

Ordering information

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

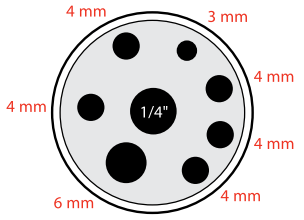
Please refer to the insert selection table to ensure compatibility with your sensor type and diameter.

Multi-Hole Inserts PTCt-125

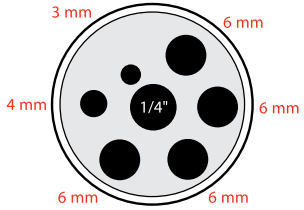
Multi-Hole Inserts—Metric (mm)

All inserts are supplied with an insulation plug drilled with the necessary holes.

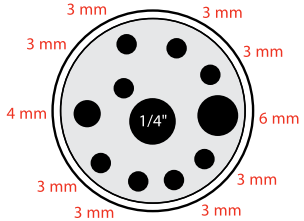
Insert Type	Order Code
Multi-hole Type 1	128456
Multi-hole Type 2	128457
Multi-hole Type 3	128458
Multi-hole Type 4	128459
Multi-hole Type 7	128462
Multi-hole Type 8	128463
Multi-hole Type 9	128464
Set of 4 Metric Multi Inserts, 3 to 13 mm. *(Includes 128459, 128462, 128463, and 128464)*	128466



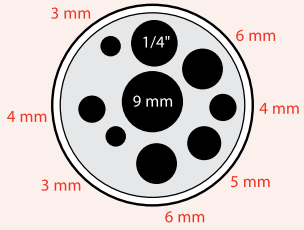
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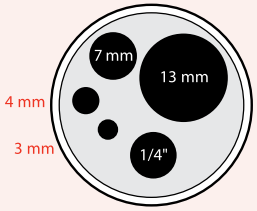
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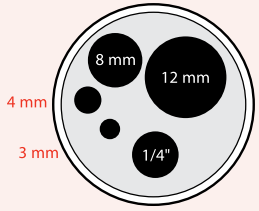
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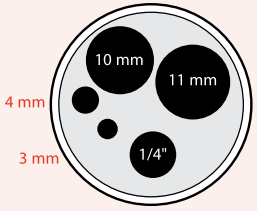
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128462



128463

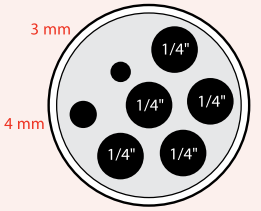


128464

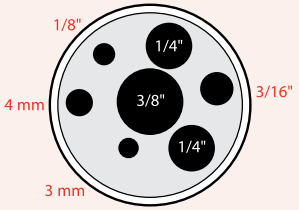
Multi-Hole Inserts—Imperial (in)

All inserts are supplied with an insulation plug drilled with the necessary holes.

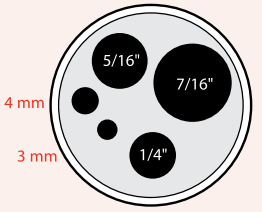
Insert Type	Order Code
Multi-hole Type 5	128460
Multi-hole Type 6	128461
Multi-hole Type 10	128465
Set of 3 Imperial Inserts, 1/8 to 7/16 in. *(Includes 128460, 128461, and 128465)*	128467



128460



128461



128465



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.
- Set of rubber cones for insulation plugs.
- Protective Roller Case
- 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

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 Sensor

Temperature Range

-90 to 125°C/-130 to 257°F

Accuracy

Hysteresis[1] @ 0°C/32°F	**0.01°C / 0.02°F**
Long Term Stability[2] @ 0°C/32°F	**typ. 0.016°C / 0.029°F**
Repeatability[1]	**0.004°C / 0.007°F**

(1) When used in the range -90 to125°C/-130 to 257°

(2) When exposed to 125°C/257°F for 100 hours. Stability will depend on actual use of the sensor.

Sensing Element

PT100

Dimensions

Diameter	**4 mm / 0.16 in**
Length	**192 mm / 7.56 in**
Max Height on Calibrator Top	**22 mm / 0.87 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)		■	



Model A

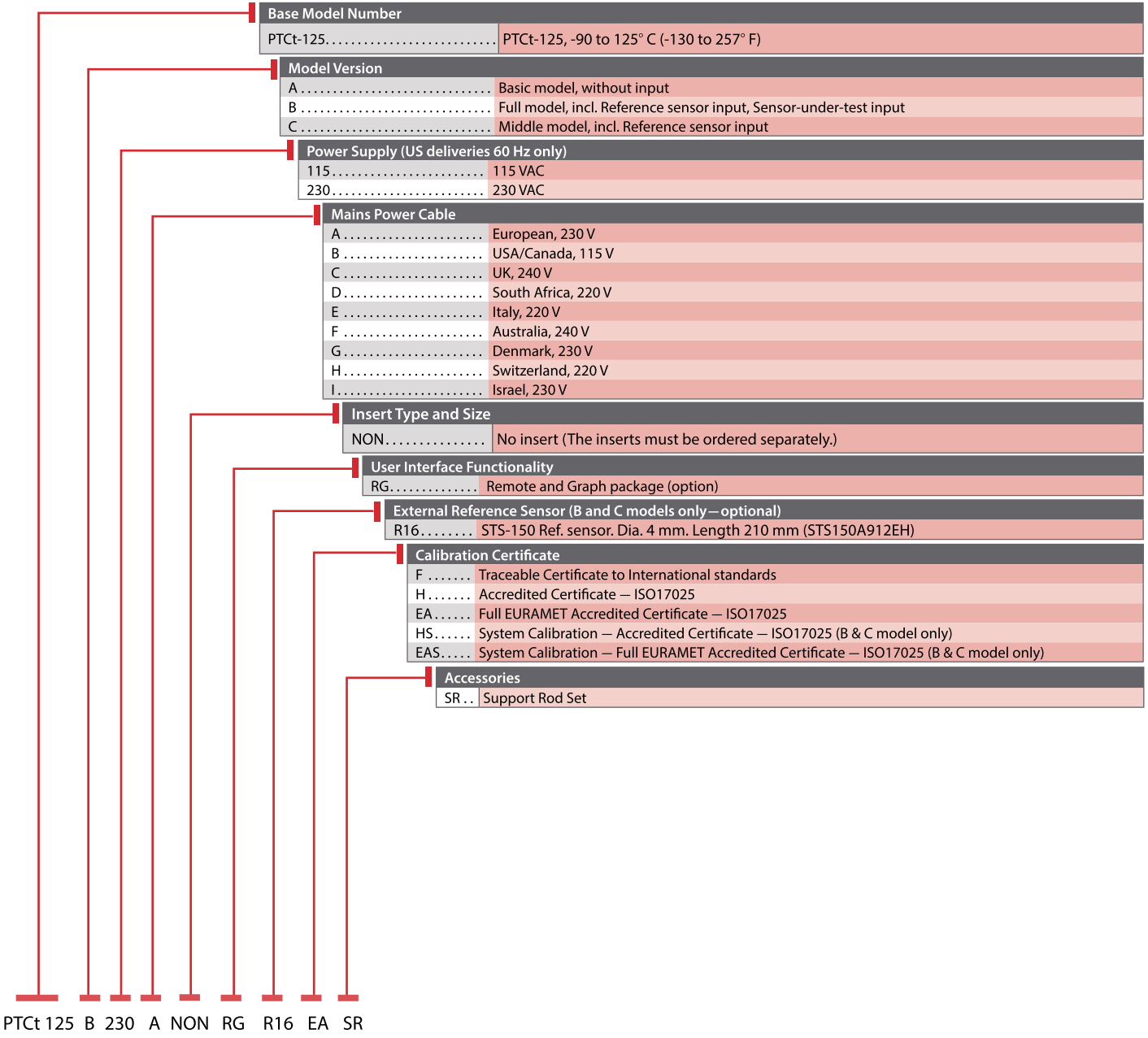


Model B



Model C

Ordering Information



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

PTCt125B230ANONRGR16EAGTR

JOFRA PTCt-125 B with 230VAC, EU power cord, No Inserts, RG Remote and graph package, 4 mm diameter STS-150 reference sensor, full EA temperature calibration certificate, and support rod set.

The PTCt Series



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SS-PTCt-series- ISSUE 2606

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