JOFRA calibration AMETEK

PTCt-660

Professional Temperature Calibrator

33 to 660 °C / 91 to 1220 °F



The PTCt-660 is shown with option RG

Professional temperature calibration from 33 to 660 °C (91 to 1220 °F)
Reliable performance for laboratory and field calibration of temperature sensors.

Product overview

The PTCt-660 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-660 is a dry-block temperature calibrator designed for calibration tasks requiring stable, accurate, and repeatable temperature control at high temperatures.

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)



Typical applications

The PTCt-660 is designed for industrial calibration applications requiring precise temperature control in the high temperature range.

Typical applications include:

- Calibration of high-temperature sensors in industrial production environments
- Verification of temperature instruments in energy, power, and process industries
- Calibration of thermocouples and temperature switches in maintenance and service
- General calibration tasks at elevated temperatures in workshops, laboratories, and field service

The instrument supports calibration of a wide range of sensor types and configurations, making it suitable for both routine calibration and applications requiring very high temperature capability.

Specifications for PTCt-660

Functional Specifications

Temperature Range

@ ambient temp. 23°C / 73°F ..... **33 to 660°C/91 to 1220°F**

Patented heating technology: Patent No. EP2399107/US8721173

Accuracy with External STS Ref. Sensor

33 to 660°C / 91 to 1220 °F ..... ***±0.15°C/±0.27°F**

33 to 200°C / 91 to 392 °F ..... .****±0.20°C / ±0.36 °F**

200 to 420°C / 392 to 788 °F..... ****±0.25°C / ±0.45°F**

420 to 660°C / 788 to 1220°F ..... ****±0.35 °C / ±0.63°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 200°C / 91 to 392 °F..... **± 0.30°C /± 0.54°F**

@ 200 to 420°C / 392 to 788 °F ..... **.± 0.40°C / ± 0.72°F**

@ 420 to 660°C / 788 to 1220 °F ..... **.± 0.50°C / ± 0.90°F**

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

Stability

± 0.04°C /± 0.072°F

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

Radial Homogeneity (difference between holes)

0.1°C /0.18°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 660°C / 91 to 1220°F..... **20 minutes**

Cooling Time

660 to 100°C / 1220 to 212°F ..... **36 minutes**

100 to 50°C / 212 to 122°F..... **15 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..... **12.0 kg / 26.5 lb**

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

In carrying case in cardboard box

Weight..... **17.5 kg / 38.6 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

25 mm /0.98 in

Immersion Depth

150 mm /5.91 in

Insert Dimensions

Diameter ..... **24.8 mm /0.98 in**

Length..... **160 mm /6.3 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_{05} (50%)..... **8 seconds**
t_{09} (90%)..... **26 seconds**
Liquid in motion, 0.4 m/sec.

Dimensions
Diameter ..... **4 mm /0.157 in**
Length..... **203 mm /7.99 in**

Input Specifications

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.)**

	Temperature		12 Months	
RTD Type	°C	°F	°C	°F
Pt100 Reference	0	32	±0,02	±0,03
	155	311	±0,03	±0,04
	350	662	±0,03	±0,06
	660	1220	±0,05	±0,08

(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) 385	0	32	±0,07	±0,12
	155	311	±0,08	±0,15
	350	662	±0,10	±0,18
	660	1220	±0,13	±0,23
Pt500 (90) 385	0	32	±0,12	±0,22
	155	311	±0,14	±0,24
	350	662	±0,16	±0,28
	660	1220	±0,20	±0,35
Pt100 (90) 385	0	32	±0,04	±0,07
	155	311	±0,05	±0,08
	350	662	±0,06	±0,11
	660	1220	±0,08	±0,15

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.

	Temperature		12 Months*	
TC Type	°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
	660	1220	± 0.25	± 0.45
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-660

Predrilled Inserts

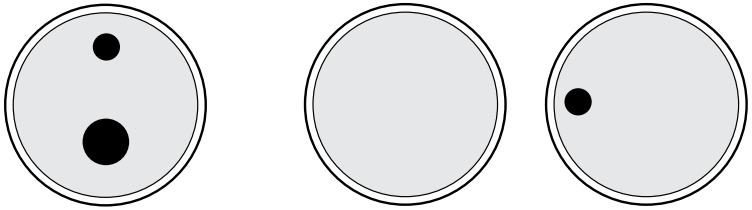
All predrilled inserts have hole for sensor under test selected diameter and for: 4 mm reference sensor.

Sensor Diameter	Order Code (mm)
3 mm	128031
4 mm	128032
5 mm	128033
6 mm	128034
7 mm	128035
8 mm	128036
9 mm	128037
10 mm	128038
11 mm	128039
12 mm	128040
13 mm	128041
14 mm	128042
15 mm	128043
Package of Above Inserts	128045

Sensor Diameter	Order Code (in)
1/8 in	128046
3/16 in	128047
1/4 in	128048
5/16 in	128049
3/8 in	128050
7/16 in	128051
1/2 in	128052
9/16 in	128053
5/8 in	n/a
Package of Above Inserts	128055

Undrilled Inserts

Inserts	Order Code
5-pack, undrilled inserts with no holes	128029
5-pack, undrilled inserts with 1 hole for STS reference sensors (4mm)	128030
Undrilled insulation plug	n/a



Predrilled Insert | Undrilled Insert | Undrilled Insert

Inserts for PTCt-660 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.

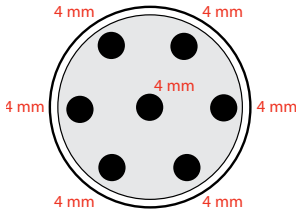
Ordering information

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.

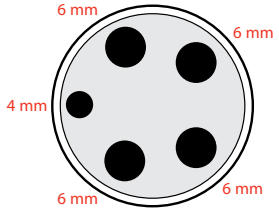
Multi-Hole Inserts PTCt-660

Multi-Hole Inserts—Metric (mm)

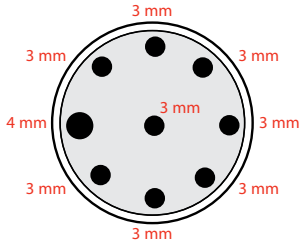
Insert Type	Order Code
Multi-hole Type 1	128056
Multi-hole Type 2	128057
Multi-hole Type 3	128058
Multi-hole Type 4	128059
Multi-hole Type 7	128060
Multi-hole Type 8	128061
Set of 4 Inserts, 3 to 12 mm.	128067



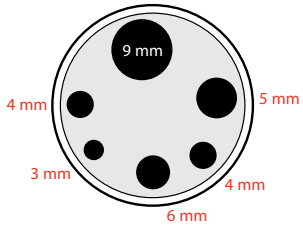
Type 1



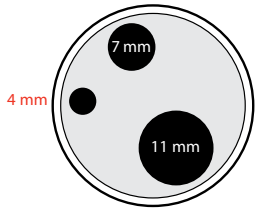
Type 2



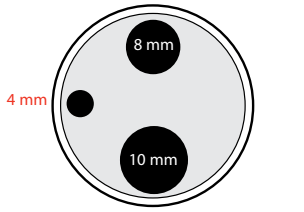
Type 3



Type 4



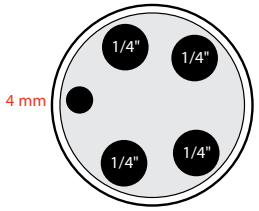
Type 7



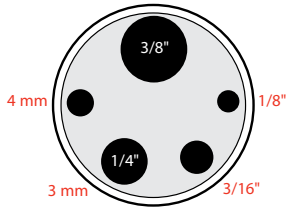
Type 8

Multi-Hole Inserts—Imperial (in)

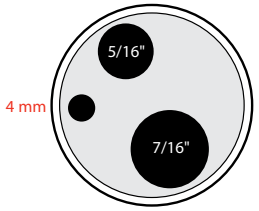
Insert Type	Order Code
Multi-hole Type 5	128063
Multi-hole Type 6	128065
Multi-hole Type 10	128066
Multi-hole Type 11	128064
Set of 3 Inserts, 1/8 to 1/2 in.	128068



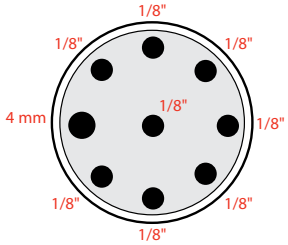
Type 5



Type 6



Type 10



Type 11

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.
- Heat Sheeld
- 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-660 & PTCt-425	**STS150A966EH**
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-150-966-E-H

Temperature Range

0 to 660 °C / 32 to 1220 °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 0 to 660 °C / 32 to 1220 °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	**38 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)		■	

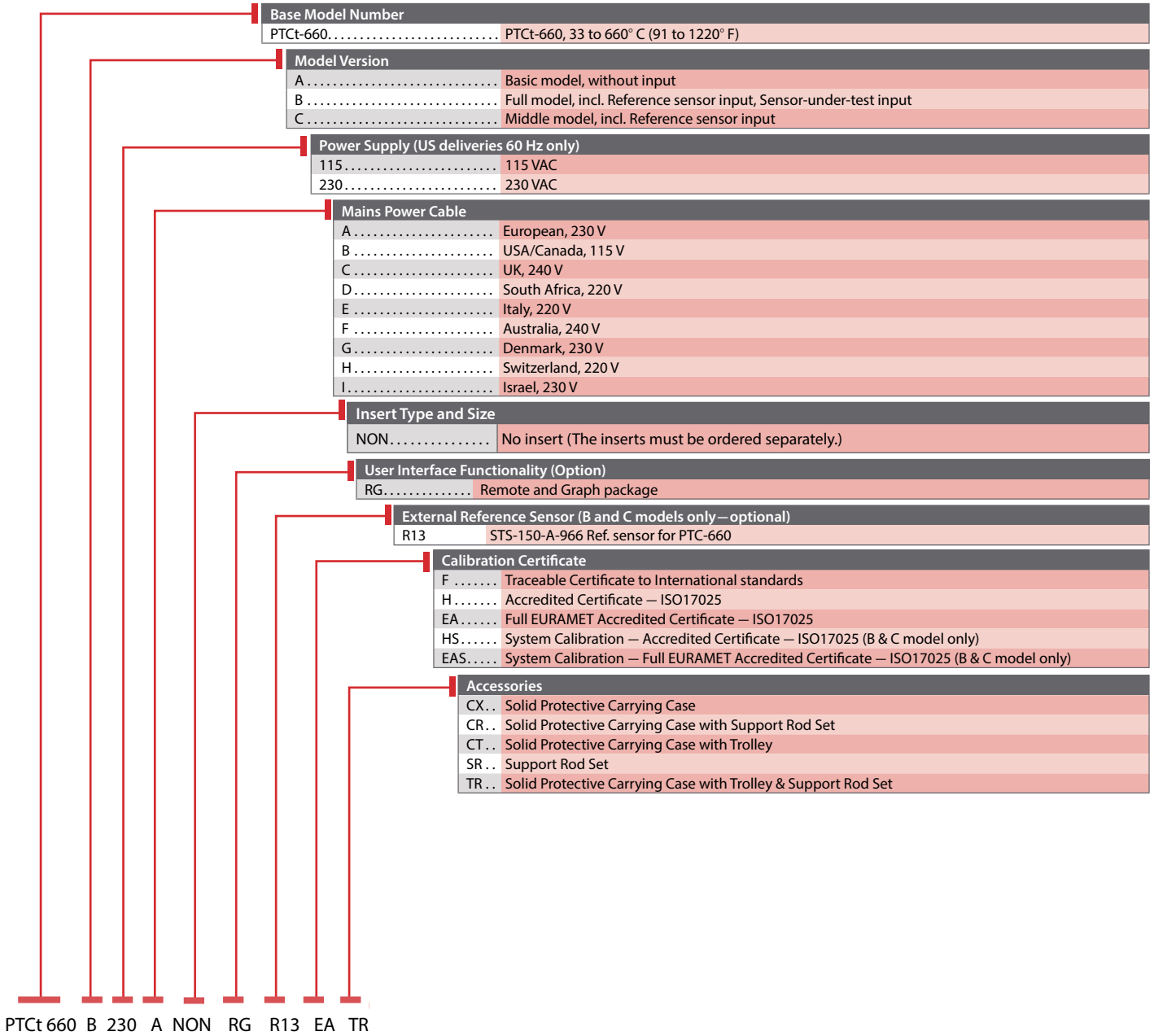


Model A

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

PTCtt660B230ANONRGR13EAGTR

JOFRA PTCt-660 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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