JOFRA calibration
AMETEK

DI ELCO
La solution à votre mesure

RTCt-700

Reference Temperature Calibrator

High Temperature

High-temperature calibration with advanced touchscreen, wireless connectivity and triple-zone performance.

Temperature Range: 33 to 700°C/91 to 1292°F

Designed for Versatility

The RTCt models are designed to support precise and user-centric temperature calibration by offering a comprehensive feature set focused on efficient workflows. The touchscreen interface provides clear and intuitive navigation, while wireless connectivity supports data transfer and remote monitoring. Graphical presentations are used to enhance visibility of calibration status and results.

The RTCt-700 combines accuracy, stability, and speed across an extended high-temperature range, merging the RTCt platform with the high-temperature heating performance of the original RTC-700. The core features of the established RTC series are maintained and further developed in the RTCt-700, including::

- Patented DLC (Dynamic Load Compensation) system for perfect temperature uniformity in the insert.
- Fast heating and cooling to reduce calibration time.
- Lightweight and easy to carry around.
- High profile design and well-known, long-lasting Jofra quality.

Advanced Touchscreen Display: Provides a intuitive navigation, operation and all relevant data at your fingertips. Experience clear numerical values, step-by-step instructions, and graphical representations that elevate your calibration process.

Wireless Connectivity: Monitor, control and analyze calibration data in real-time through a web browser interface, from anywhere in your facility or even remotely. This wireless functionality reduces the need to be physically present at the calibrator, saving time and ensuring efficient calibration processes.

Two Sensor Under Test Inputs: With the ability to simultaneously calibrate two sensors, the RTCt-700 offers a comprehensive solution for complex calibrations effectively doubling the calibration capacity per run.

Designed for Versatility: The RTCt-700 is an essential tool across industries such as energy production, metal processing, aerospace, pharmaceuticals and advanced manufacturing. Its broad high temperature range from 33 to 700 °C (91 to 1292 °F) makes it suitable for applications that demand precise performance at elevated temperatures. With active triple-zone heating technology and optional DLC functionality, the RTCt-700 ensures exceptional uniformity and stability throughout the calibration zone.

Intelligent Reference Sensors: Jofra reference sensors are supplied with intelligent plugs, holding the calibration data (coefficients, serial number and calibration date) of the reference sensor. This is a truly plug n' play calibration system.

Enhanced Efficiency, Time and Sustainability: The RTCt-700 temperature calibrator is designed with enhanced sustainability features, prioritizing efficiency and reducing environmental impact. Compared to previous models, the RTCt-700 offers shorter cooling times, reducing overall operational time for each calibration. Additionally, its optimized power consumption lowers energy usage while maintaining top-tier performance.

EURAMET: Best performing dry-block with regard to the EURAMET/cg-13 guideline for the testing of dry-blocks.

Optimized Calibration Workflows

The RTCt temperature calibrator is designed to support efficient calibration workflows through features that focus on usability, configurability, and clear data handling. This section describes how the RTCt platform supports calibration efficiency through user-defined setpoints, configurable interfaces, and structured data management..

User-Defined Setpoints for Streamlined Calibration

Define up to six custom temperature points to precisely match your specific sensor requirements. This eliminates the need for repetitive reentries of often used calibration temperatures, which streamlines workflow and maximizing efficiency.

User-Configurable Interface for Optimized Workflow

The RTCt platform offers a configurable user interface that can be adapted to different calibration tasks. By selecting the preferred UI view, users can prioritize the information most relevant to the current task, helping reduce distractions and support efficient operation during calibration.

Intuitive Data Management for Effortless Retrieval

The RTCt improves data management by introducing a user-definable data naming convention. Eliminate confusion from generic labels by implementing a system that reflects your unique calibration procedures. Assign meaningful names to your data sets, enabling effortless searching and retrieval. Say goodbye to time-consuming data mining and streamline your calibration workflow with the RTCt's intuitive data management capabilities.

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Connectivity and Communication Interfaces

The RTCt temperature calibrator supports wireless connectivity, allowing monitoring and analysis of calibration data through a web browser interface. This enables users to follow calibration progress locally or remotely and can reduce the need to remain physically at the calibrator during longer calibration sequences.

Remote Access via Web Interface & Build-in Wi-Fi Hotspot

For wireless operation, the RTCt includes a Wi-Fi dongle, enabling cable-free connectivity and remote access. This supports flexible instrument placement and integration into different calibration environments. Built-in hotspot provides a secure, standalone connection.

Multiple Communication Interfaces

The RTCt platform supports several communication interfaces, including:

- Wi-Fi (via dongle)
- Ethernet
- USB

Open Communication Protocols

The RTCt supports ASCII-based communication protocols, enabling integration with external systems for automation, remote control, and data exchange. This supports use across industries such as pharmaceutical, food & beverage, energy, and manufacturing.

Scan for Hotspot

Scan for Browser Access

The Wi-Fi dongle is standard equipment in all RTCts

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Touchscreen User Interface

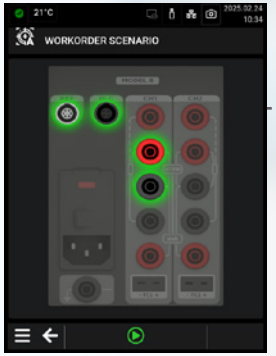
The RTCt touchscreen user interface is designed to provide a clear overview of the calibration process and consistent access to key operating functions. The interface supports efficient setup, execution, and monitoring of calibration tasks through structured screens and visual indicators.
The following screens illustrate how calibration status, settings, and operating modes are presented during use.

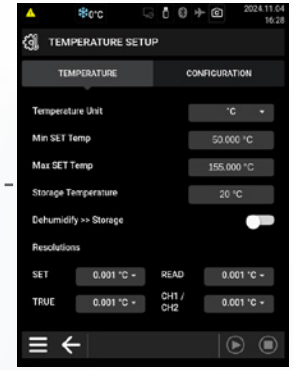
The RTCt startup menu provides a simple and user-friendly interface, ensuring quick access to essential functions. Users can effortlessly select between: Calibration / Auto Calibration/ Switch Test/ Auto Step.

The RTCt main screen provides a clear, real-time view of the ongoing calibration with live progress, setpoints, and stability indicators. The intuitive graph dynamically adjusts for enhanced precision and deviation detection. Learn more on the next page.

Easily set and manage calibration temperatures with six customizable presets for quick selection. Effortlessly prepare for storage temperature setting for future use. The controller ON/OFF function provides seamless control, ensuring efficient operation and precision.

The RTCt UI ensures a clear and intuitive input experience, with active inputs highlighted in green and unavailable selections greyed out, eliminating any risk of incorrect connections.





Easily configure system, temperature, and communication settings with an intuitive interface.

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RTCt Series – Real-Time Calibration Graph (Patent Pending)

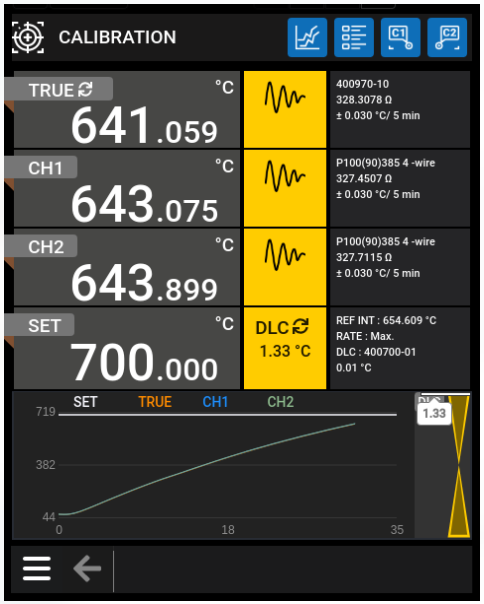
Traditional calibrators can display temperature over time. The RTCt Series adds a real-time calibration graph that adapts automatically based on the calibration phase and stability status.compliance.

Patent Pending

Exclusive Real-Time Calibration Graph – Patent Pending

Traditional calibrators can plot temperature over time, but they don't adapt dynamically. The RTCt Series introduces the first-ever real-time graphing system that adjusts automatically based on calibration stability.

- **Overview of the Calibration Process:** The calibration process begins with a broad full-cycle graph, which provides a clear, real-time view of your calibration's progression, helping users track temperature trends at a glance.
- **Setpoint Reference Line:** A dedicated line marks your set temperature, so you can instantly see when the calibrator reaches and maintains stability.
- **Automatic Precision Mode:** Once the calibrator reaches the setpoint and meets the stability criteria, the RTCt's graph intelligently shifts to a high-resolution relative view, magnifying even the smallest deviations.
- **Deviation Visibility:** The relative graph magnifies even the smallest variations, making it possible to detect tiny fluctuations that are otherwise difficult to see.
- **Patent-Pending Technology:** Only in RTCt – No other calibrator dynamically adjusts its graph based on calibration stability, giving you unrivaled visual confidence in your results.
- **Customizable Display:** All blue icons at the top of the screen can be easily toggled on or off, allowing users to focus only on the most relevant calibration data. This flexibility ensures a clutter-free interface tailored to individual workflows.
- **Seamless Documentation:** With a single tap of the print screen button, all on-screen information is instantly documented, preserving calibration data and highlighting even the most minute fluctuations for post-analysis.



See the entire calibration process at a glance, with a clear setpoint reference line for easy stability monitoring.

Automatically zooms in on micro-deviations once stability is reached, ensuring unmatched accuracy and confidence.

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Precision Switch Testing – Clear, Reliable, and Fully Documented

Temperature switches are critical for safety, system control, and process reliability. Ensuring they activate at the correct setpoints is essential to prevent false alarms, avoid equipment failures, and minimize costly downtime. The RTCt Series takes switch testing to the next level with an advanced, highly visual switch test display, delivering instant clarity, precision, and comprehensive documentation.

- **Graph and Table Data on One Screen:**

The RTCt displays both the switch test graph and the test results table simultaneously. The graph plots switch activation points over time, making it easy to detect drift, response delays, or anomalies. The table logs exact activation and deactivation temperatures, ensuring precise traceability.

- **Hysteresis & Repeatability Analysis:**

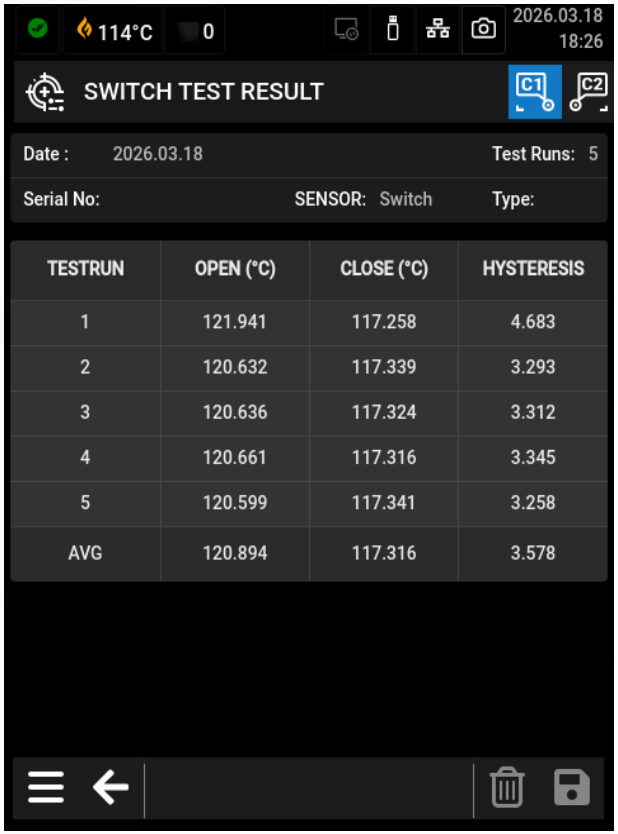
Understanding switch behavior isn't just about activation temperature; it's also about how consistently it triggers under repeated cycles. The RTCt makes it simple to see:

Hysteresis – The difference between activation and reset points.

Switch consistency – Does it switch at the same temperature every time?

- **Documentation at the Push of a Button**

With built-in print screen functionality, all displayed information – including graphs, test results, and activation trends – can be instantly documented for audits, compliance, and traceability.



Track switch activation points with dynamic status indicators, a real-time graph, and precise test results—all in one clear, intuitive display.

Precision Calibration through Triple-Zone and DLC Technology

Patent Pending

The RTCt-700 sets new standards for precision and temperature uniformity through AMETEK's advanced triple-zone heating technology and patented Dynamic Load Compensation (DLC) system. These innovations ensure outstanding stability and homogeneity throughout the insert – even at temperatures up to 700 °C – supporting complex, high-accuracy calibration needs across demanding industrial applications.

Active Triple-Zone Heating Technology

This The RTCt-700 features independently controlled lower, middle, and upper heating zones, creating a highly uniform calibration environment.

- The lower zone ensures optimum heat distribution throughout the calibration zone.
- The middle zone maintains stable core temperature where sensors-under-test are placed.
- The upper zone compensates for heat loss from the open top and large sensor loads – a critical requirement at elevated temperatures.

This architecture minimizes axial gradients and reduces the need for additional insulation, making the RTCt-700 suitable for calibrating long, liquid-filled, or mechanical sensors.

Dual-Sensor Input for Parallel Calibration

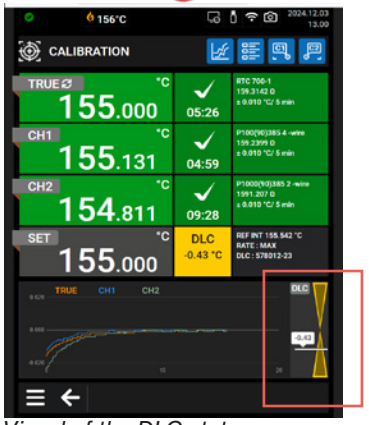
The RTCt serie empower users to simultaneously calibrate two sensors, significantly boosting efficiency and productivity. This dual-input system eliminates the need for sequential calibration, allowing for parallel processes that streamline workflows and reduce downtime.

Patented Dynamic Load Compensation (DLC)

The DLC system dynamically adjusts for any thermal inconsistencies that may arise from different sensor loads or large sensor arrays. By continuously monitoring and compensating for load variations, DLC technology creates an exceptionally homogeneous temperature field. This capability allows for 'close-to-laboratory's performance, even in challenging industrial settings where diverse sensors are calibrated simultaneously.

DLC Indicator for Real-Time Monitoring

The RTCt screen features a Dynamic Load Compensation (DLC) indicator, providing instant feedback on calibration stability. Users can set custom DLC values, ensuring precise control over load compensation.



Visual of the DLC status

The DLC status is clearly displayed in three formats:

- **Visual Diagram** – Instantly track stability with a graphical representation.
- **Color Indicators** – Green (within threshold), Yellow (outside threshold), and Grey (no check for DLC threshold) for quick assessment. (The DLC threshold functionality is a patent pending feature.)
- **Data Table** – Numerical values provide detailed insights for accurate calibration decisions.

Enhanced Precision for Large or Multiple Sensors

The combination of triple-zone control and DLC technology makes the RTCt-700 ideal for calibrating large industrial probes or multiple sensors at the same time. By maintaining uniform heat distribution, the calibrator ensures that each sensor experiences the same stable temperature, regardless of load or configuration – which is especially important for high-temperature applications such as heat treatment, metallurgy, power generation, and process industries.

Intelligent Reference Sensors, Unique Sensor Design, and Multi-Hole Insert Kits

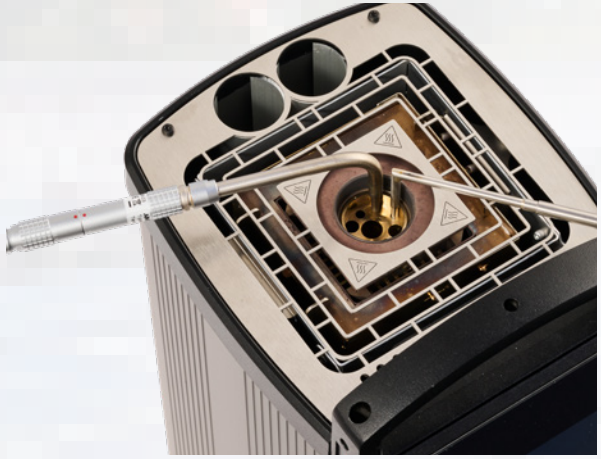
The RTCt-700 supports a range of reference sensors, inserts, and accessories designed to accommodate different sensor types, sizes, and installation requirements. These options allow the calibrator to be adapted to a wide variety of calibration tasks while maintaining consistent and repeatable performance..

Intelligent Reference Sensors

Each intelligent reference sensor stores its calibration data directly within the sensor itself, enabling true plug-and-play calibration. By automatically communicating its unique calibration coefficients to the RTCt unit, the sensor minimizes setup time, reduces error potential, and simplifies recalibration workflows. This innovation ensures every calibration is precise and traceable, supporting compliance with rigorous industry standards and reducing the need for manual data entry.

Sensor Design for Application Flexibility

The STS-200 reference sensors and the DLC sensors have been specially designed. They are both angled 90˚ and have been customized to fit the calibrator so they are only slightly higher than the top of the RTCt calibrator. The unique design makes it possible to calibrate threaded sensors and sensors with connection heads without any problems.



Sanitary Sensor and Insert.

Multi-Hole Insert Kits

For users who frequently calibrate different sensor sizes, the multi-hole insert kits are an invaluable addition. Each kit includes a variety of pre-drilled inserts, covering the most common sensor diameters without requiring multiple individual inserts. Metric and imperial insert options are available, ensuring that each calibration session is efficient and hassle-free. The inserts are designed to accommodate both standard reference sensors and DLC sensors, offering a consistent temperature environment that maintains the homogeneity needed for high-precision calibrations.

Enhanced Stability, Accuracy, and Support Features

The RTCt temperature calibrators are equipped with innovative support and stability features that maximize accuracy, ease of use, and operational efficiency. These features make them indispensable tools for industrial environments requiring precise and repeatable calibration results.

Auto Stepping for Efficient Multi-Step Calibration

The RTCt series feature an Auto Stepping function, which allows users to pre-program up to 20 temperature steps, with customizable hold times at each step. This hands-off approach enables efficient multi-step calibrations, reducing manual intervention and providing consistent, repeatable results for complex applications. For labs and production environments that require repeat calibrations across set temperatures, auto stepping is particularly useful.

Highest Accuracy Calibration with Set-Follows-True (Models B & C)

Models B and C of the RTCt-700 deliver maximum accuracy through their unique Set-Follows-True function. This feature adjusts the calibration setpoint based on real-time readings from the external reference sensor, ensuring that the calibration zone temperature matches the target precisely. Set-Follows-True is especially valuable when accuracy is critical, as it eliminates the need for manual adjustments and delivers unmatched precision in every calibration.

Support Rod for Secure Sensor Placement

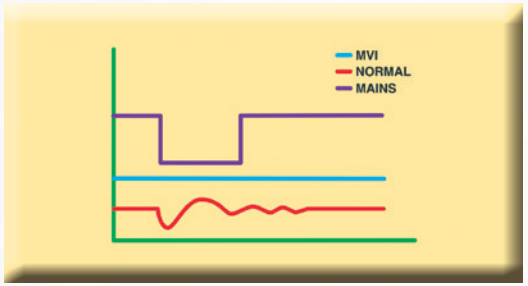
Designed for convenience and ease of use, the optional support rod securely holds sensors in place during calibration, ensuring consistent contact and temperature exposure. Lightweight yet sturdy, the support rod is easy to attach and adjust, providing a stable setup that minimizes measurement errors from sensor movement, even in field conditions.

Direct Reading of Sensor Under Test (Model B Only)

For users who require real-time data from their sensors during calibration, Model B offers direct reading capabilities. This feature allows the calibrator to measure resistance, thermocouple, mA, and voltage directly from the sensor under test, eliminating the need for additional equipment. This capability is essential for applications that require immediate feedback or multi-sensor calibration setups, enhancing flexibility and efficiency.

MVI (Mains Variance Immunity) for Secure Temperature Stability

Unstable power sources are common in industrial settings and can lead to calibration inaccuracies. The RTCt models incorporate MVI technology, which stabilizes power fluctuations by converting the incoming supply to a steady DC voltage, ensuring consistent temperature control and measurement accuracy. This feature enhances the reliability of calibration results in fluctuating environments, such as production lines and on-site testing facilities.



Predrilled Inserts for Precision Calibration

The RTCt-700 supports a wide range of sensor sizes through precise pre-drilled inserts, ensuring a stable fit and repeatable calibration results up to 700°C. All inserts include holes for STS reference sensors and the DLC sensor for full compatibility with RTCt-series uniformity performance.

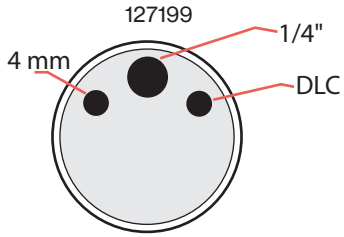
PREDRILLED INSERTS FOR RTCt-700

All predrilled inserts have holes for:
4 mm reference sensor • ¼" reference sensor • 4 mm DLC sensor.

Spare part no. for predrilled inserts with reference holes	
	Instrument
Sensor diameter	RTCt-700 A/B/C Order code
3 mm	127148
4 mm	127149
5 mm	127150
6 mm	127151
7 mm	127152
8 mm	127153
9 mm	127154
10 mm	127155
11 mm	127156
12 mm	127157
13 mm	127158
14 mm	127159
15 mm	127160
16 mm	127161
Package of the above inserts	127162

PREDRILLED INSERTS – IMPERIAL (inch)	
Sensor diameter	RTCt-700 A/B/C Order Code
1/8 in	127164
3/16 in	127165
1/4 in	127166
5/16 in	127167
3/8 in	127168
7/16 in	127169
1/2 in	127170
9/16 in	127171
5/8 in	127172
Package of the above inserts	127173

Undrilled Inserts	
	Instrument
Inserts	RTCt-700 A/B/C Order code
5-pack, undrilled inserts with no holes	127197
5-pack, undrilled inserts with hole for DLC sensor	127198
5-pack, undrilled inserts with 2 holes for STS reference sensors (4mm & ¼") and 1 hole for DLC sensor	127199



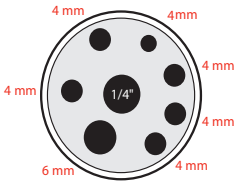
Multi-Hole Inserts for Versatile Calibration

The RTCt Series is designed for maximum adaptability, supporting a wide range of sensor types and diameters through a selection of versatile multi-hole insert kits. These precision-machined inserts help streamline calibration by securely accommodating multiple sensors at once, ensuring consistent temperature distribution and reliable, repeatable results.

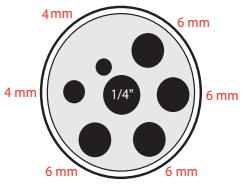
MULTI-HOLE INSERTS FOR RTCt-700 - METRIC (MM)

All inserts are drilled with the necessary holes.

Spare part no. for multi-hole inserts - metric (mm)	
	Instrument
Insert type	RTCt-700 A/B/C - Order code
Multi-hole type 1	127200
Multi-hole type 2	127201
Multi-hole type 3	127202
Multi-hole type 4	127203
Multi-hole type 7	127244
Multi-hole type 8	127245
Multi-hole type 9	127246
Set of 4 Metric Multi Inserts, 3mm to 13mm	127252



127200



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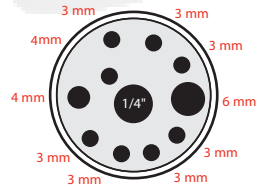

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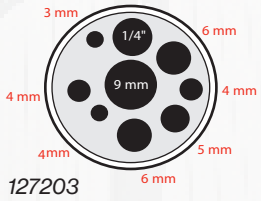

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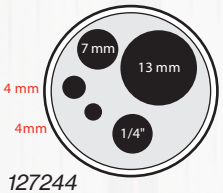

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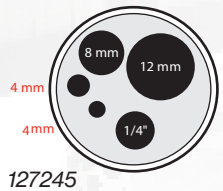

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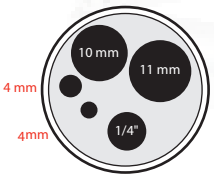
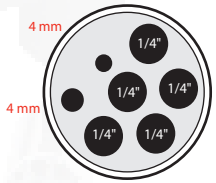


127246

MULTI-HOLE INSERTS FOR RTCt-700 - IMPERIAL (INCH)

All inserts are supplied with the necessary holes.

Spare part no. for multi-hole inserts - imperial (inch)	
	Instrument
Insert type	RTCt-700A/B/C Order code
Multi-hole type 5	127204
Multi-hole type 6	127205
Multi-hole type 10	127249
Set of 3 Imperial Multi Inserts, 1/8 to 1/2 inch	127254



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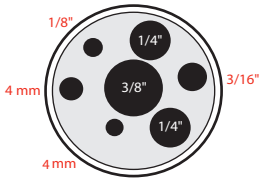

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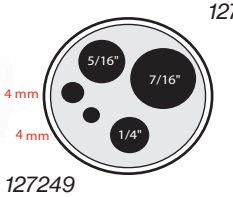

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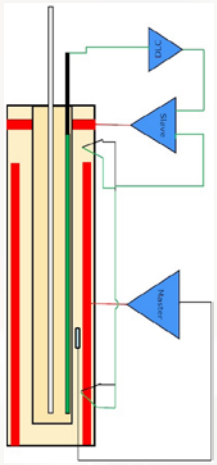
DLC – Dynamic Load Compensation. Making Dry Calibration Accurate and Well Documented



To The RTCt-700 combines AMETEK's advanced triple-zone heating technology with the patented Dynamic Load Compensation (DLC) system to deliver outstanding temperature uniformity, even at temperatures up to 700°C.

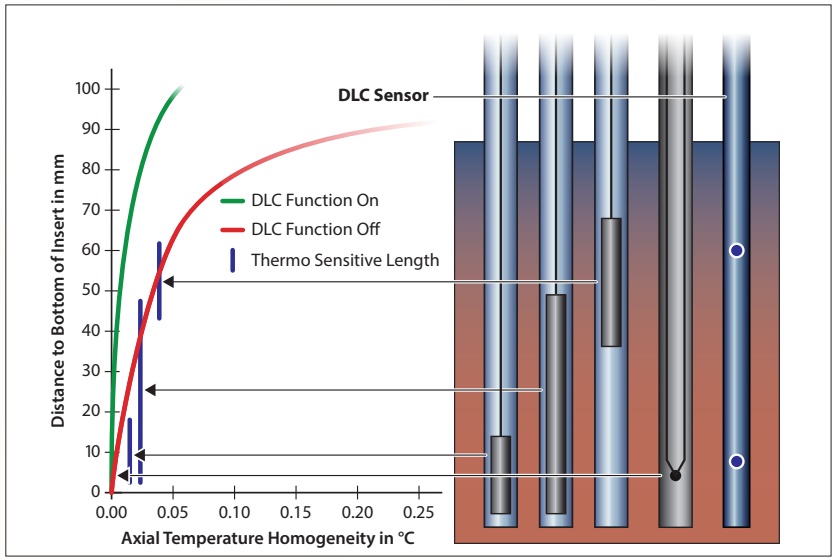
Each of the three heating zones works independently to minimize axial gradients throughout the insert, while the DLC system continuously measures and compensates for temperature variations caused by sensor load, sensor size, and positioning. Together, these technologies maintain a remarkably homogeneous calibration zone, ensuring that every sensor experiences the same stable temperature field – whether the insert is lightly loaded or filled with several large industrial probes.

By actively monitoring the temperature distribution inside the insert, the DLC system responds in real time to thermal disturbances and load-dependent effects that would otherwise impact calibration accuracy. This intelligent compensation enables the RTCt-700 to perform at a level that approaches liquid-bath uniformity, yet within a robust and portable dry-block design. The result is a high-temperature calibrator that not only achieves excellent homogeneity but also provides the confidence, traceability, and repeatability required in demanding industrial environments.

DLC – User Advantages

Calibrating with the DLC sensor offers the following advantages:

1. Calibration of several sensors simultaneously.
2. Calibration of thick sensors.
3. Gives TSL (Thermo Sensitive Length) independency. It is no longer necessary to know the TSL of the sensor.
4. Compensates for sensor production tolerances like the PT100 element being mounted in various positions in the sensor.
5. Trouble free calibration of sensors with PT100 elements up to 60 mm length.
6. The DLC indicator proves that the triple-zone is active and functioning well.
7. Proves that the calibrator is working perfectly. The DLC value should be very close to 0.00 when the calibrator is loaded with DLC sensor and an external reference sensor.
8. Together with the stability indication, the DLC indicates when the calibration values can be read.
9. JOFRA's unique, patented DLC system allows RTCt dryblock calibrators to perform with "close-to-laboratory" liquid bath performance.



Axial temperature curves for an RTCt calibrator with and without the DLC functionality activated.

Accessories and Supporting Products

We have a line of accessories and supporting products that further enhance the RTCt-700 temperature calibrator. These products provide options to pick and choose from depending on your application requirements. We have something to support almost any situation, from items that make calibrating and transporting easier to products that change and document the calibration process.

Specially Designed Carrying Case

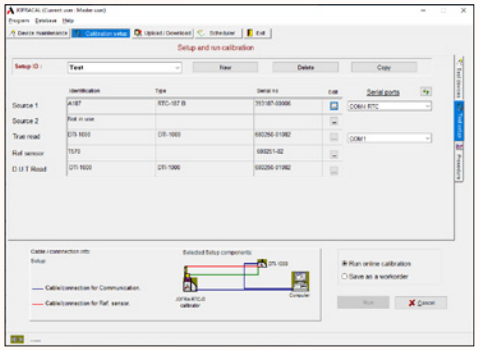
It's more than just a rolling case. Our case includes compartments to store the STS and DLC sensors, the liquid container, inserts, insulation plugs, the support rod set, and tools. Perfect for your portable calibrator.

Multi-Hole Inserts

We offer a selection of multi-hole inserts to fit almost any sensor diameter without buying numerous inserts. One for metric and one for imperial, our inserts include many sizes and room for reference and DLC sensors. See page 11.

Integrated Support Rod

The integrated support rod helps to mount sensors under test. It is lightweight and mounts on two fixing holes integrated into the RTCt calibrator. Cat. no. 127277.



JofraCal Calibration Software

JofraCal is a highly versatile calibration software included with the RTCt calibrators. The software communicates with the RTCt to help ensure easy calibration of all kinds of temperature sensors, such as RTD's, thermocouples, transmitters, and thermoswitches.

JofraCal has a manual set-up that accepts user-entered data or an automatic mode that allows the RTCt to operate as a stand-alone instrument with work orders. The software stores all completed calibration information on the computer for easy retrieval and certificate printing.

For more information and details, visit our JofraCal website here.

JOFRA ASM Scanner

Using the JOFRA RTCt series together with the ASM, Advanced
Signal Multi-scanner, offers a great time-saving automatic solution to calibrate multiple temperature sensors at the same time. The ASM series is an eight-channel scanner controlled by the JofraCal software on a PC. Up to 3 ASM units can be stacked to calibrate up to 24 sensors at a time. It can handle signals from
2-, 3- and 4 wire RTD's, thermocouples, transmitters, temperature switches, and voltage.

AMETEK
SENSORS, TEST & CALIBRATION

Specifications

Functional Specifications

Temperature Range

RTCt-700

@ ambient temp. 0°C /32°F.....10 to 700°C / 32 to 1292°F
@ ambient temp. 23°C /73°F .....33 to 700°C / 91 to 1292°F
@ ambient temp. 40°C /104°F ..... 50 to 700°C / 122 to 1292°F

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

33 to 660°C / 91 to 1220°F.....*±0.11°C / ±0.20 °F
33 to 100°C / 91 to 212°F.....**±0.14°C / ±0.25 °F
100 to 420°C / 212 to 788°F .....**±0.19°C / ±0.34 °F
420 to 600°C / 788 to 1112°F .....**±0.22°C / ±0.36 °F
600 to 660°C / 1112 to 1220°F.....**±0.22°C / ±0.40 °F

*12-month period. Relative to reference standard. Specifications by use of the external JOFRA STS-200 reference sensor.

* *Total system accuracy, 12 months, incl. STS sensor, and calibration uncertainty with accredited system calibration (RTCt calibrator with STS 200 Reference sensor / ISO/EN/IEC 17025).

Accuracy with Internal Ref. Sensor (models A, B, and C)

33 to 420°C / 91 to 788°F.....±0.29°C / ±0.52 °F
420°C to 600°C / 788 to 1112°F.....±0.32°C / ±0.58 °F
600°C to 660 °C / 1112 to 1220°F .....±0.34°C / ±0.61 °F
660°C to 700 °C / 1220 to 1292°F ..... ±1.2°C / ±2.2 °F

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

Stability

33 to 125°C / 91 to 257°F ..... ±0.008°C / ±0.015°F
125 to 425°C / 257 to 797°F ..... ±0.015°C / ±0.027°F
425 to 700°C / 797 to 1292°F ..... ±0.020°C / ±0.036°F

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

Resolution (user selectable)

All Temperatures.....1°, 0.1°, 0.01° or 0.001°

Temperature Unit in Display

User Selectable ..... °C, °F, or K

Axial Homogeneity Lower 60 mm Zone

33 to 100°C / 91 to 212°F ..... ±0.10°C / ±0.18°F
100 to 420°C / 212 to 788°F ..... ±0.25°C / ±0.45°F
420 to 700°C / 788 to 1292°F ..... ±0.40°C / ±0.72°F

Heating Time

33 to 700°C / 91 to 1292°F ..... 45 minutes

Cooling Time

700 to 100°C / 1292 to 212°F ..... 43 minutes
100 to 50°C / 212 to 122°F ..... 17 minutes
50 to 33°C / 122 to 91°F ..... 20 minutes

Time to Stability (approx.)

10 minutes

Physical Specifications

Weight and Instrument Size (LxWxH)

Weight.....11.3 kg / 24.9 lb
(LxWxH) .....362 x 171 x 363 mm /14.3 x 6.7 x 14.3 in

Shipping (without carrying case/ In cardboard case)

Weight.....16.3 kg / 36.0 lb
(LxWxH) .....442×251×481 mm / 17.40 × 9.88 × 18.94 in

Shipping (including optional carrying case)

Weight.....27.3 kg / 60.2 lb
(LxWxH) .....442 × 251 × 481 mm / 17.4 × 9.9 × 18.9 in

Shipping (carrying case only)

Weight.....: 11.0 kg / 24.3 lb
(LxWxH) ..... 6470 × 350 × 600 mm / 18.50 × 13.78 × 23.62 in

Immersion Depth

200 mm / 7.9 in 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).

All input specifications are valid for the RTCt-700.

RTD Reference Input (models B and C)

Type .....4-wire RTD with true ohm measurements
F.S. (Full Scale).....400 Ω
Accuracy (12 months)..... ±(0.0012% rdg. + 0.0005% F.S.)

	Temperature		12 Months	
RTD Type	°C	°F	°C	°F
Pt100 Reference	-50	-58	± 0.008	± 0.015
	0	32	± 0.008	± 0.015
	155	311	± 0.011	± 0.019
	320	608	± 0.014	± 0.024
	420	788	± 0.015	± 0.027
	700	1292	± 0.020	± 0.036

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

DLC-700 Sensor Input (models B and C)

	Temperature		12 Months	
TC diff	°C	°F	°C	°F
DLC-700	33	91	± 0.015	± 0.027
	155	311	± 0.013	± 0.024
	420	700	± 0.011	± 0.020
	700	1292	± 0.010	± 0.018

Specifications

RTD Sensor Under Test Input (model B)

F.S. (range) . . . . . 400 ohm
Accuracy (12 months) . . . . . ±(0.002% Rdg.+0.001% F.S)
F.S. (range) . . . . . 4000 ohm
Accuracy (12 months) . . . . . ±(0.003% Rdg. + 0.003% F.S.)
2-wire . . . . . add 50 mOhm

	Temperature		12 Months	
RTD Type	°C	°F	°C	°F
Pt100(90)385	0	32	± 0.016	± 0.028
	155	311	± 0.020	± 0.035
	320	608	± 0.024	± 0.043
	700	1292	± 0.036	± 0.064
Pt500(90)385	0	32	± 0.070	± 0.130
	155	311	± 0.078	± 0.14
	320	608	± 0.087	± 0.16
	700	1292	± 0.111	± 0.2
Pt1000(90)385	0	32	± 0.039	± 0.07
	155	311	± 0.045	± 0.081
	320	608	± 0.053	± 0.095
	700	1292	± 0.073	± 0.13

Thermocouple Input

Types: E, J, L, K, N, R, S, T, U, B
Range . . . . . –10mV to 78 mV
F.S. (Full Scale) . . . . . 78 mV
Accuracy (12 months) . . . . . ±(0.005% Rdg. + 0.005% F.S.)

	Temperature		12 Months*	
TC Type	°C	°F	°C	°F
E	-50	-58	± 0.08	± 0.14
	0	32	± 0.07	± 0.12
	155	311	± 0.07	± 0.12
J	-50	-58	± 0.09	± 0.16
	0	32	± 0.08	± 0.14
	155	311	± 0.08	± 0.15
K	-50	-58	± 0.12	± 0.21
	0	32	± 0.10	± 0.18
	155	311	± 0.11	± 0.19
T	-50	-58	± 0.12	± 0.22
	0	32	± 0.11	± 0.19
	155	311	± 0.09	± 0.16
R	-50	-58	± 1.06	± 1.91
	0	32	± 0.74	± 1.33
	155	311	± 0.48	± 0.86
S	-50	-58	± 0.98	± 1.77
	0	32	± 0.73	± 1.31
	155	311	± 0.50	± 0.89
N	-50	-58	± 0.17	± 0.30
	0	32	± 0.16	± 0.28
	155	311	± 0.14	± 0.24

Transmitter Supply

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

Transmitter Input mA (model B)

Range . . . . . 0 to 24 mA
Accuracy (12 months) . . . . . ±(0.005% Rdg. +0.010% F.S.)

Voltage Input VDC (model B)

Range . . . . . 0 to 12 VDC
Accuracy (12 months) . . . . . ±(0.005% Rdg. +0.010% F.S.)

Switch Input (model B)

Switch Dry Contacts

Test Voltage . . . . . Maximum 2.5 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.) 1150VA

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*
WIFI . . . . . USB Tongle (Hotspot)

Miscellaneous

Operating Ambient 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

Inserts

Insert Dimensions (Standard Insert)

Outer Diameter . . . . . 29.7 mm / 1.17 in
Inner Diameter (multi hole) . . . . . 25.6 mm / 1.01 in
Length . . . . . 210 mm / 8.27 in

Weight of Non-Drilled Insert (approx.)

1060 g / 17.3 oz

Options & Accessories

Standard Delivery

Models A, B, and C Include:

- RTCt-700 dry-block calibrator (user specified)
- Mains power cable (user specified)
- Wi-Fi Dongle
- Accredited certificate - temperature performance
- Tool for insertion tubes
- JOFRACAL
- USB cable
- Thermal Protection Shield
- Manual

Model B Instruments Also Include:

- Test cables (2 x red / 2 x black, with test clips)
- Accredited certificate - input performance for reference sensor and DLC sensor
- Accredited certificate - input performance for sensor-under-test inputs

Model C Instruments Also Include:

- Accredited certificate - input performance for reference sensor and DLC sensor

Accessories

Wi-Fi Dongle (Included as standard)	**130817**
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**
Carrying Case with Trolley	**127552**

Functional Comparison

Model A

RTCt-A reference temperature calibrator.

Model B

RTCt-B reference temperature calibrator with input for reference sensor, DLC sensor, and two sensors-under-test.

Model C

RTCt-C reference temperature calibrator with input for reference sensor and DLC sensor.

Models	Model A	Model B	Model C
Triple-zone heating block	■	■	■
MVI — Mains Variance Immunity (or similar)	■	■	■
Stability indicator	■	■	■
Automatic step function	■	■	■
USB communication	■	■	■
Display resolution 0.001°	■	■	■
Programmable max. temperature	■	■	■
Calibration of short sensors in special insert		■	
External precision reference sensor input		■	■
External precision DLC reference sensor input		■	■
"SET" follows "TRUE"		■	■
Load compensation functionality		■	■
Input for RTD, TC, V, mA		■	
4-20 mA transmitter input incl. 24 VDC supply		■	
All inputs scalable to temperature		■	
Automatic switch test (open, close, and hysteresis)		■	
Download of calibration work orders from PC	■	■	■
Upload of calibration results (as found & as left)	■	■	■

AMETEK®
SENSORS, TEST & CALIBRATION

Ordering Information

Base Model Number	
RTCt700	RTCt-700 series, 33˚C to 700˚C (91˚F to 1292˚F)

Model Version	
A	Basic model, without input
B	Full model, incl. DLC sensor input, Reference sensor input, Sensor-under-test input
C	Middle model, incl. DLC sensor input, Reference sensor input

Power Supply (US deliveries 60 Hz only)	
115	115 VAC
230	230 VAC

Mains Power Cable	
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

Insert Type and Size	
NON	NON, The inserts must be ordered separately (Page 11 and 12)

Dynamic Load Compensation (B and C models only—optional)	
DLC	DLC sensor

STS Reference Sensor (B and C models only—optional)	
R4	STS-200 Ref. sensor. Dia. 4mm. Length 227mm (STS200A970EH
R5	STS-200 Ref. sensor. Dia. 1/4". Length 227mm (STS200B970EH)

Calibration Certificate	
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)
EASD	System Calibration — Full EURAMET Accredited Certificate with DLC — ISO17025 (B & C model only)

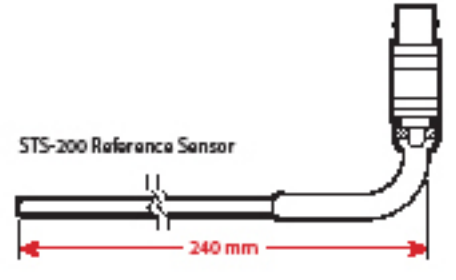
Base Model Number	
CT	Solid Protective Carrying case with trolley
SR	Support rod set
TR	Solid Protective Carrying case with trolley & Support rod set

RTCt700 B 230 A NON DLC R2 EA CT

Sample Order Number

RTCt700B230ANONDLCR4EACT

JOFRA RTCt-700 B with 230VAC, EU power cord, no insert (to be ordered separately, DLC, 4 mm diameter STS-200 reference sensor, full EA temperature calibration certificate and carrying case with trolley.



ametekcalibration.com

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*ISO 17025 accredited calibration lab.