JOFRA calibration

CTC Series

Compact Temperature Calibrator

CTC-155/350/652/660

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8715 Mesa Point Terrace San Diego, CA 92154
Toll Free: 1.866.363.6634 Tel: 1.619.429.4545 Fax: 1.619.374.7012
Email: sales@calright.com http://www.calright.com

Save Time, Save Money

Best In Class Industrial Calibrator

The new generation CTC temperature calibrators feature improved accuracy by as much as 25%. They are now the most accurate industrial class temperature calibrator on the market.

Fast Calibration

All Jofra temperature calibrators feature a purpose-dedicated temperature regulator, which provides a very fast heating and cooling time, and a short stabilization time. Performing a three point temperature calibration procedure is fast and easy.

Wide Temperature Range

The CTC series covers a wide temperature range from -25 to 660°C (-13 to 1220°F).

We have a model to cover almost all standard industrial temperature calibration applications.
CTC-155: -25 to 155°C (-13 to 311°F)
CTC-350: 28 to 350°C (82 to 662°F)
CTC-652: 28 to 650°C (82 to 1202°F)
CTC-660: 28 to 660°C (82 to 1220°F)

Easy To Carry

The CTC series is designed for both on-site and maintenance shop calibration.

The calibrator is lightweight, easy to carry, and the handle is placed away from the heat-zone.

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Intelligent Accuracy

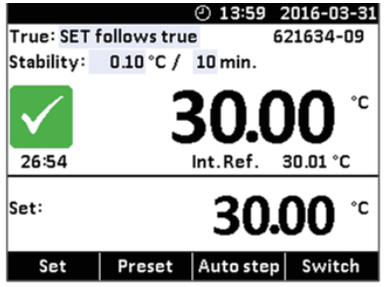
External Reference Sensor

Each CTC calibrator has a C model that includes a signal input for an external reference sensor. The sensor improves the accuracy even more. Our external reference sensors have been developed to match each of the CTC models.

Self Calibration

Adjust the internal reference sensor to give the same readings as the external reference sensor by performing a Self Calibration. After the Self Calibration the calibrator can be used without the external reference sensor. Regular Self Calibration is needed to ensure the accuracy. The Self Calibration is simple and fast to perform following the steps in the reference manual.

External Sensor Control



The CTC has two modes when using the external reference sensor.

In “External ref” mode, the external reference sensor represents the True value.

In The “Set follows True” mode, the reference sensor serves two purposes; measuring the reference temperatue and at the same time controlling the block temperature to the set temperature.

Liquid Filled Sensors and Switches

The tall CTC models, with an immersion depth of 190 mm / 7.5 in, are ideal for calibration of liquid filled sensors. The block mass and the specially designed non-linear heating elements in the CTC-652, provide a homogeneous temperature throughout the block. It is essential for the quality of the calibration or test that the full length of the sensing part of the sensor is exposed to the same temperature. The CTC-652 makes it possible to calibrate analog reading devices or switches with very high repeatability.

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Multi-Information Display

Status Bar

Shows information about recalibration due status, hot and cold safety warnings, and date and time.

Calibration Settings

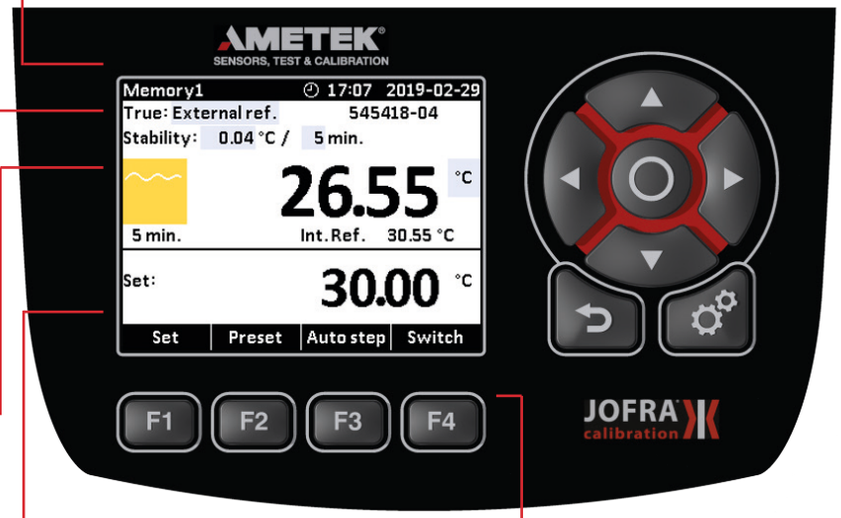
Shows the calibration settings and stability criteria for the reference sensor. Can be accessed and changed directly in the display by use of the arrow keys.

Calibration Status

Shows current status of the calibrator, like heating or cooling, expected time to stability, or stability achieved.

Function Bar

Shows the current possibilities of the function keys.



Function Keys

The function keys serve as shortcuts to the main functions like Set, Preset, Auto step, and Switch test. When entering one of the functions, the function keys will then show the options within the selected function.

Informative Color Display and Intuitive Operation

The CTC series is designed with an easy-to-read and very informative color display that gives you a full overview of the calibration task you are currently performing.

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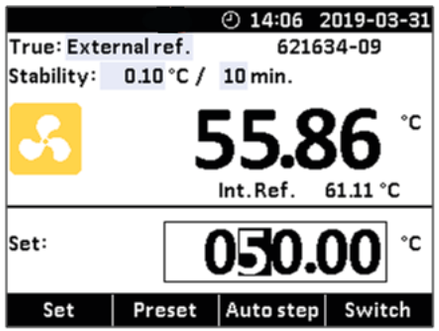
Useful Features

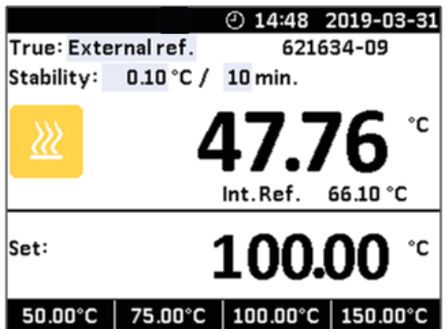
The CTC is a very versatile calibrator series with many integrated functions - you can run the calibration in four different ways.

Set Function



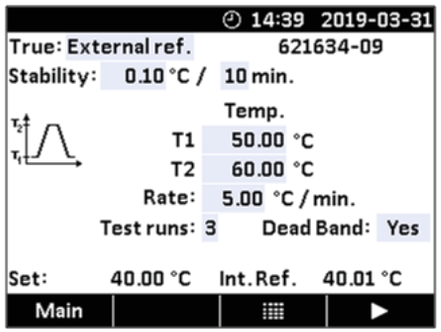
The fastest and simplest way of starting the calibrator. Simply press SET and type in the desired temperature, and off you go.

Preset Mode



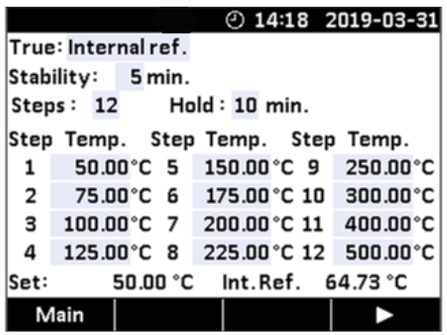
In Preset mode, you activate one of the preset temperatures. The presets are programmable for your specific needs.

Auto Switch Test



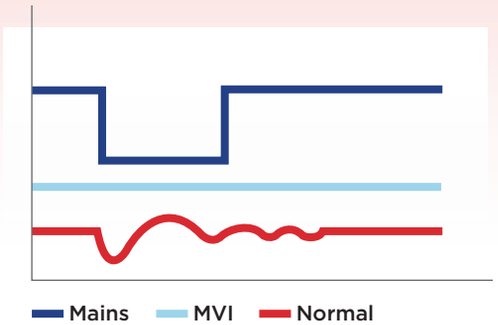
Switch test calibration is a perfect time saver. Start the switch calibration and come back to note the results after the test. You decide if you want the deadband or not - and the test can be repeated automatically in up to three subsequent runs.

Auto Stepping



In AUTOSTEP mode, you can program as much as 12 temperature steps and at the same time set the dwell time. Even the stability criteria can be programmed. Just start the sequence and the calibrator will run through the steps.

MVI – Mains Power Variance Immunity improves temperature stability Unstable mains power supplies are a major contributor to calibration inaccuracies. Traditional temperature calibrators often become unstable in industrial environments where large electrical motors, heating elements, and other devices are periodically cycled on and off. The cycling of supply power can cause lower quality temperature regulators to perform inconsistently, leading to both inaccurate readings and unstable temperatures. The CTC series employ the MVI, thus avoiding such stability problems. The MVI circuitry continuously monitors the supply voltage and ensures a constant energy flow to the heating elements.



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Special Features

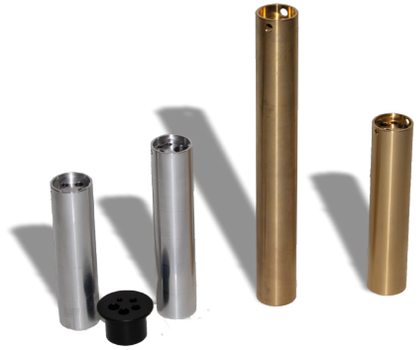
Multi Sensor Calibration

Insert heat loss due to mass loading from multiple or large sensors can be a challenge for most dry-block calibrators. The CTCs advanced feedback algorithms combined with the external reference sensor effectively addresses these challenges and makes the accuracy even better.

Plug and Play Reference Sensors

All STS reference sensors are plug and play as they contain information in the connectors memory chip: Sensor coefficients • Unique serial number • Temperature range • Calibration date • Calibration interval

Broad Range of Inserts

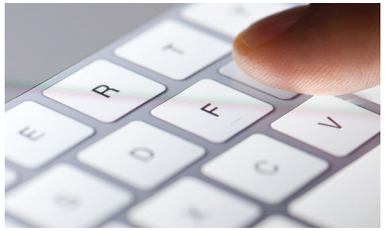


The CTC series offers a broad range of inserts to match the diameter of almost any unit under test.

The CTC-155 provides 35% more space for the units under test compared to CTC-140.

For flexibility, we also supply multihole inserts with the most common sensor diameters in both metric and imperial measures.

IRI - Intelligent Recalibration Information



When switching on the calibrator or connecting the reference sensor, the calibrator immediately warns you if any of the calibration certificates are overdue. A buzzer and warning appears. The recalibration interval can be set from 1 to 99 months.

Reference Sensor Protection

The CTC will be blocked if it is set to a temperature outside the reference sensors specifications. This protects the reference sensor from being damaged.

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User Specified Settings

Silent Mode Operation

The CTC calibrator can be programmed to run in silent operation. This function is an advantage if calibrating in a laboratory or an office. If used in silent operation the calibrator is not using its full cooling potential.

Online Firmware Upgrade

You can download firmware and software upgrades at **www.ametekcalibration.com.**
Register your products and receive notifications when we have firmware upgrades or other useful information regarding your instrument.

Support Rod Set

The support rod can be mounted on all CTC calibrators, and it is used to hold the sensor under test in its position while calibrating. Indcludes rod, sensor grip, and fixture.

Protective Carrying Case

Our special designed protective carrying case gives excellent protection for the CTC calibrators.
The carrying case has compartments for inserts, cables, manuals, plugs, and more.

Calibration Software Included

The CTC is supplied with our highly versatile calibration software JofraCal.
All calibrations can be documented with a certificate, given that the CTC is controlled from a PC. When the calibrator has reached the desired temperature and stabillity it will prompt you to type in the UUT temperature. JofraCal documents all your calibration needs within temperature, pressure and process calibration.

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Specifications CTC-155

Temperature

Temperature Range

Temp. @ ambient 23°C / 73° F ..... **-25 to 155°C / -13 to 311°F**
Temp. @ ambient of 0°C / 32° F ..... **-39 to 155°C / -38 to 311°F**
Temp. @ ambient of 50°C / 122° F ... **-7 to 155°C / -19 to 311°F**

Accuracy ★

CTC-155 with internal ref. sensor ..... **±0.3°C /±0.54°F**
CTC-155 with ext. ref. sensor STS-102-A ..... **±0.2°C /±0.36°F**
CTC-155 with ext. ref. sensor STS-120-A-915 ... **±0.2°C /±0.36°F**

Stability

CTC-155 ★★ ..... **±0.04°C / ±0.07°F**

Radial Homogeneity (difference between holes)

CTC-155 @ 155°C / 311°F..... **0.03°C / 0.054°F**
CTC-155 @ -25°C / -13°F..... **0.02°C / 0.036°F**

Influence From Load Ø6mm Full Range

With Internal Reference ..... **0,2°C / 0.36°F**
With External Reference ..... **0,01°C / 0.02°F**

Settings

Resolution ..... **1 or 0.1 or 0.01**
Units..... **°C or °F or K**

Heating Time

CTC-155 ..... **23 to 155°C / 73 to 311°F** ... **13 minutes**

Cooling Time

CTC-155 ..... **155 to 23°C / 311 to 73°F** ... **12 minutes**
CTC-155 ..... **23 to -25°C / 73 to -13°F** ... **16 minutes**

Time to Stability (typical)

CTC-155 ..... **10 minutes**

Mains Power

Voltage ..... **115 V (90-127) / 230 V (180-254)**
Max Power Consumption ..... **130 VA**
Frequency, US deliveries ..... **60 Hz ±3**
Frequency, non US deliveries..... **50 Hz ±3, 60 Hz ±3**

Physical Specifications

Dimension L x W x H . **248x148x305 mm / 9.761x5.83x12.01 in**

Weight

CTC-155 ..... **5.5 kg / 12.1 lb**

Immersion Depth incl. insulation plug

CTC-155 ..... **120 mm / 4.53 in**

Well Diameter

CTC-155 ..... **26 mm / 1.02 in**

Insert Dimensions (diameter x length)

CTC-155 ..... **25.8 mm x 100 mm / 1.01 x 3.9 in**

Electrical

Switch Input (dry contact)

Test Voltage..... **Maximum 14 VDC**
Test Current..... **Maximum 1 mA**

Digital Interface

USB 2.0

Environmental

Operating Temperature

0 to 50°C / 32 to 122°F

Storage Temperature

-20 to 50°C / -4 to 122°F

Humidity

5 to 90% Rh, non-condensing

Protection Class

IP-10

External Reference Sensor

STS-120-A-915 ..... **-25 to 155°C /-13 to 311°F**

Accuracy

Hysteresis (@ 0°C / 32°F) ..... **0.01°C / 0.018°F**
Long Term Stability (@ 0°C / 32°F) ★★★..... **0.014°C / 0.025°F**
Repeatability..... **0.004°C/ 0.007°F**

Sensing Element

Type **Pt100**

Response Time

STS-120-A: $t_{0.5}$ (50%) ..... **7 sec.**
STS-120-A: $t_{0.9}$ (90%) ..... **18 sec.**

Dimensions

Diameter..... **4 mm / 0.157 in**
Length..... **140 mm / 5.51 in**
Max. height over calibrator top..... **20 mm / 0.79 in**

External Reference Sensor

STS-102-A..... **-50 to 155°C /-58 to 311°F**

Accuracy

Hysteresis (@ 0°C / 32°F) ..... **0.01°C / 0.018°F**
Long Term Stability (@ 0°C / 32°F) ..... **0.014°C / 0.025°F**
Repeatability..... **0.002°C/ 0.0036°F**

Sensing Element

Type **Pt100**

Response Time

STS-120-A: $t_{0.5}$ (50%) ..... **5 sec.**
STS-120-A: $t_{0.9}$ (90%) ..... **16 sec.**

Dimensions

Diameter..... **4 mm / 0.157 in**
Length..... **30 mm / 1.181 in**
Cable length..... **1 m / 3.28 ft**

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Specifications CTC-350

Temperature

Temperature Range	
Range	**28 to 350°C / 82 to 662°F**
Lowest calibration temperature	**ambient +5°C / 41°F**
Accuracy ★	
CTC-350 With Internal Reference Sensor	
@ 350°C / 662°F	**±0.45°C /±0.81°F**
@ 200°C / 392°F	**±0.40°C /±0.72°F**
CTC-350 With External Reference Sensor STS-120-A-935	
@ Full Range	**±0.25°C /±0.45°F**
Stability	
CTC-350 ★★	**±0.05°C / ±0.09°F**
Radial Homogeneity (difference between holes)	
CTC-350 @ 350°C / 662°F	**0.04°C / 0.072°F**
CTC-350 @ 200°C / 392°F	**0.02°C / 0.036°F**
Influence From Load Ø6mm 350°C / 662°F	
With Internal Reference	**0,35°C / 0.63°F**
With External Reference	**0,01°C / 0.02°F**
Settings	
Resolution	**1 or 0.1 or 0.01**
Units	**°C or °F or K**
Heating Time	
CTC-350	**23 to 350°C / 73 to 662°F .... 6 minutes**
Cooling Time	
CTC-350	**350 to 100°C / 662 to 212°F ...20 minutes**
CTC-350	**100 to 50°C / 212 to 122°F ...14 minutes**
Time to Stability (typical)	
CTC-350	**10 minutes**

Mains Power

Voltage	**115 V (90-127) / 230 V (180-254)**
Max Power Consumption	**1150 VA**
Frequency, US deliveries	**60 Hz ±3**
Frequency, non US deliveries	**50 Hz ±3, 60 Hz ±3**

Physical Specifications

Dimension L x W x H	**248x148x305 mm / 9.76x5.83x12.01 in**
Weight	
CTC-350	**5 kg / 11 lb**
Immersion Depth	
CTC-350	**115 mm / 4.53 in**
Well Diameter	
CTC-350	**26 mm / 1.02 in**
Insert Dimensions (diameter x length)	
CTC-350	**25.7 mm x 120 mm / 1.01 x 4.72 in**

Electrical

Switch Input (dry contact)	
Test Voltage	**Maximum 14 VDC**
Test Current	**Maximum 1 mA**
Digital Interface	
USB 2.0	

Environmental

Operating Temperature	
0 to 50°C / 32 to 122°F	
Storage Temperature	
-20 to 50°C / -4 to 122°F	
Humidity	
5 to 90% Rh, non-condensing	
Protection Class	
IP-10	

External Reference Sensor

STS-120-A-935	**0 to 350°C / 32 to 662°F**
Accuracy	
Hysteresis (@ 0°C / 32°F)	**0.01°C / 0.018°F**
Long Term Stability (@ 0°C / 32°F) ★★★	**0.014°C / 0.025°F**
Repeatability	**0.004°C/ 0.007°F**
Sensing Element	
Type	**Pt100**
Response Time	
STS-120-A: $t_{0.5}$ (50%)	**7 sec.**
STS-120-A: $t_{0.9}$ (90%)	**18 sec.**
Dimensions	
Diameter	**4 mm / 0.157 in**
Length	**135 mm / 5.32 in**
Max. height over calibrator top	**10 mm / 0.39 in**

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Specifications CTC-652

Temperature

Temperature Range

@ Ambient 23°C/73°F ..... **28 to 650°C / 82 to 1202°F**
@ Ambient 0°C/32°F ..... **5 to 650°C / 41 to 1202°F**

Accuracy ★

CTC-652 With Internal Reference Sensor
@ 650°C / 1202°F ..... **±0.65°C /±1.17°F**
@ 400°C / 752°F ..... **±0.60°C /±1.08°F**
@ 200°C / 392°F ..... **±0.50°C /±0.90°F**

CTC-652 With External Reference Sensor STS-200-A-970
@ 650°C / 1202°F ..... **±0.45°C /±0.81°F**
@ 400°C / 752°F ..... **±0.40°C /±0.72°F**
@ 200°C / 392°F ..... **±0.35°C /±0.63°F**

Stability

CTC-652 ★★ ..... **±0.05°C / ±0.09°F**

Radial Homogeneity (difference between holes)

CTC-652 @ 650°C / 1202°F ..... **0.08°C / 0.14°F**
CTC-652 @ 400°C / 752°F ..... **0.03°C / 0.054°F**

Influence From Load Ø6mm 28 to 650°C / 82 to 1202°F

With Internal Reference ..... **0,1°C / 0.18°F**
With External Reference ..... **0,03°C / 0.054°F**

Settings

Resolution ..... **1 or 0.1 or 0.01**
Units ..... **°C or °F or K**

Heating Time

CTC-652 ..... **23 to 650°C / 73 to 1202°F** ... **33 minutes**

Cooling Time

CTC-652 ..... **650 to 100°C / 1202 to 212°F** ... **48 minutes**
CTC-652 ..... **100 to 50°C / 212 to 122°F** ... **25 minutes**

Time to Stability (typical)

CTC-652 ..... **5 minutes**

Mains Power

Voltage ★★★★ ..... **115 V (103-127) / 206 V (180-254)**
Max Power Consumption ..... **1150 VA**
Frequency, US deliveries ..... **60 Hz ±3**
Frequency, non US deliveries ..... **50 Hz ±3, 60 Hz ±3**

Physical Specifications

Dimension L x W x H .. **248x148x390 mm / 9.76x5.83x15.35 in**

Weight

CTC-652 ..... **9.0 kg / 19.8 lb**

Immersion Depth

CTC-652 ..... **190 mm / 7.48 in**

Well Diameter

CTC-652 ..... **26 mm / 1.02 in**

Insert Dimensions (diameter x length)

CTC-652 ..... **25.7 mm x 200 mm / 1.01 x 7.874 in**

Electrical

Switch Input (dry contact)

Test Voltage ..... **Maximum 14 VDC**
Test Current ..... **Maximum 1 mA**

Digital Interface

USB 2.0

Environmental

Operating Temperature

0 to 50°C / 32 to 122°F

Storage Temperature

-20 to 50°C / -4 to 122°F

Humidity

5 to 90% Rh, non-condensing

Protection Class

IP-10

External Reference Sensor

STS-200-A-970 ..... **0 to 700°C / 32 to 1292°F**

Accuracy

Hysteresis (@ 0°C / 32°F) ..... **0.01°C / 0.018°F**
Long Term Stability (@ 0°C / 32°F) ★★★ ..... **0.016°C / 0.029°F**
Repeatability ..... **0.002°C/ 0.0036°F**

Sensing element

Type **Pt100**

Response Time

STS-200-A-970: $t_{0.5}$ (50%) ..... **8 sec.**
STS-200-A-970: $t_{0.9}$ (90%) ..... **26 sec.**

Dimensions

Diameter ..... **4 mm / 0.157 in**
Length ..... **241 mm / 9.29 in**
Max. height over calibrator top ..... **35 mm / 1.38 in**

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Specifications CTC-660

Temperature

Temperature Range	
Range	**28 to 660°C / 82 to 1220°F**
Lowest calibration temperature	**ambient +5°C / 41°F**
Accuracy★	
CTC-660 with Internal Ref. Sensor	
@ 660°C / 1220°F	**±0.85°C /±1.53°F**
@ 400°C / 752°F	**±0.75°C /±1.35°F**
@ 200°C / 392°F	**±0.65°C /±1.17°F**
CTC-660 with External Ref. Sensor STS-120-A-966	
@ 660°C / 1220°F	**±0.45°C /±0.81°F**
@ 400°C / 752°F	**±0.45°C /±0.81°F**
@ 200°C / 392°F	**±0.40°C /±0.72°F**
Stability	
CTC-660 @ 660°C★★	**±0.08°C / ±0.14°F**
Radial Homogeneity (difference between holes)	
CTC-660 @ 660°C / 1220°F	**0.1°C / 0.18°F**
CTC-660 @ 400°C / 752°F	**0.03°C / 0.054°F**
Influence From Load Ø6mm 28 to 660°C / 82 to 1220°F	
With Internal Reference	**0,3°C / 0.54°F**
With External Reference	**0,03°C / 0.054°F**
Settings	
Resolution	**1 or 0.1 or 0.01**
Units	**°C or °F or K**
Heating Time	
CTC-660	**23 to 660°C / 73 to 1220°F ...18 minutes**
Cooling Time	
CTC-660	**660 to 100°C / 1220 to 212°F ...39 minutes**
CTC-660	**100 to 50°C / 212 to 122°F ...18 minutes**
Time to Stability (typical)	
CTC-660	**5 minutes**

Mains Power

Voltage	**115 V (90-127) / 230 V (180-254)**
Max Power Consumption	**1150 VA**
Frequency, US deliveries	**60 Hz ±3**
Frequency, non US deliveries	**50 Hz ±3, 60 Hz ±3**

Physical Specifications

Dimension L x W x H	**248x148x305 mm / 9.76x5.83x12.01 in**
Weight	
CTC-660	**6.1 kg / 13.4 lb**
Immersion Depth	
CTC-660	**115 mm / 4.53 in**
Well diameter	
CTC-660	**26 mm / 1.02 in**
Insert Dimensions (diameter x length)	
CTC-660	**25.7 mm x 120 mm / 1.01 x 4.72 in**

Electrical

Switch Input (dry contact)	
Test Voltage	**Maximum 14 VDC**
Test Current	**Maximum 1 mA**
Digital Interface	
USB 2.0	

Environmental

Operating Temperature	
0 to 50°C / 32 to 122°F	
Storage Temperature	
-20 to 50°C / -4 to 122°F	
Humidity	
5 to 90% Rh, non-condensing	
Protection Class	
IP-10	

External Reference sensor

STS-120-A-966	**0 to 660°C / 32 to 1220°F**
Accuracy	
Hysteresis (@ 0°C / 32°F)	**0.01°C / 0.018°F**
Long Term Stability (@ 0°C / 32°F) ★★★	**0.014°C / 0.025°F**
Repeatability	**0.004°C/ 0.007°F**
Sensing Element	
Type	**Pt100**
Response Time	
STS-120-A: $t_{0.5}$ (50%)	**8 sec.**
STS-120-A: $t_{0.9}$ (90%)	**26 sec.**
Dimensions	
Diameter	**4 mm / 0.157 in**
Length	**151 mm / 5.95 in**
Max. height over calibrator top	**25 mm / 0.94 in**

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8715 Mesa Point Terrace San Diego, CA 92154
Toll Free: 1.866.363.6634 Tel: 1.619.429.4545 Fax: 1.619.374.7012
Email: sales@calright.com http://www.calright.com

Inserts

Inserts for CTC-155 and CTC-350 are made of aluminum. Inserts for CTC-652 and CTC-660 are made of brass. 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. All CTC-155 inserts include an insulation plug.

Predrilled Inserts–metric (mm)

Probe Dia.	Part Numbers				
	Insert Code	CTC-155	CTC-350	CTC-652	CTC-660
3 mm	003	129407	129429	130156	129459
4 mm	004	129408	129430	130157	129460
5 mm	005	129409	129431	130158	129461
6 mm	006	129410	129432	130159	129462
7 mm	007	129411	129433	130160	129463
8 mm	008	129412	129434	130161	129464
9 mm	009	129413	129435	130162	129465
10 mm	010	129414	129436	130163	129466
11 mm	011	129415	129437	130164	129467
12 mm	012	129416	129438	130165	129468
13 mm	013	129417	129439	130166	129469
14 mm	014	N/A	129440	130167	129470
15 mm	015	N/A	129441	130168	129471
16 mm	016	N/A	129442*	130169*	129472*
18 mm	018	N/A	129443*	130170*	129473*
20 mm	020	N/A	129444*	130171*	129474*
Package of the above inserts	—	129502	129504	130184	129506
Multi-hole	M01	129489	129491	130152	129493

Predrilled Inserts–imperial (in)

Probe Dia.	Part Numbers				
	Insert Code	CTC-155	CTC-350	CTC-652	CTC-660
1/8 in	125	129420	129447	130172	129477
3/16 in	187	129421	129448	130173	129478
1/4 in	250	129422	129449	130174	129479
5/16 in	312	129423	129450	130175	129480
3/8 in	375	129424	129451	130176	129481
7/16 in	437	129425	129452	130177	129482
1/2 in	500	129426	129453	130178	129483
9/16 in	562	129427	129454	130179	129484
5/8 in	625	129428	129455	130180	129485
11/16 in	688	N/A	129456*	130181*	129486*
13/16 in	750	N/A	129457*	130183*	129487*
3/4 in	813	N/A	129458*	130182*	129488*
Package of the above inserts	—	129503	129505	130185	129507
Multi-hole	M02	129490	129492	130153	129494

** All inserts are suppied with hole for 4mm reference sensor, execpt if marked with *.*

Undrilled Inserts

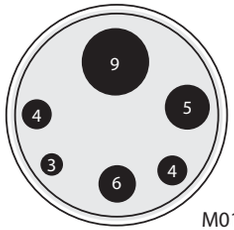
Inserts 5-Pack	Part Numbers				
	Insert Code	CTC-155	CTC-350	CTC-652	CTC-660
No ref. hole	UN1	129418	129445	130154	129475
w/ref. hole	UN2	129419	129446	130155	129476

CTC-155/350/652/660 Inserts

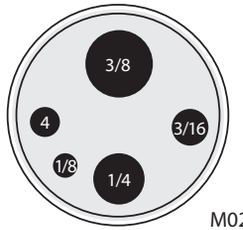
Typical Weight
CTC-155: 2.6 oz / 75 g
CTC-350: 5.8 oz / 170 g
CTC-652: 28.6 oz / 850 g
CTC-660: 17.8 oz / 510 g

Use of other inserts may reduce 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.

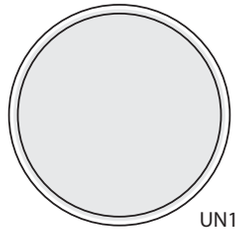
Do you need a customized insert?
Please contact us for more information.

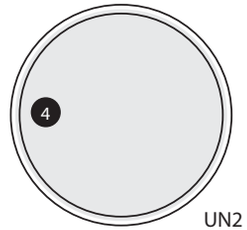


M01 Multi-hole



M02 Multi-hole


UN1 Undrilled



UN2 Undrilled w/ref. hole

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Ordering Information

Base Model Number	
CTC155	CTC-155, -25 to 155°C (-13 to 311°F)
CTC350	CTC-350, 28 to 350°C (82 to 662°F)
CTC652	CTC-652, 28 to 650°C (82 to 1202°F)
CTC660	CTC-660, 28 to 660°C (82 to 1220°F)

Model Version	
A	Basic model, without input
C	Full model, includes reference sensor input

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

Mains Power Cable Type	
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	Without insert (standard delivery)
UNX	1 x Undrilled insert (Please see insert section for correct code)
XXX	1 x Single hole Insert (Please see insert section for correct code)
MXX	1 x Multi hole insert (Please see insert section for correct code)
SIM	Complete set of Imperial inserts - inch
SMM	Complete set of Metric inserts - mm

STS Reference Sensor	
R1	STS-102 Ref. Sensor - temperature range up to 155°C/311°F
R21	STS-120-A-915 Ref. Sensor for CTC-155
R22	STS-120-A-935 Ref. Sensor for CTC-350
R4	STS-200-A-970 Ref. Sensor for CTC-652
R23	STS-102-A-966 Ref. Sensor for CTC-660

Calibration Certificate	
F	Traceable Certificate to International standards (standard)
H	Accredited Certificate - ISO17025
HS	System Calibration - Accredited Certificate - ISO17025 (C-Model Only)

Accessories	
CX	Protective Carrying Case
CR	Protective Carrying Case with Support Rod Set
SR	Support Rod Set

CTC350 C 230 A M01 R21 F CR

CTC-350 with standard accessories, Full model, incl. Reference sensor input, 230 VAC, European power cord, Multi-hole insert type M01, STS-120-A-915 Ref. sensor, Traceable certificate, and Carrying case with support rod

JOFRA calibration

Standard Delivery

- CTC dry-block calibrator (user specified)
- Mains power cable (user specified)
- Traceable certificate - temperature performance
- Tool for insertion tubes
- User manual
- Test cables (1 x red, 1 x black)
- USB cable
- JofraCal calibration software
- CTC-660 and CTC-652 includes a Heat Shield

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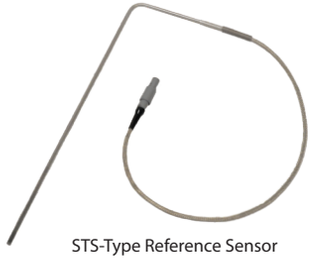
Accessories

STS120A915EH. . Reference sensor for CTC-155
STS120A935EH. . Reference sensor for CTC-350
STS200A970EH. . Reference sensor for CTC-652
STS120A966EH. . Reference sensor for CTC-660
STS102A030EH. . Reference sensor STS-102
129540 . . . . . Carrying Case for CTC-155-350-660
130029 . . . . . Carrying Case for CTC-652
129539 . . . . . Support Rod set
125067 . . . . . Sensor grip
125066 . . . . . Fixture for sensor grip
129264 . . . . . Heat Shield
122832 . . . . . Cleaning Brushes - 4 mm - Package of 3 pcs
60F174 . . . . . Cleaning Brushes - 6 mm - Package of 3 pcs
122822 . . . . . Cleaning Brushes - 8 mm - Package of 3 pcs

Carrying Case

129539 Support Rod Set:
1 Rod
1 Fixing screw
1 Sensor Grip
1 Fixture for sensor grip



STS-Type Reference Sensor

129264 Heat Shield

125067 Sensor Grip

125066 Fixture for Grip

ilac-MRA DANAK CAL Reg.No. 494

EN ISO/IEC 17025 Laboratory accreditation

AMETEK Sensors, Test & Calibration has two EN ISO/IEC 17025 accredited laboratories that issues accredited certificates in accordance with international standards. Laboratory accreditation is a reliable indicator of technical competence assuring customers the most accurate documentation. We believe in being clear about our capabilities, our accuracy, and about what you can expect from us.

Because calibration is a matter of confidence!

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