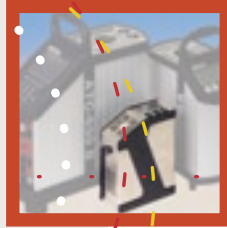


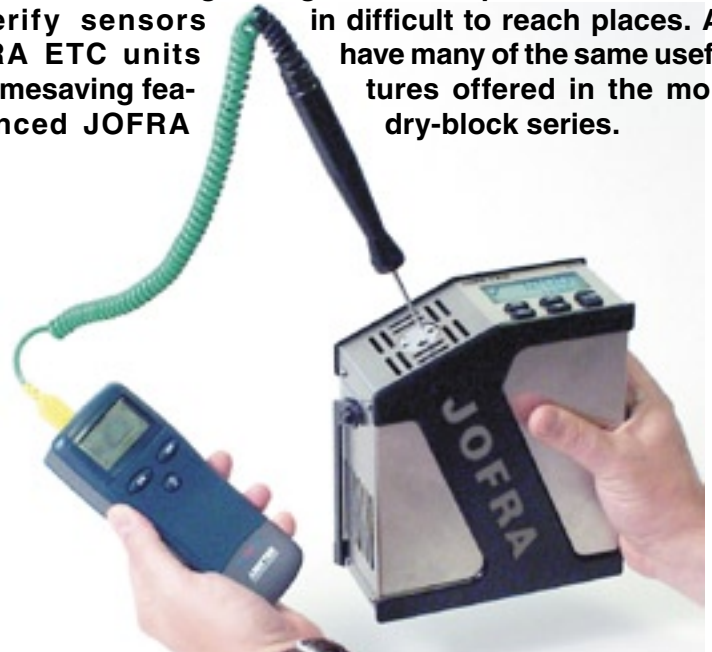
JOFRA™ ETC series

Easy
Temperature
Calibrator



This may be the fastest dry-block calibrator in the world!

Heats up by up to 100°C / 212°F per minute and completes a full dual-point test in less than 10 minutes, including stability time; timesavings at your fingertips! The ETC series is designed for field testing of temperature measurement devices. The small size and light weight make it a perfect instrument to verify sensors in difficult to reach places. All JOFRA ETC units have many of the same useful features offered in the more advanced JOFRA dry-block series.



Temperature ranges

ETC125A -10 to 125°C / 14 to 257°F
ETC400A 28 to 400°C / 82 to 752°F

Fast calibration saves money

Heats up as quickly as 100°C / 212°F per minute and stabilizes in just 3 minutes. Completes a 2-point test in less than 10 minutes.

Extreme flexibility

The small size makes it perfect to store in a tool box and to check temperature sensors that are difficult to access.

Fully-featured despite the small size

The multi-information display shows actual and set temperatures, a stability indicator, and a stability countdown timer.

Timesaving features

Fast one-key-one-function access to set the temperature and the auto-stepping function.

Documentation made easy

RS232 communication interface and calibration software AMECAL-LIGHT are part of the ready-to-use standard delivery.

PRODUCT DESCRIPTION

Designed for people who perform tests and verifications of temperature sensing devices in the field. This instrument is ideal when time is a critical factor and the highest accuracy is not a critical factor.

Reduced size and weight are important considerations because the unit is able to fit into a tool box or instrument carrying case and can be used for sensors that are difficult to access.

One-key-one-function user interface provides immediate access to setting the temperature and the auto-step timesaving function. There is no need for manipulation of sophisticated menus.

The Stability indicator provides audible and visual prompts when the temperature is stable. This function also include a 3 minute countdown before the stable condition.

Stainless steel and rubber side panels make the instrument suitable for many years of faithful duty in an industrial environment.

AMETEK®
CALIBRATION INSTRUMENTS

Super fast heating - ETC400A

The ETC400A is designed for optimum speed. The heating block is built around a highly efficient heating element. The insertion holes for the temperature device under test are located around this element. To reduce mass and increase effectiveness, there is no removable insertion tube; the holes are drilled directly into the block. The minimal mass offers an extremely fast heating and cooling time. The different layouts also make it possible to use an external JOFRA reference probe during the calibration. Choose the combination of holes that best suits your needs from our various design combinations. If your application requires a dry-block that can handle large sensors or more than one sensor at a time, we offer several other JOFRA dry-block calibrators that can meet your needs.

Cooling and heating - ETC125A

The ETC125A is a simple yet effective tool for verifying temperature instruments that also require references below ambient temperatures: e.g. air-conditioning and cold counters. The predrilled holes allow the use of an insertion tube in the largest bore. This increases the flexibility to match many sensor-under-test sizes.

Easy-to-use, intuitive operation

All instrument controls are accessed directly from the front panel. The main functions on the ETC series are designed with one-key-one-function logic. This means that there are no difficult multiple keystrokes to remember to access primary functions. The easy-to-read, backlit display features



dedicated icons, which help in identifying instrument conditions and operational steps.

Set temperature

The "Up" and "Down" arrow keys allow the user to set the exact temperature desired with a resolution of 0.1°C or °F.

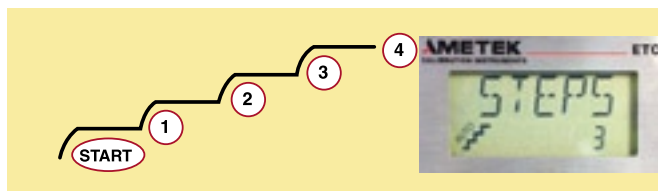
Stability indicator

The bold checkmark on the display indicates that the calibrator has reached the desired set temperature and is stable. The operator may change the stability criteria and establish a greater level of confidence in the calibration results as desired. A convenient countdown timer is activated three minutes before the unit reaches stability. This prompts you to be prepared to record results.

Auto-stepping

This feature saves time. The operator may stay in the control room, or another remote location, monitoring the output from the sensor-under-test while the ETC series calibrator

is placed in the process and automatically changes the temperature using a programmed step value and rate. Up to 9 different temperature steps may be programmed, including the hold time for each step. This feature is also ideal for burning-in new sensors prior to



installation; this minimizes initial drift and allows for initial testing. It is also useful for testing temperature data loggers.

Maximum temperature

From the setup menu, you can select a lower maximum temperature limit for the calibrator. This function prevents damage to the sensor-under-test caused by the application of excessive temperatures.

Instrument setups

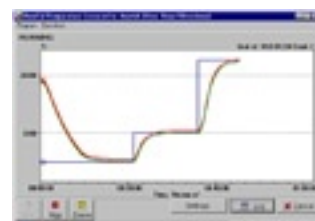
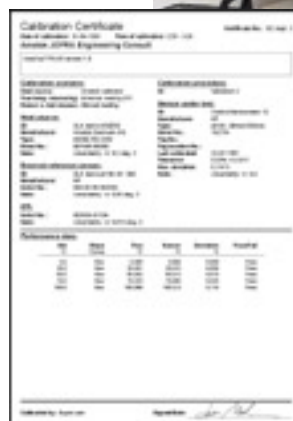
The ETC series stores the complete instrument setup, including: engineering units, stability criteria, resolution, auto-step settings, and maximum temperature.

Re-calibration/adjustments made easy

The ETC series has a very easy and straightforward procedure for re-calibration/adjustment. There is no need for a screwdriver or PC software. The only thing you need is a reliable reference thermometer. Place the probe in the calibrator and follow the instructions on the display.

Simplified calibration documentation

All JOFRA ETC instruments are supplied with RS232 computer interface and the calibration software AMECAL-LIGHT. This WINDOWS®-based software allows the user to customize his or her calibration routines. The software is easy to use so you do not have to be a programmer to configure your own calibration procedures. After calibration you can print out certificates that contain all necessary information for your ISO-9000 or similar quality systems.



SPECIFICATIONS

Temperature range @ ambient temp. 23°C / 73°F

ETC125A	-10 to 125°C / 14 to 257°F
ETC400A.....	28 to 400°C / 82 to 752°F

Resolution (user-selectable)

Selectable	1° or 0.1°
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Heating time

ETC125A	
-10 to 23°C / 14 to 73°F	3 minutes
23 to 100°C / 73 to 212°F	11 minutes
100 to 125°C / 212 to 257°F	7 minutes
ETC400A	
33 to 200°C / 91 to 392°F	2 minutes
200 to 400°C / 392 to 752°F	3 minutes

ETC125A	
125 to 100°C / 257 to 212°F	1 minute
100 to 0°C / 212 to 32°F	17 minutes
0 to -10°C / 32 to 14°F	14 minutes
ETC400A	
400 to 200°C / 752 to 392°F	6 minutes
200 to 50°C / 392 to 122°F.....	15 minutes

Cooling time

ETC125A	
125 to 100°C / 257 to 212°F	1 minute
100 to 0°C / 212 to 32°F	17 minutes
0 to -10°C / 32 to 14°F	14 minutes
ETC400A	
400 to 200°C / 752 to 392°F	6 minutes
200 to 50°C / 392 to 122°F.....	15 minutes

Stability

ETC125A	±0.05°C / ±0.09°F
ETC400A.....	±0.15°C / ±0.27°F

Time to stability (approximate)

All models	3 minutes
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Accuracy

ETC125A	±0.5°C / ±0.9°F
ETC400A.....	±0.5°C / ±0.9°F

Immersion depth

ETC125A (insulation included)	110 mm / 4.3 in.
ETC400A.....	105 mm / 4.1 in.

Mains specifications

Voltage ETC125A	Multivoltage 115VAC and 230VAC
.....	115V(90-132) and 230V(180-264)
Voltage ETC400A.....	115V(90-127) or 230V(180-254)
Frequency	45 - 65 Hz
Power consumption (max.) ETC125A.....	55 W
Power consumption (max.) ETC400A	350 W

PHYSICAL SPECIFICATIONS

Instrument dimensions

ETC125A and ETC400A	
L x W x H:	172 x 72 x 182 mm / 6.8 x 2.8 x 7.2 in.

Instrument weight

ETC125A	1.8 kg / 3.9 lb
ETC400A.....	1.6 kg / 3.5 lb

Shipping (including shipping cargo box)

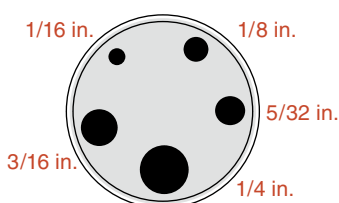
Weight, ETC125A:.....	3.0 kg / 6.6 lb
Weight, ETC400A:	2.8 kg / 6.2 lb
Size, L x W x H: ...	350 x 235 x 135 mm / 13.6 x 9.3 x 5.3 in.

Miscellaneous

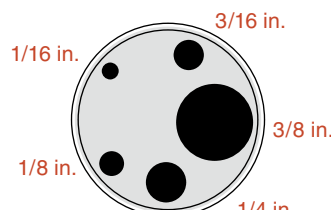
Serial data interface	RS232
Operating temperature	0 to 40°C / 32 to 104°F
Storage temperature	-20 to 60°C / -4 to 140°F
Humidity	0 to 90% RH
Protection class	IP-10
CE Conformity.....	EN61326-1 : 2001
	EN61010-1 : 2001

STANDARD DELIVERY

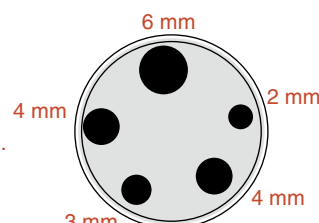
- JOFRA ETC dry-block calibrator
- Traceable calibration certificate - temperature performance
- Calibration software AMECAL-LIGHT
- User and reference manual
- Mains power cable
- Shoulder strap
- RS232 cable
- 1 x predrilled insertion tube (ETC125A only)
- Tool for insertion tubes (ETC125A only)



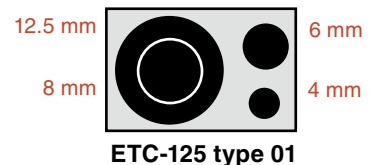
ETC-400 type 11
Imperial



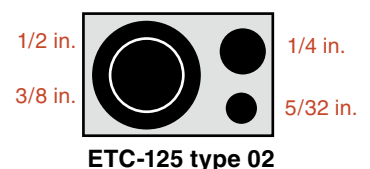
ETC400 type 12
Imperial



ETC400 type 21
Metric



ETC-125 type 01



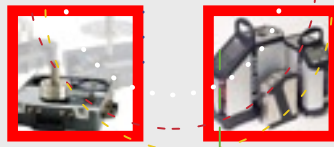
ETC-125 type 02

ORDERING INFORMATION - JOFRA ETC SERIES

Order number	Description
ETC125A	Base model number - 1st thru 7th characters
ETC400A	ETC125A, -10 to 125°C / 14 to 257°F ETC400A, 33 to 400°C / 91 to 752°F
	Power supply - 8th thru 10th characters
115	ETC400A only: 115 VAC, 50/60 Hz
230	ETC400A only: 230 VAC, 50 Hz
MUL	ETC125A only: Multi voltage 115 and 230 VAC
	Mains power cable type - 11th characters
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
	Holes for sensor-under-test - 12th thru 13th characters
01	ETC125A: Metric 12.5 mm 6 mm 4 mm 8 mm.
02	ETC125A: Imperial 1/2 in. 3/8 in. 1/4 in. 5/32 in.
11	ETC400A: Imperial 1/16 in. 1/8 in. 5/32 in. 3/16 in. 1/4 in.
12	ETC400A: Imperial 1/16 in. 1/8 in. 3/16 in. 1/4 in. 3/8 in.
21	ETC400A: Metric 2 mm 3 mm 4 mm 4 mm 6 mm
	Traceability - 14th character
E	NPL and NIST traceable calibration certificate (standard delivery)
H	Accredited calibration certificate (on quotation basis)
ETC400A230A21E	Sample order number (all 14 characters) JOFRA ETC400A series dry-block, 230 VAC power, European power cord, metric drilled multihole block and standard NPL/NIST traceable certificate.

ACCESSORIES	
Part No.	Description
123943	ETC series, user and reference manual
60F135	Mains cable, 115 V, USA, type B
60F139	Mains cable, 220 V, Australia, type F
60F138	Mains cable, 220 V, Italy, type E
60F137	Mains cable, 220 V, South Africa, Type D
60F141	Mains cable, 230 V, Denmark, type G
60F140	Mains cable, 230 V, Europe, type A
60F143	Mains cable, 230 V, Israel, type I
60F142	Mains cable, 230 V, Switzerland, type H
60F136	Mains cable, 240 V, UK, type C
123958	RS232 cable 2 m / 6 ft (Stereo Jack to 9 pol D-sub)
60F172	Tool for insertion tube (ETC125A)
123939	5 x undrilled insertion tubes for ETC125A
123938	8 mm insertion tube for ETC125A
124045	3/8 in. insertion tube for ETC125A
124004	Shoulder strap with snap hooks
124094	Aluminum carrying case
124003	AMECAL-LIGHT calibration software
105813	AMECAL-TEMPERATURE calibration software

temperature
software
pressure
signal



AMETEK Calibration Instruments offers a complete range of calibration equipment for pressure, temperature, and signal - including software.

Temperature standards
Portable precision thermometer. Dry-block calibrators: 4 series, more than 20 models - featuring speed, portability, accuracy, and advanced documenting functions.

Primary pressure standards
Pneumatic floating-ball or hydraulic piston deadweight testers - easy to-use with accuracies up to 0.015% of reading.

Electronic pressure standards
Convenient electronic systems ranging from -1 to 700 bar (25 inHg to 10,000 psi) - multiple choices of pressure ranges, pumps, and accuracies, fully temperature-compensated for problem-free and accurate field use.

Signal calibration
Process signal measurement and simulation for easy control loop calibration and measurement tasks - from the small mA loop calibrator to the complete, software supported, modular-based "calibration shop".

...because calibration is a matter of confidence



www.ametekcalibration.com
www.jofra.com

AMETEK is a leading global manufacturer of electrical and electromechanical products for niche markets. Listed on the NYSE (AME) since 1930, AMETEK's annual sales exceed \$1 billion. Operations are in North America, Europe and Asia, with about one third of sales to markets outside the United States.

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