



**VERY HIGH TEMPERATURE
BLACK BODY SOURCE**
MODEL: BCAL 1502
INSTRUCTION MANUAL



1. SAFETY INSTRUCTIONS

Use the BCAL 1502 series only as specified in this manual. Otherwise, the protection provided by the BCAL 1502 series may be impaired.

The following definitions apply to the terms "Warning" and "Caution".



"Warning" identifies conditions and actions that may pose hazards to the user.



"Caution" identifies conditions and actions that may damage the BCAL 1502 series being used.



Warnings

To avoid personal injury, follow these guidelines.

The BCAL 1502 series must not be used for any purposes other than those described in this manual. The BCAL 1502 series has been designed for interior use only and should not be used in hazardous areas, where vapor or gas leaks, etc. may constitute a danger of explosion.

The BCAL 1502 series must be kept free within an area of 20 cm on all sides and 1 meter above the calibrator.

Never use heat transfer fluids such as silicone, oil, paste, etc. in the BCAL 1502 series.

These fluids may penetrate the BCAL 1502 series and cause damage or create poisonous fumes.

The BCAL 1502 series must be switched off before any attempt to service the TCAL 1501 series is made.

When cleaning the well, REMEMBER to wear goggles when using compressed air in the BCAL 1502 series.

The BCAL 1502 series must not be used in wet areas.

Use heat shield when calibrating at high temperatures

Do not touch the grid plate, the well or the insertion tube when the BCAL 1502 series is heating up they may be hot.

Do not touch the tip of the sensor when it is removed from the insertion tube/well it may be very hot.



Cautions

To avoid possible damage to the BCAL 1502 series, follow these guidelines.

DO NOT try to change the Factory setting values of the BCAL 1502 series. The correct setting of these parameters is important to the safety and proper operation of the BCAL 1502 series.

Always operate this BCAL 1502 series at room temperature between 41°F and 104°F (5°C to 40°C). Allow sufficient air circulation by leaving at least 6 inches (15 cm) of clearance around the BCAL 1502 series.

The BCAL 1502 series is a precision instrument. Although it has been designed for optimum durability and trouble free operation, it must be handled with care.

2. SPECIFICATIONS

Model	BCAL 1502
Display	4.3 inch True TFT Display with Touch Screen
Temperature Range	500 to 1500 °C
Resolution	0.1°C
Stability	± 1°C
Radial Uniformity	± 1% of reading
Bath Temperature Control	Digital Temperature Controller with Auto Tune PID Algorithm
Temperature readout	°C
Aperture area	20
Emissivity	0.950
Power supply	230V AC ± 10% / 50Hz (Optional 110V AC)
Power Consumption	4000 VA
Dimension (W*D*H) (Approx.)	580mm W x 450mm D x 390mm H
Instrument Weight (Approx)	45 kg

Note: Due to continuous product improvements, Published specifications may change with out notice

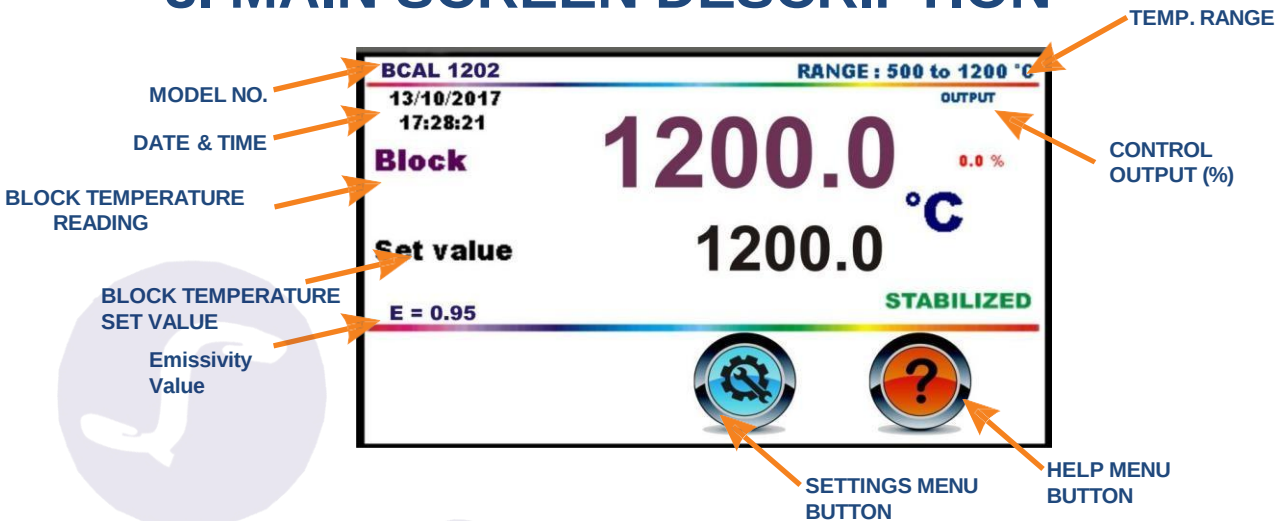
Standard Delivery

- 1. Basic Instrument
- 2. Spare Fuses
- 3. Instruction Manual
- 4. Mains Card

Optional

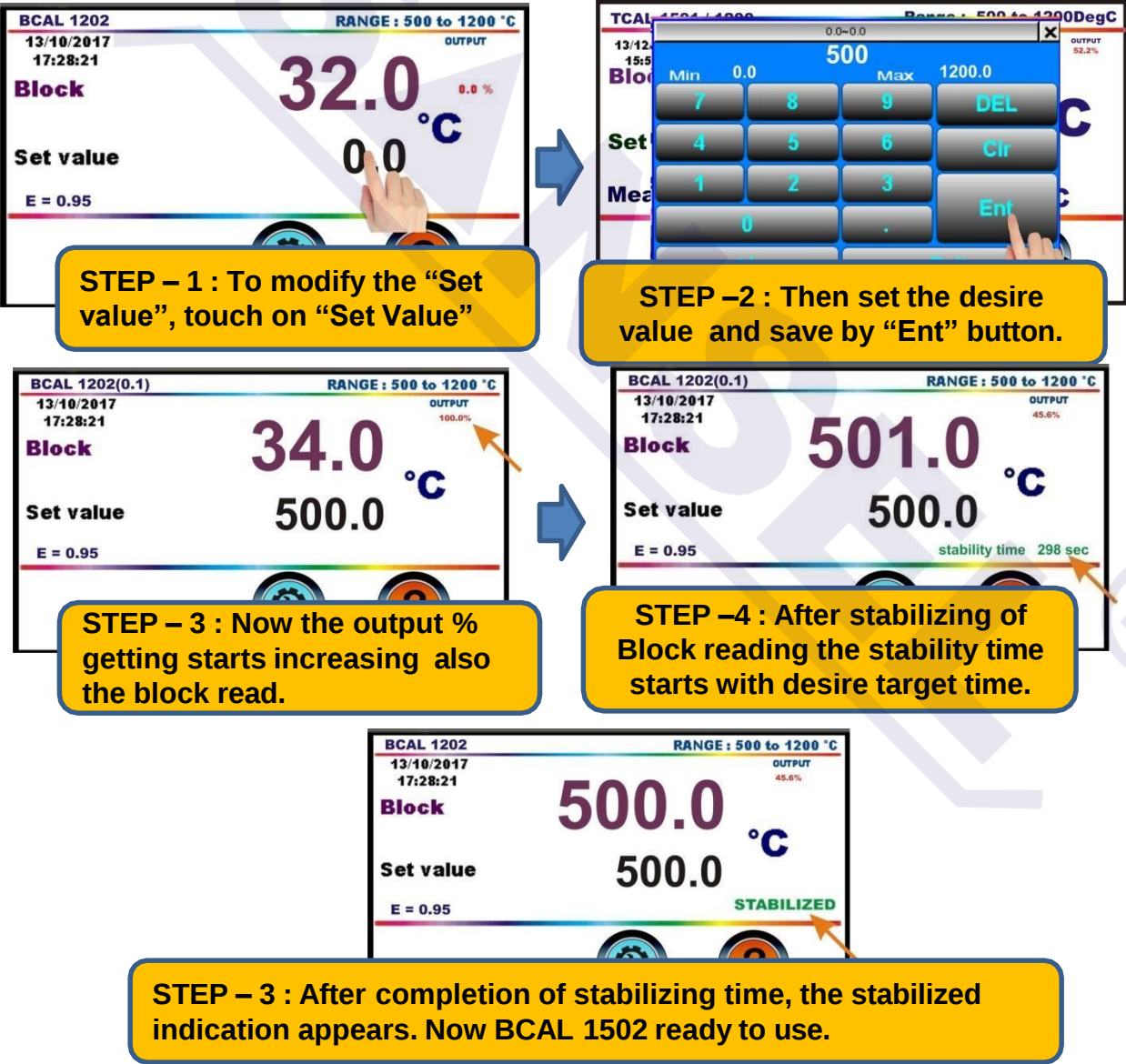
- 1. 110V AC 60Hz Power supply
- 2. Carrying Case
- 3. ISO/IEC 17025 Accredited calibration certificate

3. MAIN SCREEN DESCRIPTION



4. BLOCK SETTINGS

1. SET VALUE



5. CALIBRATION PROCEDURE

1. INFRA RED THERMOMETER

PRECAUTIONS

- ☐ Check the input power supply before switching on the BCAL 1502.
- ☐ Don't touch the target aperture during power ON time
- ☐ Set the BCAL 1502 to 30°C for cooling.
- ☐ Switch off after reaching the ambient.
- ☐ Do not use oil or glycol in BCAL 1502.
- ☐ Give sufficient warm-up time for both Master Instrument and UUC as per the operation manual before proceeding calibration.



- a) The control setting will usually be the normal working temperature of the thermometer to be tested.
- b) For calibration checks that are traceable to National Standards the target temperature is that indicated by the standard ONLINE PYROMETER.
- c) If traceability is not required the source can be used without the standard ONLINE PYROMETER.
- d) From previous work the temperature as shown on the control indication has been found to agree with the radiance temperature to within Accuracy.
- e) To make the lining up of BCAL 1502 fixed installation radiation thermometers simpler an optical bench assembly is offered as an optional extra.
- f) When the source is stood on the optional transportation case, the bench to mid target dimension equals that of the optical bench assembly.
- g) Portable radiation thermometers are usually hand held.
- h) When calibrating radiation thermometers, it is important to follow documented step by step procedures to ensure that specified calibration conditions, such as calibration distance, furnace temperature and aperture size are always met.

ACCEPTANCE CRITERIA: Calibrated instrument must be accepted as per Manufacturer specification or as per the customer criteria if given by customer.

6. USER CALIBRATION

1. BLOCK TEMPERATURE

For better accuracy, Calibration of the Block temperature is recommended. In addition, the Block temperature must be recalibrated whenever:

- a. The Control sensor is replaced.
- b. After testing long term in high temperature.
- c. Where high accuracy is required.
- d. At least twice in a year.

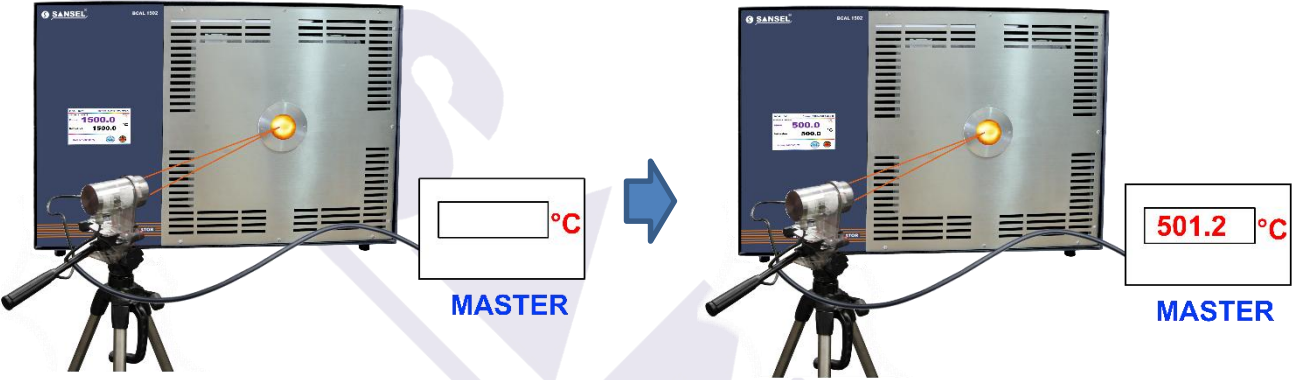
Follow the Precautions & Procedure(STEP – 17 to 31) given below to calibrate the Block temperature. BCAL 1502 has a 6 POINT Look up table calibration.



CAUTION: For Best results, calibrate with certified accurate Master Sensor & indicator.

PRECAUTIONS

- ❑ Check the input power supply before switching on the BCAL 1502.
- ❑ Select the suitable insertion tube for the BCAL 1502.
- ❑ Insert the insertion tube at ambient Temperature.
- ❑ Remove the insertion tube after calibration before switching off.
- ❑ Set the Set value to 30°C for cooling.
- ❑ Switch off after reaching the ambient.
- ❑ Do not use oil or glycol in BCAL 1502.
- ❑ Give sufficient warm-up time for both Master Instrument and UUC as per the Specification(Refer.2) before proceeding calibration.



STEP – 14 : Insert the Master sensor to represented hole given in well insert & connect the probe to Master indicator.

STEP – 15 : Switch ON → Set required LOW Set value to be calibrate → After stabilization of Block & Master → “Settings” Button → “SETTINGS”



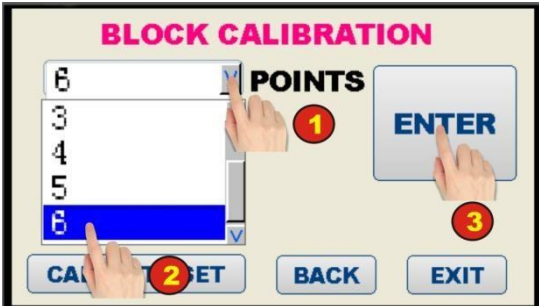
STEP – 16 : “Settings menu” → “SUPERVISORY” button



STEP – 17 : Enter the Supervisory Password(3579) → “Ent” button



STEP – 18 : “Supervisory Settings”
→ “BLOCK CAL.” button



STEP – 19 : Select required “CAL points” from drop down list and press ENTER button.



STEP – 20 : touch on “MASTER” value



STEP – 21: Modify the MASTER reading to Master reading → “Ent” button

 **CAUTION:** carefully modify the Block & Master reading, the Block element may permanently damage if abnormal value entered.



STEP – 22 : Touch on “BLOCK” value



STEP – 23: Modify the BLOCK reading to Master reading → “Ent” button



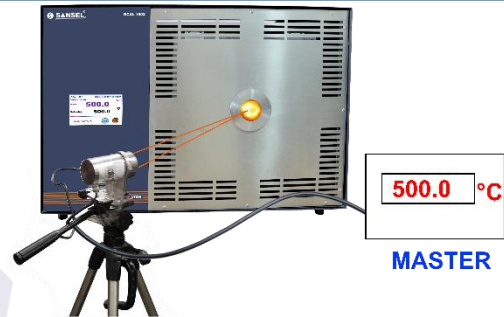
STEP – 24 : Then Press next Point button if required or click on exit to return back to main screen.



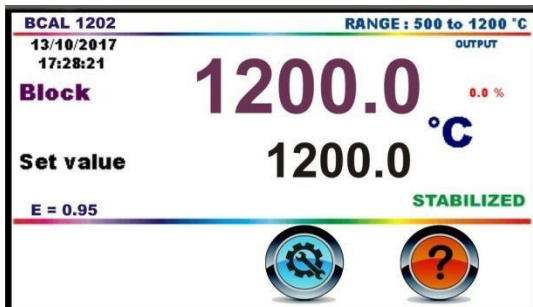
STEP – 25: Repeat Steps 20 to 24 till the required points complete.



STEP – 26: Main screen Block reading too offset's same as Master reading



STEP – 27 : After stabilization both Block & Master reading will be same if not repeat the above steps again for better result.



STEP – 28: Main screen Block reading too offset's same as Master reading



STEP – 29 : After stabilization both Block & Master reading will be same(if not repeat the above steps again for better result).

7. CONTACT US



SANSEL INSTRUMENTS AND CONTROLS SANSEL CALIBRATION LABORATORIES LLP

ISO/IEC 17025 Accredited Calibration Laboratory by NABL CC - 2879
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