

## LBB33DCH #

Low Temperature Differential Extended Area Black Body

### Extended Area Black Body

#### Wide Temperature Range

LBB33DCH offer a temperature range from 10°C to 80°C (absolute temperature) and -15°C to 55°C for differential temperature range.

#### Large Emissive Area

LBB33DCH has the large emitting surface area precise temperature control with good uniformity. It is available in the customize sizes.

#### High Emissivity

The LBB33DCH Exceptionally high emissivity of  $0.98 \pm 0.02$ . Extremely quick to reach various temperatures, i.e. heats up room temp to +50°C in 15 minutes. This saves time and increases productivity.

#### Accuracy and Performance

The LBB33DCH is high stable unit that also provides excellent calibration accuracy with stability.

#### Easy to Use

LBB33DCH has inbuilt PID controller or can be provided separately that shows real time display of the surface and set temperature

#### Computer Interface

The communication port enables communication with selected LBB33DCH calibrators for automation calibration and documentation thus it made documentation easy. Remote control via Ethernet link, RS-232 or USB port.



Extended area black body is defined by the large emitting surface area precise temperature control with good uniformity. TempSENS make Blackbodies are state of the art, highly accurate and stable with different standard sizes and temperature ranges. The LBB33DCH Series Extended Area black bodies are low temperature infrared reference sources operating either in absolute or differential mode. This Black body series featuring the very high stability, they are particularly well adapted for the characterization and performance validation of a very wide range of IR Sensors, such as high resolution cameras for Thermography and long range thermal imagers. Essentially the black body emits a known amount of energy for an infinite number of wavelengths. This enables to draw the expected black body radiation curve for a given temperature. Temperature is accurately controlled by High accurate PID self tuning controller.

With the TempSENS make Compact Extended Area Black body Temperature Calibrator, you have chosen an extremely effective instrument which we hope will live up to all your expectations. This is a fast, timesaving, and reliable true industrial temperature calibrator designed for on-site use.

During the past several years, we have acquired extensive knowledge of industrial temperature calibration. This expertise is reflected in our products which are all designed for daily use in an industrial environment.

## SPECIFICATIONS

| Parameter  | LBB33DCH                          |
|--|-----------------------------------|
| Emissive area                                    | 300 x 300 mm <sup>2</sup>         |
| Absolute Temperature Range                       | 10 to 80°C                        |
| Differential Temperature Range<br>(Ambient 25°C) | -15°C to 55°C                     |
| Emissive area uniformity (1 & 2)*                | ±0.20°C @50°C                     |
| Emissivity                                       | 0.98±0.02                         |
| Stability  | ±0.01°C                           |
| Temperature measurement Accuracy                 | ±0.1°C                            |
| Display  | 5" LCD °C or °F user selectable   |
| Controller Dimension                             | 100(H) x 120(W) x 300(D) mm       |
| Display resolution                               | 0.01°C                            |
| Method of control                                | Digital self tuned PID Controller |
| Head dimensions W x H x D (mm <sup>3</sup> )     | 500 X 500 X 200 mm                |
| Weight   | 30 kg                             |
| Max. power consumption                           | 2.5 K W                           |
| Power supply                                     | 230 VAC, 1 ph. 50 Hz              |
| Remote control                                   | Ethernet, RS-232                  |
| Operating temperature range (head)               | 5°C to 25°C                       |

\*1 at 80% of emissive area

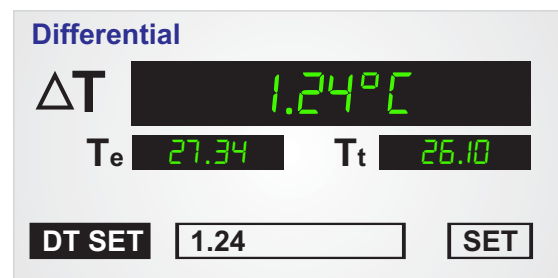
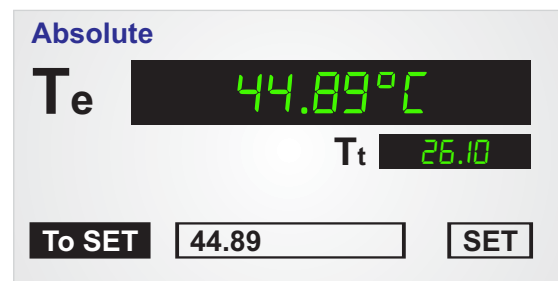
\*2 Uniformity will decrease during nitrogen purging

## USER INTERFACE

The Temperature Control window opens in either the Absolute or Differential working modes.

**Absolute Mode :** In absolute mode there will be temperature indication for Emitter plate and target but no temperature difference will be shown. We can control only emitter temperature only.

**Differential Mode. :** In differential mode we can change temperature difference between emitter and target needed. We have to put delta T value as set point. Controller will automatically change emitter temperature to achieve desired delta T value.



## DESCRIPTION



### Absolute Mode Blackbodies

The Absolute Mode BB (Blackbody) consists of an emitter plate, which is thermoelectrically heated or cooled to a pre-defined absolute temperature. One PRT (Platinum Resistance Thermometer) is mounted in the emitter and is used by the controller to measure the emitter temperature.

### Differential Mode Blackbodies

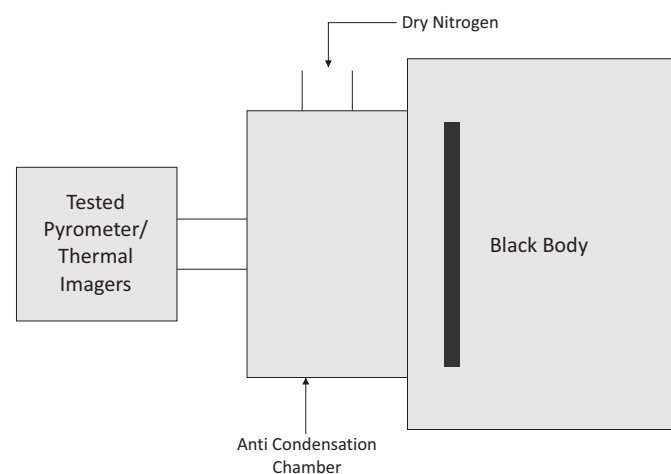
The Differential Mode BB consists of an emitter plate, which is thermoelectrically heated or cooled with respect to the target temperature (thus, the differential temperature between the Emitter and the target is controlled). The target plate is mounted in front of the emitter surface. Mounted in the emitter and target plates are two PRT sensors, used by the controller to measure their temperature difference.

The basic difference between absolute and differential BB is Target panel mounting arrangement at front.

## ACCESSORIES

### Anti Condensation Chamber (Optional)

Along with LBCH model blackbodies Tempens also offers anti condensation chamber around black body emitter for dry air / nitrogen to prevent any ice build up or water vapor condensation in case black body operate below ambient. one end off the chamber will be fit to black body emitter and another hole of the chamber fits to optics of tested pyrometer or thermal imagers .

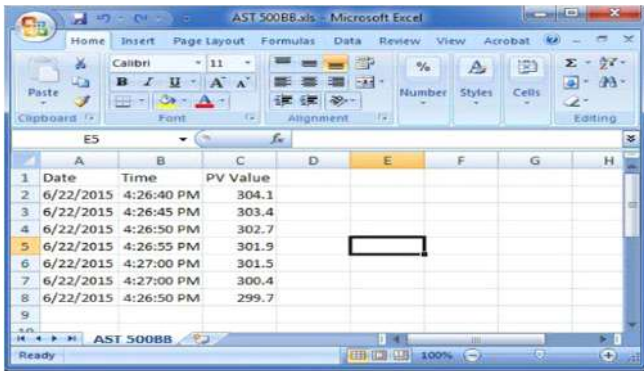


|               |                             |
|---------------|-----------------------------|
| <b>Size</b>   | 150 (H) X 150 (W) X 200 (D) |
| <b>Weight</b> | 3 Kg.                       |

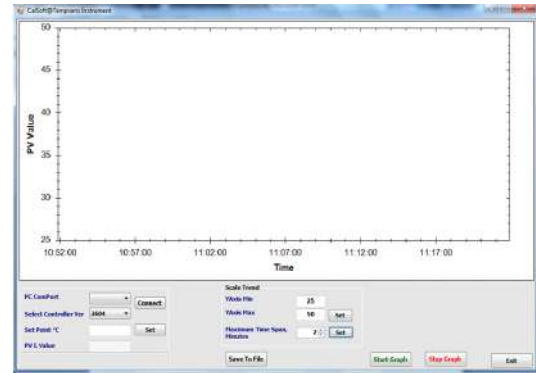


## ACCESSORIES

### SOFTWARE



|   | A         | B          | C        | D | E | F | G | H |
|---|-----------|------------|----------|---|---|---|---|---|
| 1 | Date      | Time       | PV Value |   |   |   |   |   |
| 2 | 6/22/2015 | 4:26:40 PM | 304.1    |   |   |   |   |   |
| 3 | 6/22/2015 | 4:26:45 PM | 303.4    |   |   |   |   |   |
| 4 | 6/22/2015 | 4:26:50 PM | 302.7    |   |   |   |   |   |
| 5 | 6/22/2015 | 4:26:55 PM | 301.9    |   |   |   |   |   |
| 6 | 6/22/2015 | 4:27:00 PM | 301.5    |   |   |   |   |   |
| 7 | 6/22/2015 | 4:27:00 PM | 300.4    |   |   |   |   |   |
| 8 | 6/22/2015 | 4:26:50 PM | 299.7    |   |   |   |   |   |



- CalSoft including for setting bath temperature and monitoring the PV. Graphical representations of PV/TIME with 2 hours data logging.

### MASTER SENSOR (OPTIONAL)

- Master pyrometer



- NABL accredited calibration certificate - 3 point
- Operational Manual

### CARRY CASE



- Tempsens makes customized carry case is a rugged, safe perfectly designed to carry our new Extended Area Black Body calibrator and different accessories.