



# DCN1000N series

## Absolute and differential temperature blackbodies

### INTRODUCTION

The DCN1000N extended area blackbodies are differential and absolute infrared reference sources. They can be used as low temperature infrared reference sources. They consist of an emissive head which temperature is controlled via an electronic unit with real time adjusted PID regulator. The emissive head also includes a target support.

The emissive surface temperature is controlled with high precision and stability at temperatures below or above target temperature. Both the target and the emissive surface temperatures are measured in real time thanks to high precision calibrated Pt sensors.

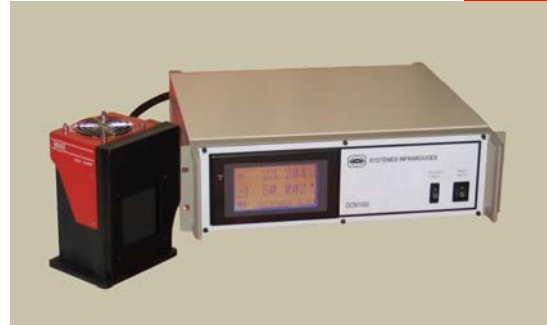
Various sizes of emissive area are available to suit applications such as thermal imager characterisation with MRTD, LSF and NETD targets, focal plane array calibration, infrared sensor non uniformity correction, etc.

### CONFIGURATION

- Extended areas up to 300 mm x 300 mm
- Differential and absolute modes operation
- Real time display of emissive area and set point temperature
- Fast response time and high stability
- High thermal uniformity and emissivity
- Compact emissive head
- Absolute temperature range from -5 °C to +100 °C
- Control through touchscreen panel
- Remote control via Ethernet link.

### OPTIONS

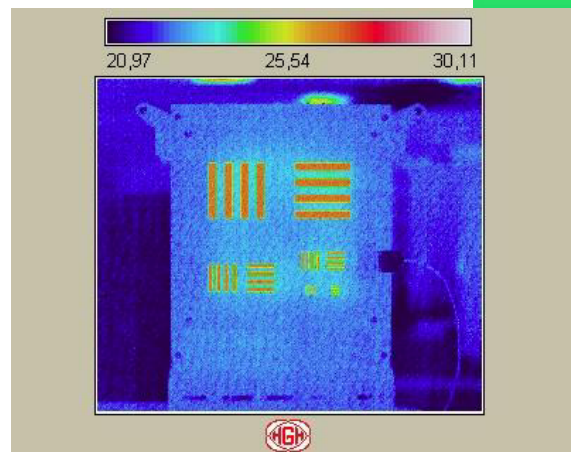
- Absolute temperature range from -15°C up to +150 °C
- IEEE488, RS232 interfaces
- Radiometric calibration over bandwidth of 3-5  $\mu\text{m}$  or 8-14  $\mu\text{m}$
- Target wheel
- Targets for NETD, LSF/MTF, MRTD, distortion ...
- NETD, LSF/MTF and MRTD calculation software
- Enhanced accuracy of absolute mode ( $\pm 0.01^\circ\text{C}$ )
- Specific emissive area sizes



DCN1000N3 blackbody + electronic unit



DCN1000N12 blackbody assembly



DCN1000N12 typical target image

## TECHNICAL DATA

|   | DCN1000<br>N2   | DCN1000<br>N3 | DCN1000<br>N4 | DCN1000<br>N7 | DCN1000<br>N12 |
|---|---|---------------|---------------|---------------|----------------|
| Emissive area (mm) :                    | 50 x 50   | 75 x 75       | 100 x 100     | 180 x 180     | 300 x 300      |
| Temperature range (°C) :                |   |               |               |               |                |
| . absolute (20°C ambient temp)          | -5 to +100  | -5 to +100    | -5 to +100    | 0 to +100     | 0 to +100      |
| . differential                          | -25 to +80  | -25 to +80    | -25 to +80    | -25 to +80    | -20 to +80     |
| Thermal uniformity :                    |   |               |               |               |                |
| . at ambient $\pm 5$ °C (°C)            | $\pm 0.01$  | $\pm 0.01$    | $\pm 0.01$    | $\pm 0.03$    | $\pm 0.04$     |
| . at 50 °C (typical) (°C)               | 0.3   | 0.3           | 0.3           | 0.4           | 0.4            |
| Max. power consumption (W) :            | 800   | 800           | 800           | 1200          | 3000           |
| Head dimensions W x H x D (mm) :        | 115x198x111   | 145x198x111   | 192x215x120   | 320x448x233   | 498x619x320    |
| Head weight (kg) :                      | 2   | 3             | 4             | 20            | 34             |
| Electronic unit size :                  | 3U x 19"  | 3U x 19"      | 3U x 19"      | 4U x 19"      | 5U x 19"       |
| Electronic unit weight (kg) :           | 11  | 11            | 11            | 20            | 27             |
| Emissivity :                            | 0.98 $\pm$ 0.02   |               |               |               |                |
| Regulation type :                       | real time PID adjustment  |               |               |               |                |
| Stability (°C) :                        | $\pm 0.002$   |               |               |               |                |
| Temperature sensor type :               | calibrated Pt sensor  |               |               |               |                |
| Temperature measurement accuracy (°C) : | differential mode : $\pm 0.01$<br>absolute mode : $\pm 0.03$    |               |               |               |                |
| Display resolution :                    | 0.001 °C (actual temperature and set point display)             |               |               |               |                |
| Warm-up time :                          | from ambient to 50 °C $\pm 0.2$ °C : 1 minute                   |               |               |               |                |
| Stabilisation time :                    | at $\pm 0.003$ °C for a $\Delta T < 10$ °C : less than 1 minute |               |               |               |                |
| Remote control :                        | Ethernet interface  |               |               |               |                |
| Power supply :                          | 115/230 VAC, 1 ph., 50/60 Hz                                    |               |               |               |                |
| Operating ambient temperature :         | + 5°C to +45°C (control unit)<br>-40°C to +70°C (head)          |               |               |               |                |

*Above information is subject to changes without notice*



### SYSTEMES INFRAROUGES

**ZAC de la Sablière, 10 rue Maryse Bastié**  
**91430 IGNY - FRANCE**  
**Tel: +33 1 69 35 47 70 Fax: +33 1 69 35 47 80**  
**e-mail: [hgh@hgh.fr](mailto:hgh@hgh.fr) <http://www.hgh.fr>**