



DCN1000W/L series

→ Infrared validation test equipment

DCN1000W/L series

LOW TEMPERATURE

BLACKBODIES

INTRODUCTION

The DCN1000W/L extended area blackbodies are low temperature infrared reference sources operating either in absolute or differential mode. Featuring the highest available stability of regulation, 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. They consist of an emissive head of various sizes whose temperature is accurately controlled via a **2U electronic unit** through an ergonomic interface and whose heat dissipation is ensured by water (W type) or a refrigerated liquid (L type). The liquid is supplied by a separate cooling liquid unit and circulated through a jacket at the back of the blackbody. The temperature of the high emissive surface is stabilised within **0.5mk** at temperatures above and below ambient temperature.

In order to avoid dew condensation on low temperature surfaces, the system includes several options such as sweeping dry gas on the emissive area, enclosing the emissive area inside a nitrogen filled chamber sealed by an IR window, coupling the blackbody to a nitrogen filled cabinet housing the unit under test.

Just as any other HGH blackbody, the DCN1000W/L family are provided with a radiometric certificate of calibration demonstrating the reliability of this IR reference source for two years. Targets can be added, as well as the INFRATEST software, thanks to which a wide range of tests can be automated: NETD, temporal noise, fixed pattern noise, MTF, FoV, distortion, spatial resolution, MRTD, TOD, etc.



BENEFITS

- Extended areas up to 300 mm x 300 mm
- Differential and absolute modes operation
- Real time display of temperature data
- Intuitive interface
- The highest stability: **<0.5mk**
- High thermal uniformity and emissivity
- Built-in test equipment (BITE)
- Compact emissive head
- Absolute temperature range from -40 °C to +150 °C
- Control through coloured touchscreen panel
- Radiometric calibration over multiple bandwidths
- Remote control via Ethernet link, RS232, IEEE488, WiFi
- Infratest - LT control software

OPTIONS

- **Double-head option** (W4/L4 only)
- Motorised target wheel and multiple accessories
- NETD, LSF/MTF, MRTD and TOD calculation software
- Targets for NETD, LSF/MTF, MRTD, distortion, etc
- Enhanced emissivity >0.99



- Anti frost and condensation system
- LabVIEW drivers for all communication interfaces

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→ DCN1000 W2



→ DCN1000L12, cooling unit & MRTD target



→ DCN1000 L12 and anti condensation frost system



→ DCN1000 W7 and MRTD target

TECHNICAL DATA

	DCN1000 W2/L2	DCN1000 W4/L4	DCN1000 W7/L7	DCN1000 W12/L12
Emissive area	50 mm x 50 mm	100 mm x 100 mm	180 mm x 180 mm	300 mm x 300 mm
Temperature range (L type) <ul style="list-style-type: none"> absolute (for any ambient T) differential (20°C ambient) 		-40°C to +150°C -60°C to +130°C		
Temperature range (W type) <ul style="list-style-type: none"> absolute (for a 20°C ± 2°C water circulation) differential (20°C ambient) 	-20°C to +100°C -40°C to +80°C	-10°C to +100°C -30°C to +80°C		-5°C to +100°C -25°C to +80°C
Thermal uniformity at ambient ±5 °C		0.01°C		
Thermal uniformity at 50°C		0.1°C		0.2°C (W) / 0.15°C (L)
Emissivity		0.98 ±0.02 (Option: 0.99 ±0.01)		
Apparent emissivity after calibration		1.00		
Stability		0.5 mK		
Temperature measurement accuracy		differential mode : 0.01°C absolute mode : 0.03°C		
Display resolution		0.0001°C (actual temperature and set point display)		
Slew rate		> 0.4°C/s heating ; > 0.2°C/s cooling		
Stabilisation time		20 seconds		
Operating temperature		Control unit: +5°C to +45°C ; Head: -20°C to +70°C		
Remote control		Ethernet, RS232 and IEEE488 interface		
Max. power consumption <ul style="list-style-type: none"> L Type W Type 	1800 W 1000 W	2700 W 1000 W	3500 W 1500 W	5100 W 1500 W
Head dimensions W x H x D	115x200x111 mm ³	192x210x120 mm ³	247x410x112 mm ³	370x531x112 mm ³
Head weight	2 kg	5 kg	10 kg	20 kg
Controller size		2U x 19"		
Controller weight		6.5 kg		8.5 kg
Double head option	NO	YES	NO	NO

Above information is subject to changes without notice

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ref: DCNW-Len-a12



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