



DCN1000V series

Vacuum cryogenic temperature blackbodies

INTRODUCTION

Although similar to the traditional infrared reference sources, the DCN1000V blackbodies incorporate specific features in order to reach the desired temperatures within a reasonable time when operating at cryogenic temperatures in vacuum.

They consist in an emissive head equipped with heaters. Heat dissipation is ensured by liquid nitrogen.

High emissivity is obtained thanks to a specific coating on the emissive surface of the blackbody.

Temperature of the emissive surface is measured in real time via high precision calibrated Pt sensors.

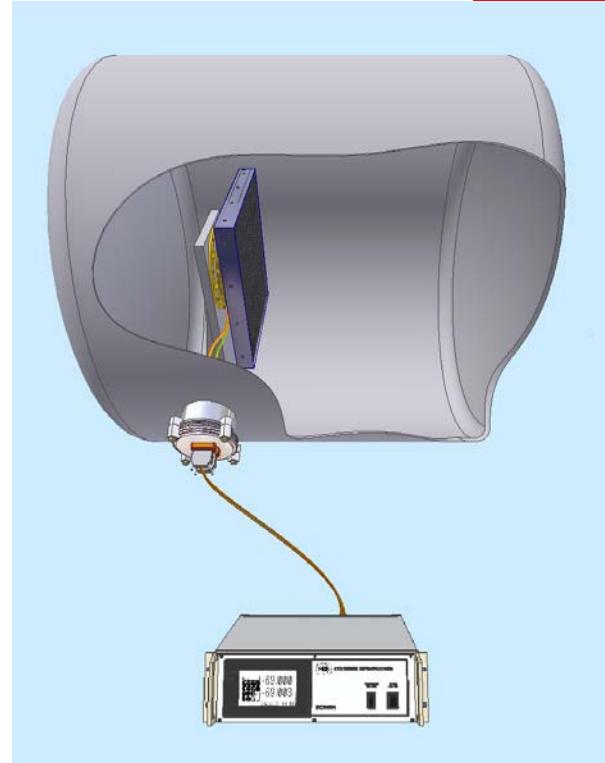
Various emissive area sizes are available to suit different applications such as characterisation and radiometric calibration of space borne imagers, non-uniformity correction of infrared sensors, etc.

CONFIGURATION

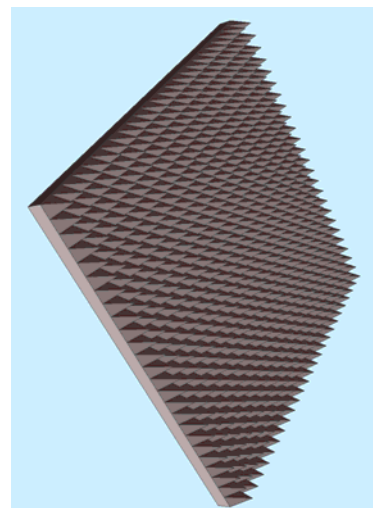
- Absolute temperature range from +100K to +200K
- Real time display of emissive area and set point temperature,
- Fast response time and high stability
- High thermal uniformity and emissivity
- Control through touchscreen
- Remote control via Ethernet interface

OPTIONS

- Enhanced emissivity with pyramidal pattern for emissive surface
- Extended areas up to 500 mm x 500 mm
- Absolute temperature range to +450 K
- IEEE488, RS232, interface
- Radiometric calibration over 3-5 μm or 8-14 μm bandwidth
- Thermo-electric coolers for positive/negative temperature differences with regard to ambient temperature



DCN1000V blackbody principle



Pyramidal pattern of emissive surface (option)

TECHNICAL DATA

	DCN1000 V2	DCN1000 V3	DCN1000 V4
Emissive area (mm) :	50 x 50	75 x 75	100 x 100
Head dimensions W x H x D (mm) :	115 x 200 x 111	145 x 200 x 111	192 x 200 x 121
Head weight (kg) :	2	3	4
Electronic unit size :	3U x 19"	3U x 19"	3U x 19"
Electronic unit weight (kg) :	11	11	11
Absolute temperature range (K) :	100 to 200 (450 optional)		
Emissivity :	> 0.96 in the 3-5 μm bandwidth > 0.97 in the 8-14 μm bandwidth		
Stability ($^{\circ}\text{C}$) :	± 0.002		
Temperature measurement accuracy ($^{\circ}\text{C}$) :	± 0.03		
Thermal uniformity at ambient $\pm 5^{\circ}\text{C}$ ($^{\circ}\text{C}$) :	± 0.01		
Regulation type :	real time PID adjustment		
Temperature sensor type :	calibrated Pt sensor		
Display resolution :	0.001 $^{\circ}\text{C}$ (actual temperature and set point display)		
Remote control :	Ethernet interface		
Head operating temperature (K) :	80		
Head operating pressure (bar a) :	10^{-5} to 1		
Control unit operating temperature ($^{\circ}\text{C}$) :	+5 to +45		
Power supply :	115/230 VAC, 1 ph., 50/60 Hz		

Above information is subject to changes without notice



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