SR-800N Extended Area Blackbody System

CI-Systems is introducing a new model of our legacy SR-800 Black body. This paper introduces the new SR-800N Extended Area Blackbodies.

Overview

The SR-800N Extended Area Blackbody System consists of a high emissivity and uniformity blackbody with its controller (*The ControlMaster*). The ControlMaster controls the temperature of the blackbody to achieve high accuracy and stability of temperature.

The SR-800N is available in various emitter sizes and temperature ranges. The system is equipped with a removable temperature sensor (RTD) which enables fast and easy calibration by replacing the sensor with a newly calibrated one and updating the calibration parameters, which are stored in the blackbody head.

SR-800N Extended Area Blackbodies

Customer may integrate to the SR-800N items such as a motorized target wheel, filter wheel etc. The SR-800N can be operated in absolute mode or in differential mode, where the emitter temperature is relative to temperature of the target in front of it.

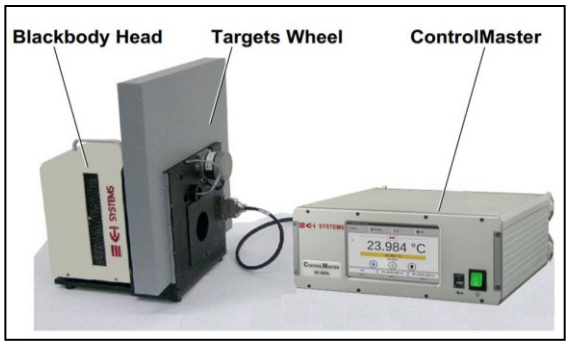
The SR-800N Extended Area Blackbody can be operated as a stand-alone item by using the front panel touch screen of the ControlMaster, or may be integrated as part of a test bench system, with remote operation via the communication ports of the ControlMaster.

SR-800N Main Components

The two main components of the SR-800N are the Blackbody Head and the ControlMaster.

The following items may be integrated with SR-800N (optional):

- Host computer used for remote control and monitoring of the SR-800N system.
- Motorized axes can be operated locally from the ControlMaster, or remotely by using the communication ports of the ControlMaster
- I/Os typically implemented as 8 TTL type, each can be configured as input or output.



SR-800N Main Components

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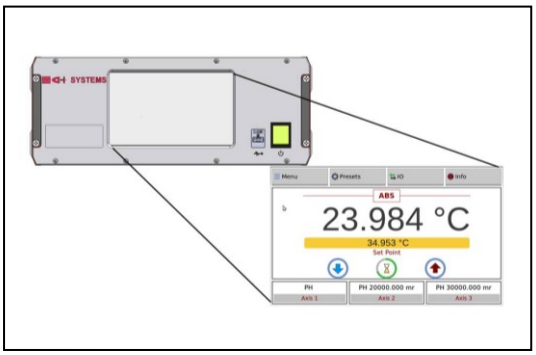
Improvements and new features of the SR-800N

Improvements in the ControlMaster:

- Larger LCD (7” instead of 5.7”), with wider viewing angles.
- Modernized user interface, with improved touch panel.
- The use of improved embedded processor, for achieving improved performance.
- New switched-mode power amplifier, with higher efficiency and current capacity.
- The ControlMaster is capable of controlling motor axes with enhanced performance simultaneous operation, high resolution open loop or speed/position closed loop operation.



The ControlMaster unit

- The ControlMaster includes options for various types of I/Os – TTL, dry switches, relay, galvanic isolation and power switching. These types of I/Os enables the SR800N to be connected in various forms to other systems or to operate additional devices (such as lamps, LEDs or others).
- USB jack in the front enables to connect mass storage devices for easy calibration and S/W upgrade.
- Optional: Operation of two blackbody heads, with one SR-800N ControlMaster

(*) GPIB support is optional. A LAN to GPIB adaptor is provided when this option is ordered.

The Blackbody Heads

- There are no changes in the standard Blackbody Heads, up to area size of 14”. Performance of the blackbody heads (temperature reading resolution, stability and uniformity) remains the same as in the SR800R
- Larger Blackbody Heads (currently up to area size of 40”) are available with a new design. Power amplifiers and the temperature control board are installed in the head.

Comments:

- The SR-800N is the same “Fit, Form, Function” as the SR800R. The SR-800N ControlMaster has same physical (dimensions) and electrical characteristics as in SR800R. The SR-800R cables will work with the SR-800N systems, and vice versa. The SR800R removable temperature sensors can fit in SR-800N system without any changes.
- Current SR-800R will continue to be supported for 7 years from the release of the SR-800N.

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Comparison Table:

Key features of SR-800N vs. SR-800R

#	Feature	SR-800N		SR-800R	Notes
1	LCD size	**7”**	>	5.7”	
2	LCD resolution	**XVGA (800x600)**	>	(320x240)	
3	LCD viewing angles	**H: -70 to 70** **V: -40 to 60**	>	H: -45 to 45 V: -30 to 50	
4	Brightness	**>350 cd/m2**	>	>200 cd/m2	
5	Communication	**LAN (10/100/1000)**	>	LAN (10/100)	
		2x USB Host	>	-	
		RS232	=	RS232	
		RS422/RS485	>	-	
		GPIB **(optional)**		GPIB	SR800N uses external converter (LAN⇔GPIB)
6	Discrete I/O	**8 (TTL)**	>	8 (24V)	
		4 isolated In		-	optically isolated
		4 isolated Out		-	optically isolated
		4 relay switch		-	NC or NO
		4 power sw.		-	0.25A each
7	Stepper driver	4	=	4	
8	Stepper resolution	**1/32 step**	>	1/8 step	
9	Aux motors	**DC motors**	>	-	Can be used as 24V switches
10	Encoder interfaced	**3**	>	-	1 differential , 2 single ended
11	OPB interface	**7**	>	4	
12	RTD/Thermistor	**5**	>	2	Using the TSC with additional channels in the head control card
13	Thermocouple	**1**	>	-	
14	General purpose analog I/O	**8**	>	-	
15	Removable sensor	**Same sensor**	=	Same sensor	
16	Dimensions	**Same dimensions**	=	Same dimensions	

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