

# MTB

## Precision medium temperature area blackbodies



Fig1. Photo of MTB blackbodies (MTB-12D, MTB-6D, MTB-2D and laptop)

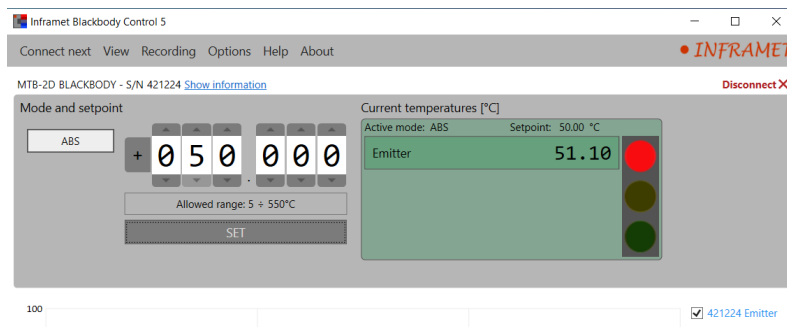


Fig.2. Main window of Blackbody Control program.

### BASIC INFORMATION:

MTB series blackbodies are ultra precision area blackbodies designed to simulate medium temperature targets. Radiator temperature is controlled using a thin, area heating element. Absolute temperature of the blackbody radiator can be regulated from near ambient temperature to 550°C. Emitter area can vary from 50×50 mm to 300×300 mm (option 500×500 mm) depending on model. They are needed to simulate targets many artificial radiation sources (examples engines of aircraft) or as reference area sources of thermal radiation.

The MTB blackbodies are unique on the market due to high temperature resolution (0.01°C), very good temporal stability, emissivity, temperature uniformity, and temperature uncertainty. All these features makes MTB series blackbodies an ideal choice for standard blackbodies to be used as temperature standards in national standard laboratories or in top industrial laboratories.

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### SPECIFICATIONS OF STANDARD VERSIONS

Model	MTB-2D	MTB-4D	MTB-6D	MTB-12D
Aperture	50× 50 mm	100× 100 mm	150× 150 mm	300× 300 mm
Total temperature range	ambient+5°C to +550°C	ambient+5°C to +550°C	ambient+5°C to +550°C	ambient+5°C to +550°C
Recommended temperature range <sup>1</sup>	+100°C to +550°C	+100°C to +550°C	+100°C to +550°C	+100°C to +550°C
Set point and resolution	0.01°C	0.01°C	0.01°C	0.01°C
Emissivity	0.96±0.01	0.96±0.01	0.96±0.01	0.96±0.01
Temperature uncertainty	0.07°C or 0.002(T-25) °C	0.07°C or 0.002(T-25) °C	0.07°C or 0.002(T-25)°C	0.07°C or 0.002(T-25)°C
Temperature uniformity	<0.002x(T-25) °C	<0.005x(T-25) °C	<0.007x(T-25) °C	<0.01x(T-25) °C
Heating rate <sup>3</sup>	10°C/minute	9°C/minute	8°C/minute	7°C/minute
Cooling rate <sup>4</sup>	4°C/minute	4°C/minute	3°C/minute	3°C/minute
Settling time <sup>5</sup>	<10 min	<15 min	<20 min	<25 min
Regulation stability	0.05°C	0.08°C	0.08°C	0.1°C
Computer control	USB 2.0 (RS-232)	USB 2.0 (RS-232)	USB 2.0 (RS-232)	USB 2.0 (RS-232)
Power supply	115-230VAC 50/60Hz	115-230VAC 50/60Hz	115-230VAC 50/60Hz	230VAC 50/60Hz
Operating temperature	+5°C ÷ +45°C	+5°C ÷ +45°C	+5°C ÷ +45°C	+5°C ÷ +45°C
Storage temperature	-10°C ÷ +60°C	-10°C ÷ +60°C	-10°C ÷ +60°C	-10°C ÷ +60°C
Power voltage	AC 230/110V	AC 230/110V	AC 230V	3Phase 230/400VAC 3phase 120/208VAC
Power consumption	400W	700W	1200W	Up to 6200W
Dimensions	325x220x250	360×370×260mm	425×450×500m m	750×525×750mm
Mass	About 12 kg	About 25 kg	About 50 kg	About 130 kg

\*specifications are subject to change without prior notice

<sup>1</sup> Stabilization time significantly increases at temperatures below recommended temperature range

<sup>2</sup> Temperature uniformity is defined as uncertainty of temperature spatial distribution.

<sup>3</sup> Approximate value at 200°C to 400°C temperature range

<sup>4</sup> Approximate value at 400°C to 200°C temperature range

<sup>5</sup> Settling time is to getting 0.5°C temporal standard uncertainty from the desired temperature

### MAX TEMPERATURE:

Typical maximal temperature is 550°C (option: 600°C). If such temperature is not needed then max temperature can be reduced to 350°C and better temperature uniformity can be achieved.

**Commercial code:** MTB – xD where x is approximate size in inches. MTB- 2D means MTB blackbody of 50x50mm emitter.

Version 2.7

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