RefLED-2.0 Series LED Reference Modules

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Part 1. RefLED-2.0 Series 2π LED Reference Modules

We offer our 2π LED reference modules which are suitable as transfer standards for luminous flux or for other applications where high repeatability is required such as auxiliary lamps in integrating spheres.

Figure 1: RefLED-2.0 2π LED Reference Modules

Mechanical and Electrical

The LED is mounted on an aluminium substrate which conducts the heat from the LED to a fan-cooled heat sink. A thermocouple is embedded in the substrate to closely monitor the substrate temperature: the LED heats the substrate and the fan speed automatically adjusts to regulate the substrate temperature to a pre-defined level (typically 55°C).

Built-in proprietary electrical circuitry provides a constant current to the LED; reads the thermocouple and adjusts the fan's speed to regulate the temperature. We underrun at the LEDs for long-term reliability and stability.

Electrical Supply

The RefLED-2.0 modules are powered by 9 to 12 V DC. They are supplied with a DC power adapter suitable for 100-240 V 56/60 Hz.

Performance[1]

Model No	Colour	Lumens	Targer CCT or dominant wavelength
RefLED-2.0-CW	Cool White	141	CCT = 6500 K ± 1500 K
RefLED-2.0-NW	Neutral White	140	CCT = 4200 K ± 600 K
RefLED-2.0-WW	Warm White	124	CCT = 3000 K ± 400 K
RefLED-2.0-RB	Royal Blue	19	457 nm ± 7 nm
RefLED-2.0-B	Blue	35	475 nm ± 10 nm
RefLED-2.0-G	Green	51	528 nm ±10 nm
RefLED-2.0-A	Amber	18	590 nm ±10 nm
RefLED-2.0-AR	Amber-red	27	615 nm ± 10 nm
RefLED-2.0-R	Red	26	625 nm ± 10 nm

Table 1: Reference LED Module Luminous Output

Warm-up time: 5 minutes for white, 15 minutes for coloured
Stability: Better than 0.01%
Repeatability: 0.1% (0.5% for amber)

Warranty

PSI provides an unconditional warranty on all of the photometric equipment supplied for 12 months from the date of final acceptance, or according to the limitations of the warranty of the manufacturer of any individual component. During the warranty period, PSI will repair or replace any faulty equipment at no charge to the client. The client is responsible for fixing hardware failures in the PC system, however PSI will actively

[1] These are the minimum rated luminous flux values. For white LEDs in particular the actual performance is typically ~ 10 % to 20 % higher.

assist the client in determining the nature of and resolving any such problem that may occur.

This warranty does not cover misuse, abuse or accidental damage to the equipment. In such a case all repairs and travel and accommodation expenses will be borne by the Client.

Part 2: Calibration Options

We offer the following calibration options for the LED modules:

- Luminous flux;
- Average chromaticity;
- Luminous flux and average chromaticity.

By default the test report is from our own laboratory and traceable to Australian national standards of measurement. An option is given for the test report to be made traceable to NIST. All test reports are NATA-endorsed (ISO 17025).