



Thermal Resistance & Spectroradiometer System for LED (TRS-1000)

Brochure

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Leader in Lighting & Electrical Test Instruments

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**System configuration:**

- A. LED Fast Scan Spectroradiometer
- B. T3 LED Thermal and Electrical Performance Analyzer
- C. Temperature Control Device
- D. Standard Light source
- E. 0.3m Integrating sphere

Brief Introduction:

Thermal parameter is the key index to evaluate the quality of LED. Different temperature will have significant different effects on optical parameters, color parameters, electricity parameters and life of LED. Therefore, design and control of the thermal dissipation is the most important thing for the manufacturers and users. Referring to the relative international standard, TRS1000 could conduct integration testing on optic, color, electricity and thermal; meanwhile record the changing curve of the parameters at real time.

Technical Specification:

A. Thermal parameters:

Junction temperature, thermal resistance and K factor

- Thermal sink range: 5°C ~ 90°C
- Temperature control system accuracy: $\pm 1^{\circ}\text{C}$
- Junction temperature accuracy: $\pm 1^{\circ}\text{C}$

B. Optic and colorimetric Parameters: Spectral power distribution, chromaticity coordinate, correlative color temperature, peak wavelength, dominant wavelength, semi breadth, red ratio, rendering index, luminous flux and optical power

- Wavelength range: 380~780nm
- Wavelength accuracy: $\pm 0.3\text{nm}$
- Repeatability of chromaticity coordinate: ± 0.001 (Under standard illuminator A)
- Sampling interval: 1nm/5nm
- Photometry repeatability: 1%
- CCT range: 1000~100000K
- Dominant wavelength range: 380~700nm
- Sensor: 2048 unit array CCD
- Integration time: 6 μs ~10s

C. Electrical parameters: Forward voltage (Vf) and forward current(If)

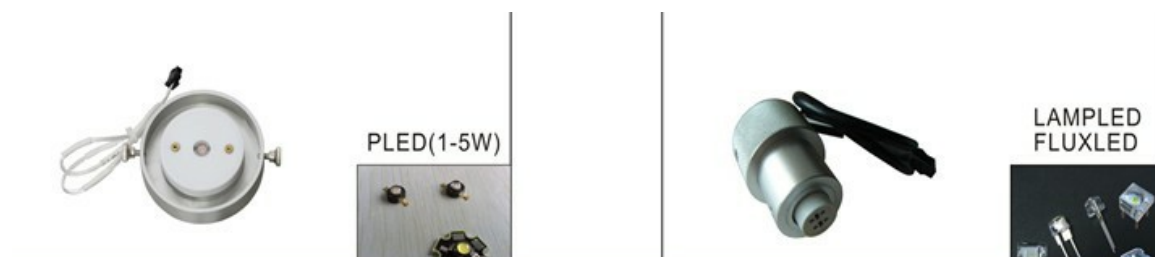
- Output current range: 1-3000mA
- Output voltage range: 45V
- Max LED power dissipation of LED: 20W

Clamp:

A. If test thermal VS optical parameters and color parameters, the user will need a temperature controlled clamp to mounted the LED, the temperature controlled clamp can be designed according to users' products.

B. If test optical parameters and color parameters, we have 4 clamps to mounted the LED.



**Features:**

- Record the changing curve of parameters at real time.
- Optical fiber connector: SMA 905
- Communication port: USB2.0
- Software already built in database function, enable to output Excel format file.
- Programmable set thermal sink temperature, and If of LED for the purpose of imitating different working situation of LED
- Test condition complies with corresponding international standard
- Operation system: Windows 2000/XP/VISTA

Working condition requirement:

- Temperature range: 15°C ~35°C
- Max. Humidity: 70% RH

Note:**Standard Light source:**

OSRAM Standard Lamp to calibrate the spectrum and luminous flux with Lisun Lab certification. The data can be traced NIM. The Standard Lamp Source is used to calibrate the integrating sphere system. The different size of Integrating Sphere should choose the right power of standard lamp source

Integrating sphere

- Painting of integrating spheres is according to CIE Pub.No.84(1989)
- Material: Pure barium soleplate (BaSO_4)
- BaSO_4 coating: $\rho(\lambda) \geq 0.96(450\text{nm} \sim 800\text{nm})$ and $\rho(\lambda) \geq 0.92(380\text{nm} \sim 450\text{nm})$
- Fine diffuse reflection: Reflectance ≈ 0.8 and accuracy of $\rho(\lambda) < 1.5\%$

Software:






Comprehensive Test for Lumens,Colour,Electric,Heat

Fixed Heatsink Temperature

Heat Parameter

Junction T:
Thermal R:

Heatsink T:
Sophere T:
Envior T:

Colour Parameter

Chromaticity Coordinate:
x =
y =
u =
v =
CCT:
Peak Wavel:
Mina Wavel:
FWHM:

Electric

Junction U:
Tested U:
Foward I:
Forward U:
Loss Power:

Optic

Lumen Flux:
Opatical P:

system State

Interval T:
Total Time:
Tested Time:
Calibrated T:
Calibrated U:

Relative Spectrum

Detail

WaveLength(nm)

Synthetic Para

Junction U
Tested U
Voltage
Loss Power
CCT
Lumen Flux
Optical Power
Mina Wavel
Junction T
Sophere T
Enviorment T

Test Condition

K-Factor

-1.506

mV/cels

Tested I

5.0

mA

Integ-Time

0

mS

Working I

350.0

mA

Heatsink T

25.0

cels

Interval T

1000

mS

Total Time

600

S

Confirm

Auto Test

Condition Test

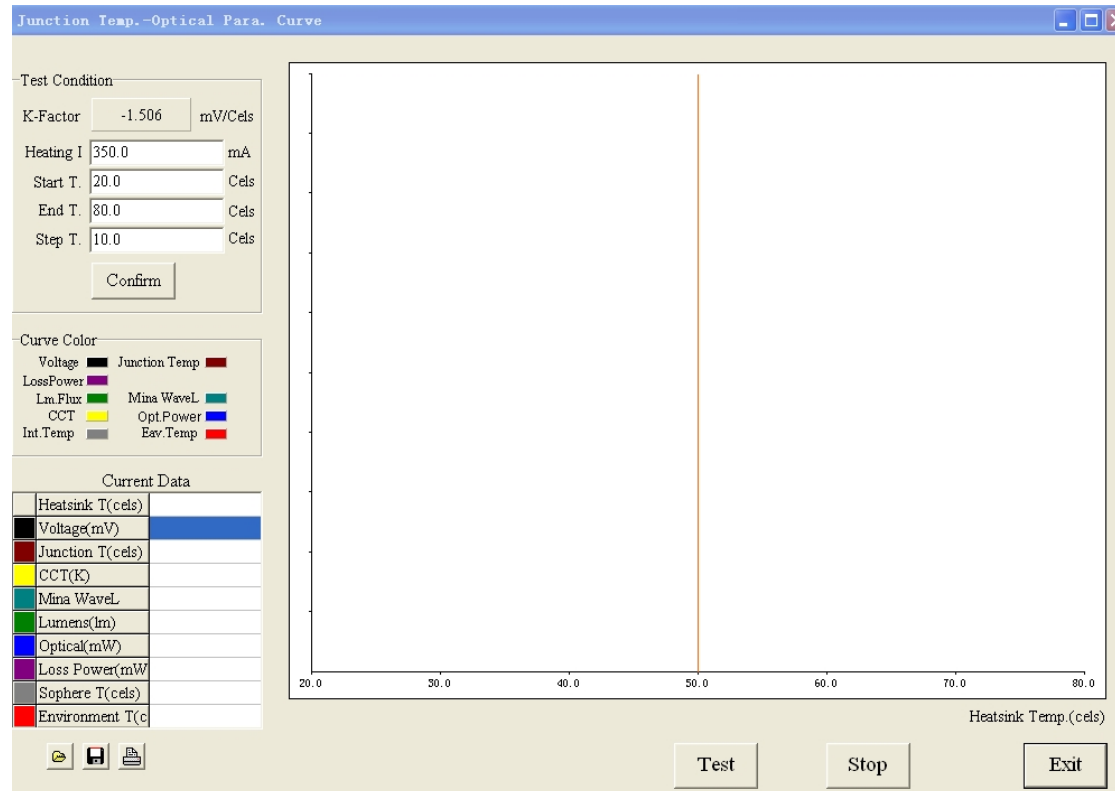
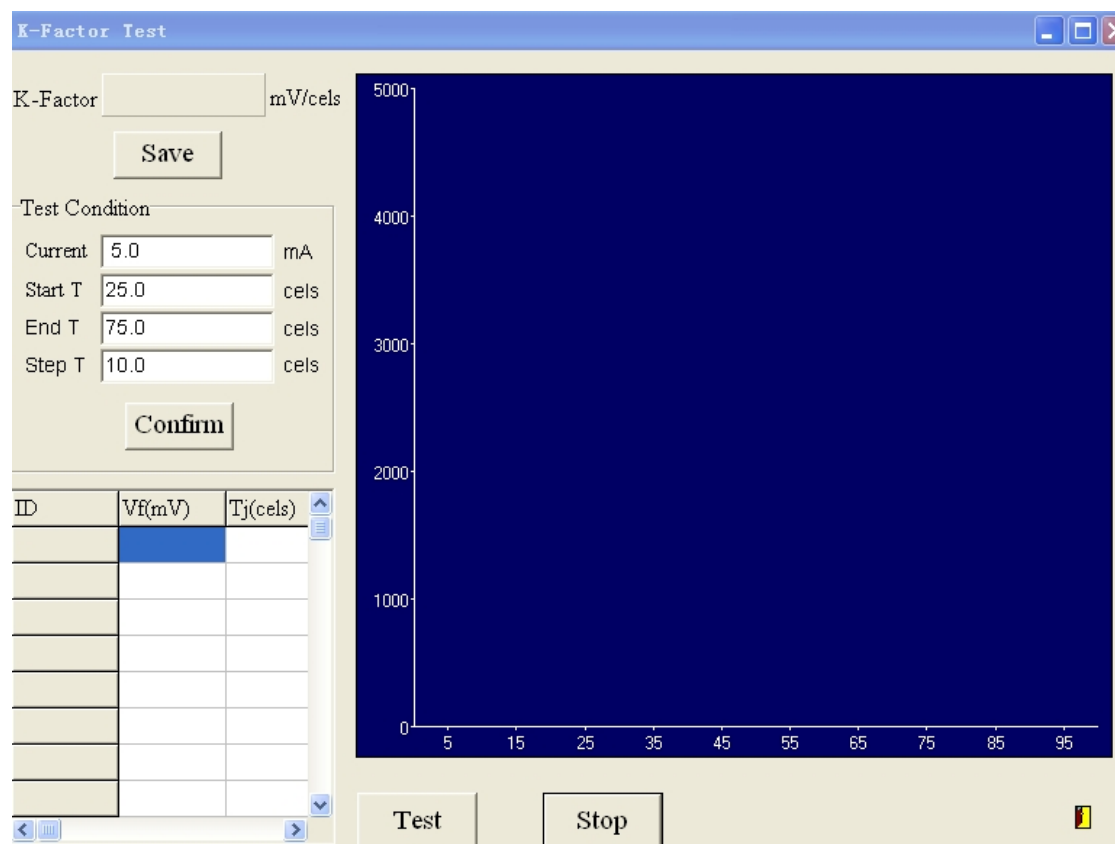
Exit

Time(minutes)

Comprehensive Test for Lumen, Color, Electric and Heat C

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IV Curve Test

**Junction Temp and Optical Curve****K Factor Test**