

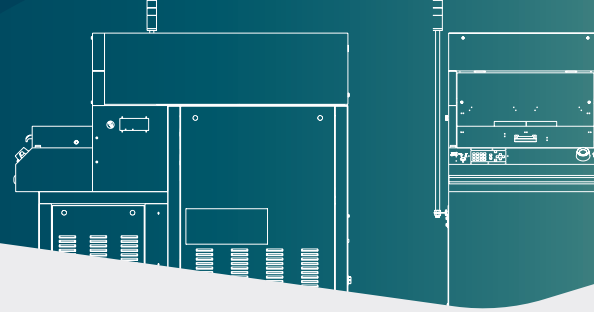
# Thick Film Laser Trim System



LT2200

# Circuit & Sensor Trim™

A platform for trim and test of Thick Film circuits, hybrids and components including PCBs and SMT.



## Circuit & Sensor Trim™ LT2200

# Specifications

## Optical System

- **Beam positioner type** | High Speed closed loop galvanometer
- **Spot Size<sup>1</sup>** | 30  $\mu\text{m}$   
| 20  $\mu\text{m}$  (optional)
- **Field size** | 100 x 100 mm  
| 65 x 65 mm (20  $\mu\text{m}$  spot)
- **Depth of Focus** | 300  $\mu\text{m}$   
| 135  $\mu\text{m}$  (20  $\mu\text{m}$  spot)
- **Beam Repeatability** |  $\sim$  25  $\mu\text{m}$   
|  $\pm$  12  $\mu\text{m}$  (10  $\mu\text{m}$  spot)
- **Resolution** | 1.6  $\mu\text{m}$   
| 1.0  $\mu\text{m}$  (20  $\mu\text{m}$  spot)

<sup>1</sup> Minimum spot size. Maximum = 1.5X minimum.

## Laser System

- **Type** | Diode pumped Q-switched YAG
- **Wavelength** | 1064 nm
- **Output Power / Pulse Width** | 6W / 70 ns  
| 6W / 30 ns (optional)

## X/Y Part Positioning

- **Dual axis servo motors**
- X/Y Travel | 12" x 17"
- X/Y Resolution | 1.0  $\mu\text{m}$
- X/Y Repeatability | 3  $\mu\text{m}$

## Z-Theta Stage

- **Programmable Z stage**
- Z Travel | 20 mm
- Theta Travel |  $\pm$  5°
- Z Step Resolution | 4.0  $\mu\text{m}$
- Theta Resolution | 0.003°
- Lifting / Probe force | 25 lbs (11.3 kg)

## Part Viewing

- **Dual CCD camera system for High and Low Mag viewing**
- **30  $\mu\text{m}$  IR (nominal factory settings)**
- High Mag Viewing Field | 1.6 x 1.2 mm
- Low Mag Viewing Field | 11.0 x 8.0 mm
- **20  $\mu\text{m}$  IR (nominal factory settings)**
- High Mag Viewing Field | 1.7 x 1.2 mm
- Low Mag Viewing Field | 8.0 x 6.0 mm
- **Vision Processing**
- Edge Detection

## Measurement System

- **Type** | High Speed, Force V, current nulling bridge
- **Range** | 0.1  $\Omega$  – 1000 M $\Omega$
- **Resistance measurement accuracy (full Kelvin)**
- Low Range (< 50  $\Omega$ ) |  $\pm$  0.02 %  $\pm$  (1.0 % / R)
- Mid Range |  $\pm$  0.02 % of value
- High Range (> 160 K) |  $\pm$  0.02 %  $\pm$  0.02 % per M $\Omega$
- **Active Guard Measurement**
- 200 mA guard driver
- **DC Voltage Measurement Accuracy**

Range	Accuracy (%FSR)
100 mV – 400 mV	$\pm$ 0.10 %, $\pm$ 1 mV
1 V – 16V	$\pm$ 0.05 %, $\pm$ 1 mV
10V – 160V	$\pm$ 0.05 %, $\pm$ 5 mV

- **Voltage Source**

Range	Resolution	Accuracy (%FSR)
$\pm$ 4V	31 $\mu\text{V}$	$\pm$ 0.008 %
$\pm$ 16V	125 $\mu\text{V}$	$\pm$ 0.005 %
$\pm$ 32V	250 $\mu\text{V}$	$\pm$ 0.005 %

## Probing Assembly

- Motorized probe card holder adjustable with three independent motor controls to adjust Z, roll and pitch (0.5" total travel range); Z resolution 1.0  $\mu\text{m}$
- Manual X and Y adjustment (0.5" total travel range)
- Operator and Program control of Up / Down positions. Position stored in job file.

## Software

- **VersiTrim 2** system software includes resistor programming using spreadsheet format and laser trim language library
- **Setup tools**
- **System checkers**
- **Windows™ 10 Operating System**

## Utility Requirements

- **Power** | 100 / 120 / 230 / 240 VAC  $\pm$  10 %  
| 50 / 60 Hz, single phase 20 A max
- **Air** | 80 psi @ 5 SCFM (113 l/m) filtered to 5  $\mu\text{m}$  and free of contaminants

## Optional Equipment

- **Low-ohm option (LOIC) (5 m $\Omega$  – 1  $\Omega$ )**
- Uses standard 4T probe cards

Range	Accuracy
0.005 $\Omega$ – 0.1 $\Omega$	$\pm$ 0.50 %
0.1 $\Omega$ – 1 $\Omega$	$\pm$ 0.25 %

- **Additional matrix cards**
- **Choice of analog cables**
- **Pattern recognition system**
- **PCI IO card**
- **GPIB interface**
- **GPIB instrumentation package**
- **Configurable Light Tower**
- **Service tools and accessories**
- **Illumination options**

# Benefits

- Measurement platform supports passive and active trim applications
  - Traceable measurement certification
  - Resistance range from 5 milli-Ohms to 1 Gig Ohm
  - DC Voltage measurement and sourcing
  - VXI and GPIB architecture for 3rd party expandability
- Patented beam calibration and vision system hardware for precise laser positioning
- Latest generation diode-pumped laser technology for minimum maintenance, long term stability and high reliability
- VersiTrim 2™ Software
  - Graphical user interface for simple job creation and operation
  - Tool library for fast job setup
  - Comprehension software API library for advanced applications and custom integration