

# **HYPRO HT2399**

## **HIGH SPEED HYBRID LASER TRIMMING SYSTEM**



### **The Most Powerful and Stable System of Passive and Function Laser Trimming for Thick Film Components and Circuits**

- Industry Proven Diode-Pumped Laser without External Cooling Water
- High Speed Galvanometer Design
- Capability of Measuring Resistance in Wide Range
- Automatic, Fast, and Reliable Positioning for Accurate Laser Trimming
- Real-Time Architecture for System Test and Measurement Control
- Graphical and User Friendly Interface Software, Easy Setting and Trimming
- Extendable Customer-Design Function Trim

**HYPRO Enterprise Co., Ltd.**

[www.hypro.com.tw](http://www.hypro.com.tw)

No.20, Ln. 772, Heping Rd., Bade Dist., Taoyuan City 334, Taiwan

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# Specification

## HYPRO HT2399 High Speed Hybrid Laser Trimming System

Laser	
Type	Diode Pumped Q-switched Laser
Wavelength	1064 nm
Output Power	6 W
Pulse Width	30 nsec
Optical	
Beam Position	Galvanometer Scanner
Field Size	90 x 90 mm
Resolution	4 $\mu$ m
Spot Size	< 50 $\mu$ m
Focus Length	160 mm
Measurement	
Range	1 $\Omega$ ~ 30 M $\Omega$
Accuracy	0.04% Midrange
Repeatability	0.04% Midrange
Measurement Time	50 $\mu$ sec
Positioning	
X & Y Axis (Optional)	Servo Motor
Prober Axis	Step Motor
Software	
	HyproTrim™ 1.0
Controller	
	National Instruments PXIe Series Controller
Switching Matrix	
Channel	96 (24x4 wires)
Switch Type	Electromechanical, nonlatching
Contact Life	5 x 10 <sup>7</sup> Cycles
Insulation	> 10 G $\Omega$
Switching Time	3.5 msec
I/O Interface	
	USB/Ethernet/GPIB/RS232(Optional)
Physical Characteristics	
Dimensions	L 1950 x W 960 x H 1350 mm
Weight	1000 kg
Utilities Requirements	
Power	220 V AC, three phase, 10A ( 50/60Hz)
Air	80~100 psi / flow rate 10 cfm
Vacuum	100 CFM factory vacuum for substrates retention

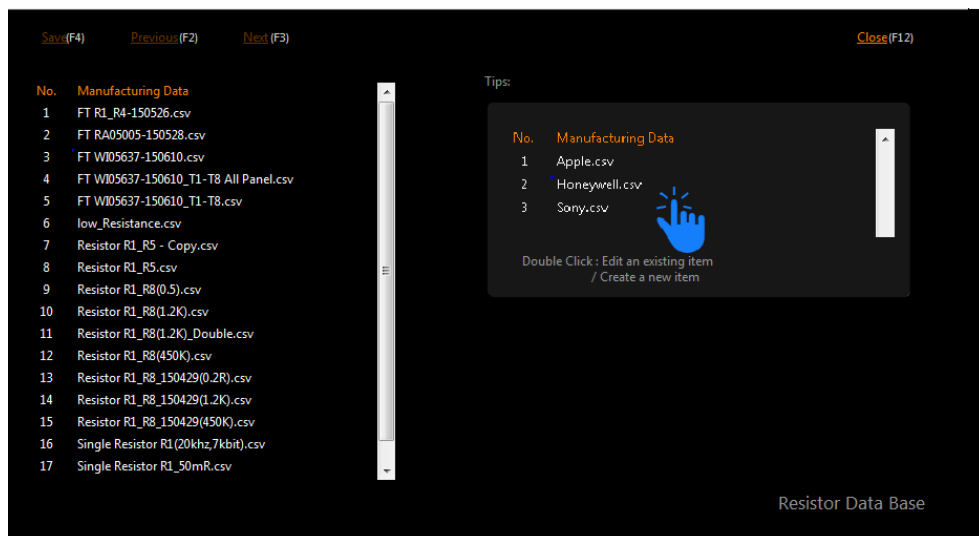
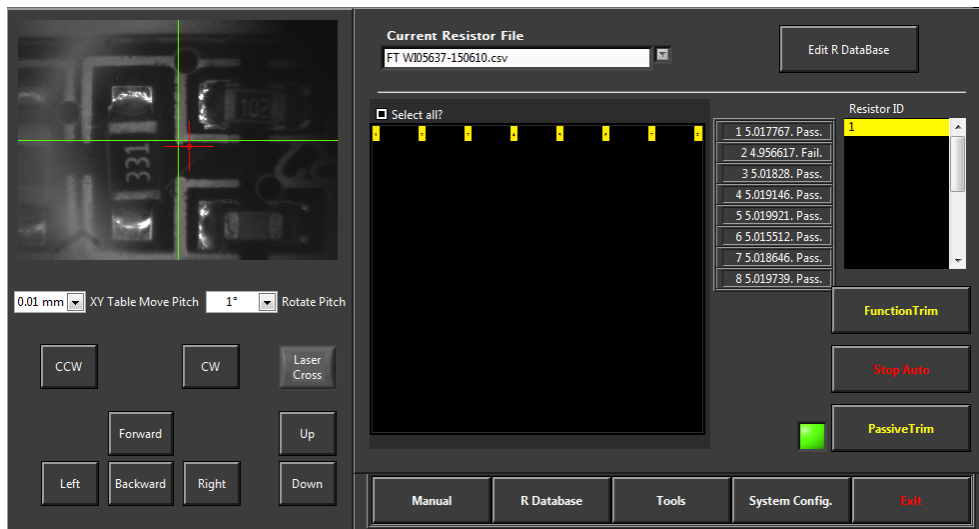
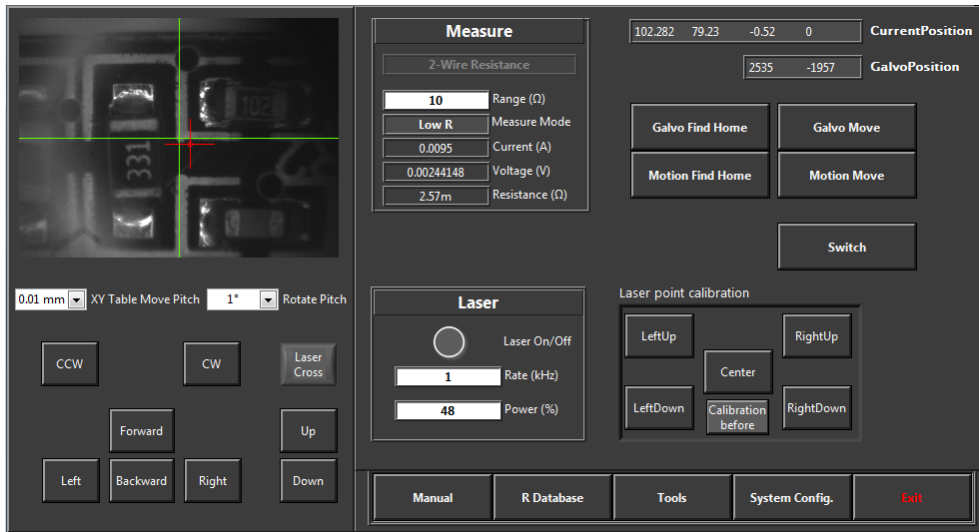
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# User Interface of Software HyproTrim™ 1.0



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Save(F4) Previous(F2) Next(F3) Close(F12)

Alignment

Copy	Unload Point	X(mm)	10	Y(mm)	190	GoTo
Copy	Alignment Point 1	X(mm)	117.01	Y(mm)	79.36	GoTo
Copy	Alignment Point 2	X(mm)	12	Y(mm)	79.32	GoTo
Copy	Section Point Start	X(mm)	2.96	Y(mm)	5.04	GoTo
Copy	Section Point End	X(mm)	-102.1	Y(mm)	5.04	GoTo

Number of Rows/Columns  
Rows: 1 Columns: 8

Row / Column Spacing  
column spacing: 15,0086 Column(mm)  
row spacing: 0 Row(mm)

Save(F4) Previous(F2) Next(F3) Close(F12)

Sequence: 1

Resistor ID: 1 (Set-Point)

Nominal Target: 5.02

Range(ohms): 5

Settle Time(ms): 20 (Trim Settling Time. This is a delay, starting when current is applied to the resistor.)

Measure Mode: Mid R

Probe Card:

Vsense+ (pin) 13 Resistor VSense- (pin) 14

Current Source+ (pin) 13 Resistor Current Source- (pin) 14

Guard (pin) (Against Parallel Resistance)

PreTest

UpperTolerance(%)	0.05	-10%	Target
LowerTolerance(%)	-0.15		-30%

PostTest

UpperTolerance(%)	0.15	upper tolerance	+1%
LowerTolerance(%)	-0.3	lower tolerance	-1%

Measurement

Save(F4) Previous(F2) Next(F3) Close(F12)

Trim Type: L

Laser Repetition Rate(KHz): 1

Laser Power(%): 48

Speed(mm/s): 300

Cut Off(%): 0

Smooth(0-1): 0

Turn1(%): 50

L Cut

Galvo Position

X(mm)	2535	Y(mm)	-1957			
Copy	X1(mm)	2360	Y1(mm)	-1993	GoTo	
Copy	X2(mm)	2140	Y2(mm)	-1993	GoTo	
Copy	X3(mm)	2140	Y3(mm)	-2150	GoTo	
Copy	Re-align Ref Pos T/F	RefX(mm)	2370	RefY(mm)	-2000	GoTo

Trim

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