

# 6300 SERIES

## COMBOSOURCE DUAL RANGE LASER DRIVER + TEMPERATURE CONTROLLER



The 6300 Series ComboSource is a high-accuracy laser driver combined with a 60W temperature controller. With unique operational modes and safety features not found in other devices, this instrument is ideal for low and medium-power laser and LED applications.



### DUAL RANGE LASER DRIVER

Operates at half-scale for improved resolution and lower noise.



### OVERLAPPING LASER PROTECTION

Including safety interlock, ESD protection, hardware limits for current & voltage, soft power-on, and intermittent contact safeguards



### MULTIPLE OPERATING MODES

Choose from: ● Constant Current ● Constant Power ● Constant Voltage



### REMOTE VOLTAGE SENSING

Supports an extra pair of sensing wires to measure the operating voltage of your laser diode or LED.



### AUTO-TUNE AND MANUAL PID SELECTION

One button auto-tunes your control loop, or choose from 8 factory gain settings, or select your own.



### POWERFUL TEMPERATURE CONTROLLER

Supplies up to 60 Watts of TEC control and up to  $\pm 0.004$  °C. Works with a thermistor, LM-335, AD-590, or an RTD.



### HIGH CONTRAST VFD MULTI-VIEW DISPLAY

View All 4 At Once: ● Laser Current & Voltage ● Photodiode Current  
● Actual & Temp Set Point ● TEC Voltage & Current

## AT-A-GLANCE

Current/Voltage Ranges

- ▶ 100 mA / 10 Volt
- ▶ 500 mA / 10 Volt
- ▶ 1 Amp / 10 Volt
- ▶ 4 Amp / 4 Volt

High Accuracy

- ▶ Up to 0.025% of reading + 0.025% of scale

Low Noise

- ▶ As low as  $<1$   $\mu$ A

Superb Temperature Stability

- ▶  $\pm 0.004$  °C (over 1 hour)
- ▶  $\pm 0.01$  °C (over 24 hours)

Remote Operation via PC

- ▶ Use your existing control code. Our command set is compatible with other manufacturers.
- ▶ USB / RS-232 Connections



## GROUND LOOPS: ELIMINATED. YOUR LASER IS PROTECTED.

A ground loop can destroy your laser in an instant. Every input and control circuit on the ComboSource is electrically isolated. Offset voltages, ground connections, and AC noise will never act on your system.

*No other laser driver on the market has this capability.*

# 6300 LASER SPECIFICATIONS

		6301	6305	6310	6340					
Laser	Setpoint	<b>Laser Current</b>								
		Range (mA)	0-50	0-100	250	500	500	1000	2000	4000
		Max Resolution (mA)	0.002	0.005	0.01	0.02	0.02	0.05	0.1	0.2
		Accuracy ( $\pm$ [% set+mA])	0.025% + 0.02	0.025% + 0.03	0.025% + 0.08	0.025% + 0.12	0.025% + 0.12	0.025% + 0.3	0.025% + 0.5	0.05% + 0.8
		Stability (ppm, time)	< 10, 1 hour							
		Temperature Coeff (ppm/ $^{\circ}$ C)	50							
		Noise/Ripple ( $\mu$ A rms)	< 1	< 1.2	< 1.5	< 1.5	< 2.5	< 35	< 40	
		Transients ( $\mu$ A)								
		Compliance Voltage (V)	10	10	10	10	10	10	10	4
		<b>Photodiode Current</b>								
	Range ( $\mu$ A)	2 – 5,000								
	Resolution ( $\mu$ A)	0.1								
	Accuracy ( $\pm$ [% set+ $\mu$ A])	0.05% + 1								
	Stability (ppm, time)	< 200, 24 hours								
	Temperature Coeff (ppm/ $^{\circ}$ C)	< 200								
	PD Bias (V)	0 to -5V, programmable								
	<b>Laser Voltage</b>									
	Range (V)	0 – 10	0 – 10	0 – 10	0 – 10	0 – 10	0 – 10	0 – 10	0 – 5	
	Resolution (V)	0.001								
	Accuracy ( $\pm$ [% set+V])	0.05% + 0.005								
Stability (ppm, time)	< 50, 1 hour									
Temperature Coeff (ppm/ $^{\circ}$ C)	< 100									
<b>External Modulation</b>										
Input Range	0 – 10V, 10k $\Omega$									
Modulation Bandwidth (kHz)	325	325	325	200	200	200	200	150		
Measurement	<b>Laser Current</b>									
	Resolution (mA)	0.002	0.005	0.01	0.02	0.02	0.05	0.1	0.2	
	Accuracy ( $\pm$ [% set+mA])	0.025%+ 0.02	0.025%+ 0.03	0.025%+ 0.08	0.025%+ 0.12	0.025%+ 0.12	0.025%+ 0.3	0.025%+ 0.5	0.05%+ 0.8	
	<b>Laser Voltage</b>									
	Resolution (V)	0.001								
	Accuracy ( $\pm$ [% read+V])	0.05% + 0.005								
Limits	<b>Photodiode Current</b>									
	Resolution ( $\mu$ A)	0.1								
	Accuracy ( $\pm$ [% read+ $\mu$ A])	0.05% + 0.5								
<b>Laser Current</b>										
Resolution (mA)	1									
Accuracy ( $\pm$ mA)	2	5	5	10	10	10	10	40		
<b>Laser Voltage</b>										
Resolution (V)	0.1									
Accuracy ( $\pm$ % FS)	2.5%									

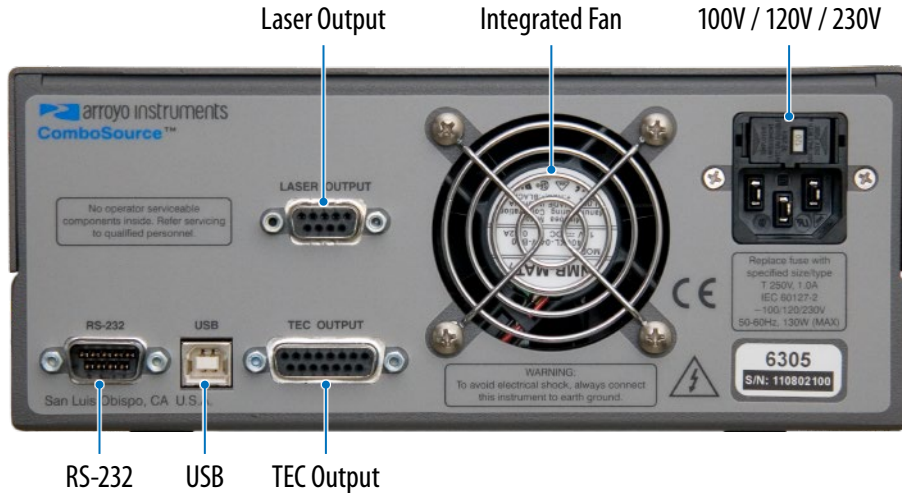
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# 6300 TEC SPECIFICATIONS

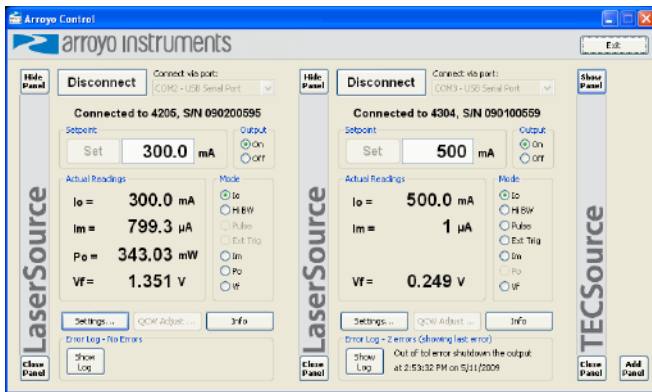
	6301	6305	6310	6340	
<b>TEC</b>	<b>Setpoint</b>	<b>Temperature</b>			
		Range (°C) <sup>1</sup>	-99 to 250		
		Resolution (°C)	0.01		
		Therm Accuracy (± °C) <sup>2</sup>	0.05 <sup>3</sup>		
		AD560 Accuracy (± °C) <sup>2</sup>	0.05		
		LM335 Accuracy (± °C) <sup>2</sup>	0.05		
		RTD Accuracy (± °C) <sup>2</sup>	0.05		
		Stability (1hr) (± °C) <sup>4</sup>	0.004		
		Stability (24hr) (± °C) <sup>4</sup>	0.01		
	<b>Measurement</b>	<b>Current</b>			
		Range (A)	5		
		Compliance Voltage (V)	12		
		Max Power (W)	60		
		Resolution (A)	0.01		
		Accuracy (± [% set+mA])	0 + 30		
		Noise/Ripple (mA, rms)	< 5		
		<b>Current</b>			
Resolution (mA)		10			
Accuracy (± [% read+mA])	0 + 30				
<b>Voltage</b>					
Resolution (mV)	10				
Accuracy (± [% read Volts])	0 + 0.05				
<b>10µA Thermistor</b>					
Range (kΩ)	0.2 – 450				
Resolution (kΩ)	0.01				
Accuracy (± [% read+kΩ])	0.05 + 50				
<b>100µA Thermistor</b>					
Range (kΩ)	0.02 – 45				
Resolution (kΩ)	0.001				
Accuracy (± [% read+kΩ])	0.05 + 5				
<b>LM335</b>					
Bias (mA)	1				
Range (mV)	1730 – 4730				
Resolution (mV)	0.1				
Accuracy (± [% read+mV])	0.3 + 1				
<b>AD590</b>					
Bias (V)	4.5				
Range (µA)	173 – 473				
Resolution (µA)	0.01				
Accuracy (± [% read+ µA])	0.03 + 0.1				
<b>RTD</b>					
Range (Ω)	20 – 192				
Resolution (Ω)	0.01				
Accuracy (± [% read+Ω])	0.03 + 0.1				
<b>Limits</b>	<b>Laser Current</b>				
	Resolution (mA)	10			
	Accuracy (mA)	40			
<b>General</b>	Display Type	4x20 VFD			
	Laser Connector	DB-9, female			
	TEC Connector	DB-15, female			
	Fan Supply	4 – 12V, 350mA max			
	Computer Interface	USB 2.0 Full Speed (Type B), RS-232 (DB-9, male)			
	Power	100V / 120V / 230V, 50/60 Hz			
	Size (H x W x D) [inches (mm)]	3.47 (89) x 8.5 (215) x 12 (305)			
	Weight [lbs (kg)]	7.8 (3.5)			
	Operating Temperature	+10°C to +40°C			
	Storage Temperature	-20°C to +60°C			

1. Software limits. Actual range dependent on sensor type and system dynamics.
2. Accuracy figures are the additional error the 5300 adds to the measurement, and does not include the sensor uncertainties.
3. 25°C, 100µA thermistor.
4. Stability measurements done at 25°C using a 10kΩ thermistor on the 100µA setting. The number is ½ the peak-to-peak deviation from the average over the measurement period.

## REAR VIEW



## ARROYO CONTROL



Control any Arroyo laser driver or temperature controller directly from your PC. Simply connect to your Arroyo device via USB or RS-232 and gain direct access to settings, device limits, and adjustments from an easy-to-use Windows interface. You can even connect to multiple instruments at the same time.

Download ArroyoControl for free from [www.arroyoinstruments.com](http://www.arroyoinstruments.com).

LabView drivers available.



## ACCESSORIES



### 1401-RM-1

#### 6300 SERIES 2U RACK MOUNT KIT, 1 UNIT

This rack mount kit will mount any 6300 ComboSource, 5300 Series TECSource, or 4300 Series LaserSource in 2U of rack space. The unit can be positioned to the left or right side of the rack space, depending on how you mount the hardware.



### 1401-RM-2

#### 6300 SERIES 2U RACK MOUNT KIT, 2 UNITS

This rack mount kit will mount any 6300 ComboSource, 5300 Series TECSource, or 4300 Series LaserSource side-by-side in 2U of rack space.

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