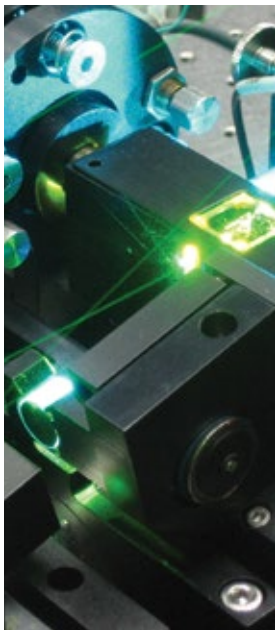

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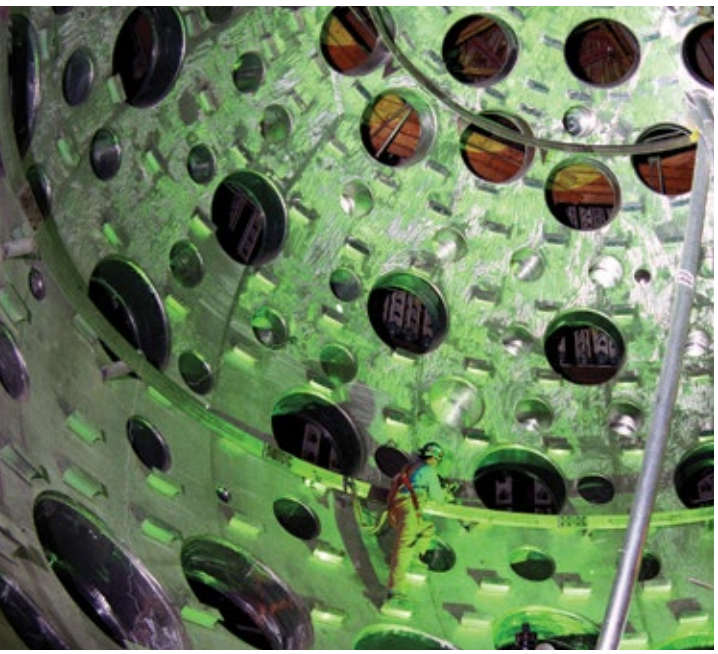
Precision Instrumentation for Lasers and LEDs

Do More for Less

PERFORMANCE Arroyo Instruments offers high precision, low noise, low drift instruments that meet the demanding needs of laser diode and LED applications.



EASE OF USE Our benchtop instruments feature a high contrast VFD display capable of displaying real text, and an intuitive interface, making them incredibly easy to operate.

VALUE Our instruments feature everything you have come to expect in a world-class instrument, but at a price that is much lower than comparable products, giving you the highest value instruments on the market.

AVAILABILITY We know that when you need an instrument, you don't have time to wait weeks or even months because of availability. Most of our products are available for shipment within days.

Knowing that any instrument is only as good as the engineering put into it, all our products go through extensive design, testing and verification. We will not release a product until it exceeds our high standards for precision and performance.

Innovation

We are passionate about our products, and know that once you try one of our instruments, you'll never go back. We invite you to use this catalog to find the Arroyo Instruments product that best fits your needs, then call or visit our website. There you'll find complete specifications, user's manuals, and more that fully detail the capabilities of our instruments.

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Latest Products

5400 SERIES TECSOURCE TEMPERATURE CONTROLLER

The new **5400 Series TECSource** Temperature Controller is a high power, high performance temperature controller capable of providing up to 960W of TEC power to meet even the most depanding TEC application. In addition to high power, the **5400** added several new capabilities, including multiple sensor inputs, digital I/O, and an analog output monitor. Link it to a **4400** LaserSource, and you have a high power, high performance laser or LED control system.

6300-QCL SERIES COMBOSOURCE QCL CONTROLLER

Based on our successful **6300 Series ComboSource** Laser Diode Controllers, the new **6300-QCL Series** is an excellent choice for low to medium power QCL applications. With high compliance outputs, low noise operation, and other special features specifically designed for QCL applications, the **6300-QCL Series** controllers provide a high performance, low cost drive and temperature controller in a single, compact enclosure.

Latest Products

274 TECMOUNT WATER COOLED MOUNT

The **274 Water Cooled TECMount** is the first in a new line of high power water cooled mounts. With a flexible 3" cold plate, active TEC control, and simply-to-use connectectivity, the **274** is an easy mount to integrate into your setup. With over 125W of cooling capacity, it's also powerful enough to handle a wide reange of applications. The mount comes standard with a sensor for temperature feedback, and a DB15 interface for quickly interfacing to a controller. There is even a provision for switching between internal and external temperature sensors.

685 SERIES COMBOPAK LASER DIODE CONTROLLER

Our new **685 Series ComboPak** Laser Diode Controllers bring the capability of our **6300 ComboSource** laser diode controller into a compact, displayless instrument for embedded or low cost applications. Smaller than our **LaserPak** and **TECPak** controllers, the **ComboPak** packs a lot of functionality into a small instrument. Universal AC input, USB control, analog modulation input, and a host of other features allow this controller to be used in a wide variety of applications. It is fully compatible with all of Arroyo Instruments' existing mounts and cables, and uses the same computer interface language for easy transition from protoytype development using our benchtop controllers to production deployment for volume applications.

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4400 SERIES LASERSOURCE LASER DIODE DRIVER

Available Q3 2016

The new **4400 Series LaserSource** Laser Diode Driver is our most powerful driver, with output currents up to 100A. This high performance driver delivers excellent stability, low noise performance, and high accuracy, meeting even demending laser and LED control applications. A number of capabilities are packed into the **4400**: QCW operation with trigger input and output, external input for analog modulation, an intergrated pilot laser driver, temperature sensor inputs, digital I/O, and the ability to connect it to a **5400 TECSource** for temperature interlocking.

234 TEC TO-CAN LASERMOUNT

The new **234 TEC TO-Can LaserMount** provides 10W of thermal capacity for the latest high power TO-can devices, and natively supports 2-pin pacakges. Easily accessible switches on the rear of the unit make pin-out configuration a breeze, and intergated nitrogen purge allow for easy operation below the dew point.

213 & 215 DIL LASERMOUNTS

The new **213 DIL LaserMount** & **215 TEC DIL LaserMount** are completed overhauls of our DIL mount solutions. Based on our popular **203** & **205** body styles, the new **213** & **215** mounts provide excellent thermal performance for DIL and mini-DIL lasers. With internal wiring blocks for easy device configuration, these mounts can support any device pin-out.

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Laser Diode Controllers

6300 SERIES COMBOSOURCE LASER DIODE CONTROLLERS

The **6300 Series ComboSource** Laser Diode Controller offers the best of both worlds: a high accuracy, low noise laser driver and a powerful 60W temperature controller, all in one compact instrument.

The **6300 ComboSource** was born from the proven technology of our LaserSource and TECSource products, and includes several improvements making it our flagship product, providing outstanding performance at a price that does not kill your budget.

Quick Specifications

		6301	6305	6310	6340	6310-QCL	6340-QCL
Laser Specifications							
Current (mA)	*Low Range*	50	250	500	2,000	500	2,000
	High Range	100	500	1,000	4,000	1,000	4,000
Compliance Voltage (V)		10	10	10	5	18	15
Enhanced QCL Functionality		No	No	No	No	Yes	Yes
TEC Specifications							
Current (A)		5					
Voltage (V)		12					
Sensor Support		Thermistor, RTD AD590, LM335					
RTD 4-wire Sense		Yes					
General Specifications							
Size (H x W x D) [in (mm)]		3.5 (90) x 8.5 (215) x 12 (305)					
Output Connector		DB-9 (Laser) and DB15 (TEC)					
Computer Interfaces		USB & RS-232					

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At a Glance

100mA to 4 Amps
60 Watt TEC
Low noise, dual range
Advanced laser protection
Computer Interface

Easy to Use, Easy to Configure

Like all our products, you'll find the user interface is easy to setup and use. A dot-pixel character display allows for human-readable status, readings, and errors. No longer do you need to get out the manual to figure out how to set the current limit, or to understand what error 114 is; you can read it directly on the display in plain English. Want to see big numbers from across the room? No problem. Want to see actual versus set point, voltage, and current…all at once? You can do that, too. With a configurable display you can make the instrument work the way you want it to. Its compact form factor means the **ComboSource** takes up less room on your test bench, and the USB and RS232 computer interfaces make it easy to integrate into your existing test systems.

User Function Keys

The user function keys can be used to quickly select different configuration states or execute a predefined set of commands. Switch between two different experiments or script repetitive actions…anything you can do manually with the instrument can be programmed to the function key.

High Performance Temperature Control

In addition to being an excellent laser driver, the **ComboSource** also functions as a high performance temperature controller. Sixty watts of output power and fully adjustable PID control make it suitable for a wide range of applications.

Enhanced QCL Capabilities

The **6310-QCL** and **6340-QCL** Controllers provide a few key capabilities that optimize the controller for QCL application. Most importantly, the driver offers the higher compliance voltages typical of QCL lasers. In addition, wave number tables can be created and downloaded to the controller, allowing simple operation by wave number and letting the controller manage the necessary current and voltage.

Dual Range Operation & 4-Wire Sense

The **ComboSource** features dual current operating ranges for improved noise and accuracy for lower current applications without sacrificing headroom for your more power powerful devices. The **ComboSource** also has 4-wire sensor for accurate device voltage measurements. This eliminates voltage errors caused by cable and connector resistances.

Full Isolation Means No Ground Loops

Beyond the expected laser protection features, the **ComboSource** adds something unique to the Arroyo family of products: optical isolation of the modulation and photo diode inputs (the computer interfaces are also isolated). This protects against unwanted ground loops and other electrical disturbances that can plague traditional instruments and damage lasers. No other driver on the market has this capability.

Independent, Isolated Outputs

With multiple, independent power supplies, the ComboSource operates the laser and temperature controller outputs fully independent of each other, with full electrical isolation.

Laser Diode Drivers

4200-DR & 4300 SERIES LASERSOURCE LASER DIODE DRIVERS

The Arroyo Instruments **LaserSource** represents the culmination of 23 years of experience developing current sources for laser diode test and measurement. By incorporating industry standard features with important improvements in instrument design, the **LaserSource** series of products are the most advanced laser diode drivers in the market today.

Quick Specifications

Primary Specifications	4201 -DR	4205 -DR	4220 -DR	4302	4304	4308	4320
Current Range (mA) *Low Range*	50	250	1,000	2,000	4,000	8,000	20,000
High Range	100	500	2,000				
Photodiode Input Range (mA)	5	5	5	20	20	20	20
Compliance Voltage (V)	10	10	5	15	8	5	5
QCW Parameters							
Minimum Pulse Width (µs)				100	100	100	100
Rise Time (µs)				< 20	< 20	< 20	< 40
Duty Cycle (%)				0.1–60	0.1–60	0.1–60	0.1–60
General Specifications							
Size (H x W x D) [in (mm)]	1.82 (47) x 8.5 (215) x 11 (280)			3.5 (90) x 8.5 (215) x 12 (305)			
Output Connector	DB-9			DB-9			9W4
Computer Interfaces	USB			USB & RS-232			

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At a Glance

Dual Range (4200-DR)
Low Noise
100mA to 20 Amps
Computer Interface
QCW Options

Dual Range & 4-Wire Sense on the New 4200-DR

The new **4200-DR** drivers feature a dual range operation, giving you the flexibility to drive high current devices, while also having a low current, higher precision, lower noise mode, further expanding on the flexibility of our low current drivers. In addition to dual range, the **4200-DR** adds four-wire voltage sense for more accurate device voltage measurements.

Full Isolation Means No Ground Loops

Ground loops can plague instrument setups. In a major design improvement over traditional laser drivers, *every* input & output are optically and electrically isolated from each other, creating a versatile instrument that is unaffected by the electrical configuration of your diode or other test equipment. Even the photodiode input is fully isolated from the laser output, ensuring full isolation of the laser output from unwanted ground loops and other electrical disturbances. No other driver on the market has this capability.

Computer Interfaces

All **LaserSources** come standard with a USB interface, and **4300 LaserSources** also include RS-232. They are command set compatible with other manufacturers' drivers, allowing you to leverage any existing software you may have already developed.

Quasi-CW (QCW) Capable

The **4300 Series LaserSource** can be optionally equipped for quasi-CW (QCW) measurements, and feature both a trigger in and trigger out BNC for synchronization with other instruments. Pulses can be generated using the internal function generator, or triggered externally. Adding QCW mode does not mean you lose CW operation: QCW-equipped instruments retain all the capabilities of their CW-only cousins.

Analog Modulation

All **LaserSources** support analog modulation, and hardware protection is active during modulation, protecting the laser diode regardless of the modulation input signal.

Powerful User Interface

Unlike other instruments, the **LaserSource** employs a dot-pixel character display that allows for human-readable status, readings, and errors. No longer do you need to get out the manual to figure out how to set the current limit, or to understand what error 114 is; you can read it directly on the display in plain English.

Need More Current or Voltage? Call Us...

While we offer several standard current ranges, many applications require higher voltages or higher currents. Call us to discuss your high voltage or high current application, and we'll see if we have a solution for you.

Temperature Controllers

5240, 5300 & 5400 SERIES TECSOURCE

TEMPERATURE CONTROLLERS

The **TECSource Series** of temperature controllers provide a range of capable temperature controllers with very stable control and an easy-to-use interface. With powers ranging from 28W to 960W, a **TECSource** temperature controller is sure to fit your test and measurement needs.

Quick Specifications

Primary Specifications	5240	5305	5310	5300-08-24	5300-10-18	5400-15-28	5400-30-28	5400-20-56
Current (A)	4	5	10	8	10	15	30	20
Voltage (V)	7	12	12	24	18	28	28	56
Maximum Power (W)	28	60	120	192	180	420	840	960
Inputs / Outputs								
Thermistor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RTD, LM335, and AD590	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RTD 4-wire sense	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Sensor Inputs	1	1	1	1	1	7	7	7
Digital I/O	No	No	No	No	No	Yes	Yes	Yes
Analog Output Monitor	No	No	No	No	No	Yes	Yes	Yes
General Specifications								
Size [in (mm)] Height	1.82 (47)	3.5 (90)				3.5 (90)		
Width	8.5 (215)	8.5 (215)				12 (305)		
Depth	11 (280)	12 (305)				14 (356)		
Output Connector	DB-15					17W2		
Computer Interfaces	USB	USB & RS-232						

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At a Glance

Automatic PID Calculation
0.004°C Stability
28W to 960W of TEC Power
Built-in Fan Controller

Power to spare

With up to 960W versions available, buying temperature control power has never been less expensive. The extra power allows you to push your test setup farther without the typical costly upgrades normally associated with that amount of TEC power.

Built-In Fan Controller

All controllers include a built-in adjustable DC power supply which can be used to power external fans often found in test fixtures.

Measure Everything

Unlike many temperature controllers, the **TECSource** measures current, temperature, *and voltage*. Voltage measurement is often omitted in low cost temperature controllers. The **TECSource** is low cost, but not low performance.

Fully Adjustable PID Control

All **TECSources** offer factory defined gain settings for temperature control. Need more control? Switch to PID gain and you have individual adjustment of each value in the PID circuit, providing fine adjustment of the control loop.

Simple User Interface

Unlike other instruments in their class, the **TECSource** employs a dot-pixel character display that allows for human-readable status, readings, and errors. No longer do you need to get out the manual to figure out how to set the current limit, or to understand what error 114 is; you can read it directly on the display in plain English. This allows the user interface to be greatly simplified and at the same time easier to use.

Computer Interfaces

All **TECSources** come standard with a USB interface, and **5300 TECSources** also include RS-232. They are command set compatible with other manufacturers' drivers, allowing you to leverage any existing software you may have already developed.

Laser & LED Fixtures

200, 210, 220 & 230 SERIES LASERMOUNTS

The Arroyo Instruments line of **LaserMount** device fixtures solves the problem of how to best hold and thermally manage a laser diode. From TO-Can to Butterfly to C-mount and beyond, we probably have a **LaserMount** that will fit your device needs. If you don't see one on this brochure, just ask…we're always adding new device support.

Temperature Control

Many LaserMounts feature integrated Peltier (TEC) control, giving you a precise ability to thermally control your device. Whether you are trying to characterize device performance over temperature, or using temperature to wavelength tune your laser, you can rely on the LaserMount to give you excellent long term performance.

224 with opto-mech plate
(cage system not included)

Quick Specifications

Primary Specifications	203	205	207	213	215	224	226	234
Case TEC Control	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Thermal Capacity *Watts, 0°C ΔT at 25°C Ambient*	N/A	3.5 or 8*	10	N/A	2 or 3.5*	1.5	2.4	10
Sensor	10K Thermistor							
Nitrogen Purge	No	No	No	No	No	Yes	No	Yes
Laser Connector	DB9							
TEC Connector	DB15							
Fan (12VDC)	Opt	Opt	Opt	Opt	Opt	No	No	Yes

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203 & 205 BF LaserMount

- Available with and without external TEC control
- Flexible pin assignments
- Optional fan base for increased performance

207 TEC LaserMount

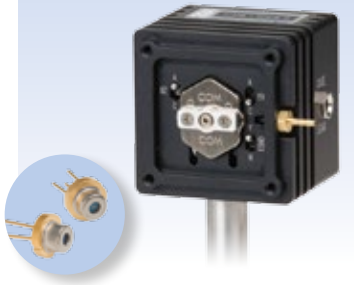
- Medium power (10W) fiber pigtailed devices
- TEC control
- Quick-disconnect device harness

213 & 215 DIL LaserMount

- Available with and without external TEC control
- Flexible pin assignments

224 TEC To-Can LaserMount

- Nitrogen purge
- 3 & 4 pin devices
- Post mountable
- Toggle-switch configurable anode and cathode assignments



234 TEC To-Can LaserMount

- Nitrogen purge
- 2, 3 & 4 pin devices
- Post mountable
- Toggle-switch configurable anode and cathode assign-ments

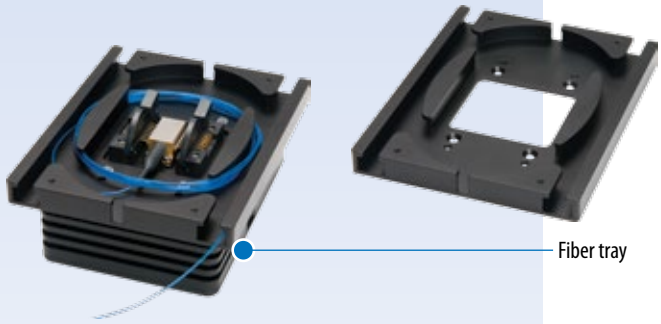
226 TEC LED LaserMount

- TEC control
- Mounting hole for STAR LEDs and others
- Post-mountable

Accessories to Match

Many of our LaserMounts have useful accessories to extend the capabilities of the mount. For example, our 224 & 226 have opto-mechanical interfaces for lens tubes and 30mm cage systems, while our 203, 205, 207, 213, & 215 mounts have fiber management trays to keep your fiber under control and fan bases to significantly improve the performance of the mount.

205 with fan base



205 with fiber tray

205 with cover

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High Power Fixtures

240 & 260 SERIES LASERMOUNTS

The 240 Series, and 262/264 **LaserMounts** feature a high thermal capacity heat sink and integrated fan to remove waste heat quickly and efficiently. The 242 and 264 **LaserMounts** also include high power TEC control, allowing you to control the case temperature of the device across a broad temperature range.

High Power

Supporting 25 watts of thermal load (at ambient, 25°C set point), the 242 is capable of handling even high power C-Mount devices. The 244, 246, and 262 offer low thermal resistances, as low as 0.2°C/Watt on the 262. Our most powerful fixture, the 264, supports up to 30 watts of thermal load.

Fits Your Application

The 242, 244, and 246 LaserMounts are designed to support industry standard C-Mount, HHL, and TO-3 packages right out of the box with no wiring or configuration needed. The 262 and 264 LaserMounts support a wide variety of devices from JDSU, nLight, Jenoptik, Lumics, and others, and can be customized to fit your exact application requirements.

Quick Specifications

Primary Specifications	242	244	246	262	264
Case TEC Control	Yes	No	No	No	Yes
Thermal Capacity *Watts, 0°C ΔT at 25°C Ambient*	25	N/A	N/A	N/A	30
Sensor	10K Thermistor				
Nitrogen Purge	Yes	No	No	Opt	Opt
Laser Connector	DB9			DB9 or 9W4	
TEC Connector	DB15				
Fan (12VDC)	Yes				

264 with device cover

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242 TEC C-Mount LaserMount

- Nitrogen purge
- Simple cathode connection
- -5°C to +85°C operation

244 HHL LaserMount

- Slide-on connector
- Pre-wired for standard devices

246 TO-3 LaserMount

- Custom socket to accommodate various lead lengths

262 LaserMount

- High power fiber pigtailed devices
- Custom mounting options
- Low 0.2°C/W thermal resistance

264 LaserMount

- Integrated TEC control
- High power fiber pigtailed devices
- Custom mounting options

Customizing Your Cold Plate

Many applications and devices have a unique mounting pattern that is incompatible with our standard cold plates.

In these cases, we can often manufacturer a custom mounting solution that meets the needs of your device.

Our 207, 262, 264, and 280 mounts support custom tooling options. Simply send us a data-sheet or mechanical drawing for the device, and we will review your requirements and provide a quote for your custom application.

TECMounts

270 & 280 SERIES TECMOUNTS

The **270 & 280 Series TECMounts** provide a flexible heating and cooling platform designed to meet demanding temperature control requirements. The **270 Series** is our water-cooled fixtures, providing high capacity with a small form factor. The **280 Series** are air cooled mounts. Both employ a breadboard-style mounting system, making them easy to integrate into a broad range of applications.

Our Highest Power Mounts, Built for Your Application

The **270 & 280 Series** mounts were designed to provided high thermal capacities in a compact and functional enclosure, precision engineered and ready to go right out of the box. When using the mount with our 5300 or 5400 Series TECSource temperature controllers and cables, setup couldn't be easier: select the appropriate mount from the menu, and the instrument auto-configures limits, gain, and fan settings for you.

Customizing the Cold Plate

When our standard breadboard plates just don't fit, the cold plate can be custom machined to fit the exact hole pattern of your application. We can put mounting holes just where you need them so your device mounts directly to the plate, without the need for adapters or modification.

At a Glance

Large Control Surface
High Thermal Capacity
Flexible Mounting Plates

Quick Specifications

Primary Specifications	274	284	286
Thermal Capacity *Watts, 25°C Plate and 25°C Ambient or 20°C Water*	125	30	100
Sensor (Standard Version)	10K Thermistor		
Plate Size	3.2"	3"Ø	4.2"
Fan (12VDC)	No	Yes	
Water Cooled	Yes	No	

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High Temperature Option

An optional high temperature configuration is available, allowing for operation up to 150°C, but retaining the temperature range and thermal capacity of the standard mount. Because thermistors do not perform well at high temperatures, the sensor is replaced with a high accuracy Pt 100 RTD sensor.

M-Series Mounting System

New with the **280 Series** mounts is a series of mounting accessories to accomodate the integration of the **280 Series** mounts onto your optical bread board or other mechanical system. The **286** ships standard with an accessory kit that includes solutions for table and post mounting, and a kit can be ordered separately for the **284**.

Optional 284-MKIT Accessory Kit

Flexible Temperature Feedback

Some devices feature an integrated temperature sensor for precise temperature feedback. Others don't and require a feedback sensor inegrated into the plate. The **270 & 280 Series** mounts handle both of these configurations with ease via an external (device) temperature input right on the side of the mount, and a switch to select between the plate-integrated (internal) temperature sensor and the device (external) temperature sensor. The **286** mount adds an auxiliary temperature sensor input for feedback back temperature measurements to controllers that support two sensor inputs, such as the 5400 TECSource.

284 on optional MR-1.50 Riser and MB-284 Base

286 on MB-286 Base and MP-2.00 Posts

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OEM Controllers

COMBOPAK SERIES LASER DIODE CONTROLLERS
TECPAK SERIES TEMPERATURE CONTROLLERS
LASERPAK SERIES LASER DIODE DRIVERS

The **Pak** Series controllers are Arroyo's OEM solution for laser and TEC control. Each offers similar capabilities to the comparable ComboSource, LaserSource or TECSource controller, but in a smaller, lower cost instrument for custom and embedded systems.

Powerful Analog Interface

All **Paks** include USB & RS-232 computer interfaces for full PC control. Unique to **Paks** is a powerful analog interface that offers full control and monitoring of the Pak without the need for a PC. Configure your limits and control settings over the computer interface during factory setup, and rest assured your device will be properly protected once it's in the field.

Pak Quick Specifications

						Preliminary		
Laser Specifications	**485-02-15**	**485-04-08**	**485-08-05**	**585-04-08**	**585-05-12**	**685-0.1-04-03-04**	**685-0.5-04-03-04**	**685-01-04-03-04**
Current Range (mA)	2,000	4,000	8,000			100	500	1,000
Photodiode Input Range (mA)	10	10	10			5	5	5
Compliance Voltage (V)	15	8	5			3.5	3.5	3.5
Temperature Specifications								
Current (A)				4	5	3		
Voltage (V)				8	12	4		
Maximum Power (W)				32	55	12		
Thermistor				Yes	Yes	Yes		
RTD, LM335, and AD590				Yes	Yes	No		
General Specifications								
Size (H x W x D) [in (mm)]	3.0 (76) x 4.5 (114) x 8.5 (216)					2.6 (64) x 4.5 (114) x 8.5 (216)		
Output Connector	DB-9			DB15		DB-9 (Laser) and DB15 (TEC)		
Computer Interfaces	USB & RS-232					USB		

Others currents and voltages available, contact factory for options.

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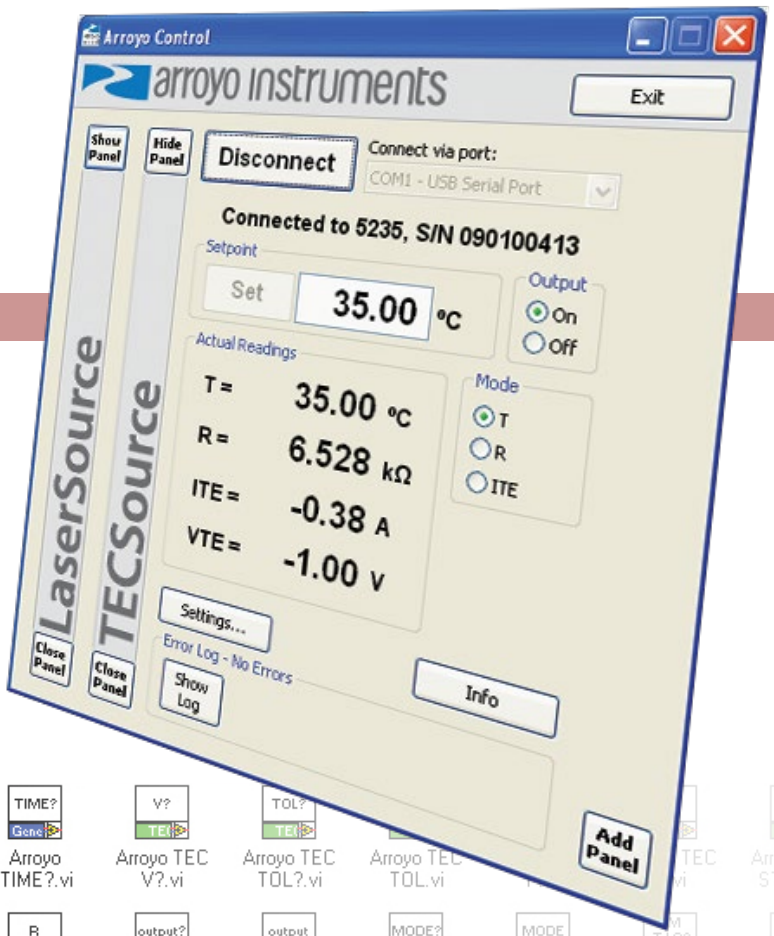
Software

ARROYOCONTROL & LABVIEW DRIVERS

Ever wanted to control your instruments from a PC, but didn't have the programming experience needed to write your own application? Enter ArroyoControl...

ArroyoControl

We're excited to have a solution for you! Our Arroyo Control application gives you full control over your laser driver or temperature controller, providing all the settings, limits, and adjustments of the instrument in an easy-to-use Windows application.

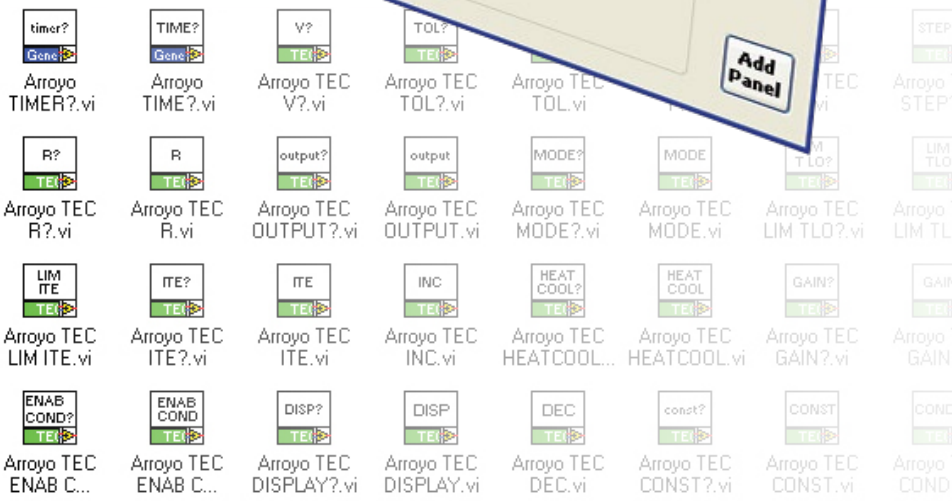


Best of all, it's FREE!

With Arroyo Control, you can connect to multiple instruments, limited only by the size of your screen. You can mix and match the types of instruments controlled to fit your application, and all settings are automatically saved.

LabVIEW Drivers

Developing applications in LabVIEW? We have a large library of sub-VIs that implement virtually every remote commands our controllers support. Available as a free download off our web site, and included on a CD with every product we ship.



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Ordering Information:

XSoptix

800 Village Walk #316
Guilford, CT 06437
Ph: 203-401-8093

Email orders to: sales@xsoptix.com
Fax orders to: 800-878-7282

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