arroyo instruments

Io set= 500.0mA
Im= 4753.0 Vf= 2.369

250mA/500mA **LaserSource**™

4205 DUAL RANGE

Enter (Push)

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.

www.arroyoinstruments.com
sales@arroyoinstruments.com
+1-805-543-1302

Innovation

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.

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.

 arroyo instruments
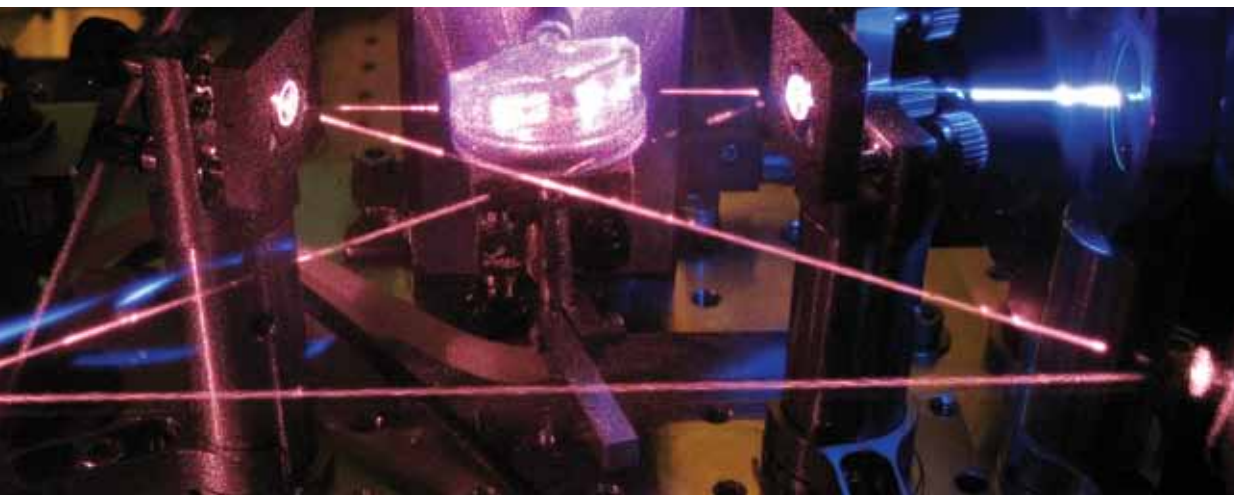
Latest Products

286 TECMOUNT TEMPERATURE CONTROLLED MOUNT

The **286 TECMount** is the newest edition in our **TECMount** series. With a large 4.2" cold plate and 100W of thermal capacity, the air-cooled **286** can handle high power laser devices without the need for a water cooling system. The cold plate is hard-nickle plated copper, giving the highest thermal performance and best wear resistance possible. The mount comes standard with a sensor for temperature feedback, and a 17W2 interface for quickly interfacing to a controller. There is even a provision for switching between internal and external temperature sensors.

150°C HIGH TEMPERATURE MOUNTS

For applications requiring high temperatures, our **264**, **284**, and **286** mounts can be optionally configured for operation up to 150°C, all while retaining their low temperature performance characteristics. The high temperature operation is particularly important to LED test applications which require such high temperatures during development and validation of the devices. In lieu of the standard thermistor normally used in our mounts, the 150°C configuration uses a highly accurate 100Ω Platium RTD that can provide the sensitivity needed across such a broad temperature range. Like all our **264**, **284**, and **286** mounts, the 150°C configuration is available with standard or custom plates to match the exact requirements of your application.

Caution
Hot Surface!

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6300 SERIES COMBOSOURCE LASER DIODE CONTROLLERS

The new **6300 Series ComboSource** Laser Diode Controller combines the best of both worlds: a precision laser driver with a high power temperature controller, all in a single, compact package. Available in 100mA to 4A models, each **6300** features dual range output, 4-wire device voltage sense, a front mounted modulation input, and high contrast 4-line VFD display. The temperature controller has a powerful 60W output, auto-PID calculation, and supports thermistor, RTD, AD590, and LM335 sensors.

4200-DR SERIES LASERSOURCE LASER DIODE DRIVERS

The new dual range capability of the **4200-DR Series LaserSource** gives you the flexibility of two instruments in one box: a high range for more powerful testing and a low range for improved precision and lower noise. The **4200-DR** adds 4-wire device voltage sense for your demanding test applications which eliminates voltage measurement errors caused by resistances in the current path (such as connectors and cable). The **4200-DR** is available in configurations up to 2A, and up to 10V compliance.

Laser Diode Controllers

6300 SERIES COMBOSOURCE LASER DIODE CONTROLLERS

The new **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
Laser Specifications					
Current (mA)	*Low Range*	50	250	500	2,000
	High Range	100	500	1,000	4,000
Compliance Voltage (V)		10	10	10	5
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			

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 **Combo-Source** 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. It supports all common sensor types, including thermistor, RTD, LM335, and AD590 sensors.

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.

Advanced Laser Diode Protection

The **ComboSource** includes all the safety features you would expect in a laser driver: adjustable current and voltage limits, slow start turn-on, and even transient/spike detection, all implemented in hardware. Coupled with fast fault response and output clamping, the **ComboSource** provides safe and trouble-free operation of your LED or laser diode.

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.

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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			

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.

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Temperature Controllers

5240 & 5300 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 120W, a **TECSource** temperature controller is sure to fit your test and measurement needs.

Quick Specifications

	5240	5305	5310
Primary Specifications			
Current (A)	4	5	10
Voltage (V)	7	12	12
Maximum Power (W)	28	60	120
Sensor Inputs			
Thermistor	Yes	Yes	Yes
RTD, LM335, and AD590	No	Yes	Yes
RTD 4-wire sense	No	Yes	Yes
General Specifications			
Size [in (mm)] **Height**	1.82 (47)	3.5 (90)	
Width	8.5 (215)	8.5 (215)	
Depth	11 (280)	12 (305)	
Output Connector	DB-15		
Computer Interfaces	USB	USB & RS-232	

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Power to spare

With 28W, 60W and 120W 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

Both the **5240** and **5300 Series** 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.

Not a thermistor? Not a problem. RTDs, LM335s, and AD590s welcome here.

The **5300 Series TECSources** not only support standard thermistor temperature sensors, they are also equipped to measure temperature from LM335s, AD590s, and RTDs. No external modules, it's all in the box. RTD support is further extended with selectable 4-wire sense, virtually eliminating non-sensor resistances from the cable and connectors.

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.

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Laser & LED Fixtures

200, 210, & 220 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.

Quick Specifications

| Primary Specifications	203	205	207	212	214	224	226
Case TEC Control	No	Yes	Yes	No	Yes	Yes	Yes
Thermal Capacity *Watts, 0°C ΔT at 25°C Ambient*	N/A	3.5 or 8	10	N/A	4	1.5	2.4
Sensor	10K Thermistor						
Nitrogen Purge	No	No	No	No	No	Yes	No
Laser Connector	DB9						
TEC Connector	DB15						
Fan (12VDC)	Opt	Opt	Opt	No	No	No	No

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

203 & 205 BF LaserMount

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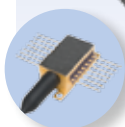
207 TEC LaserMount

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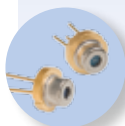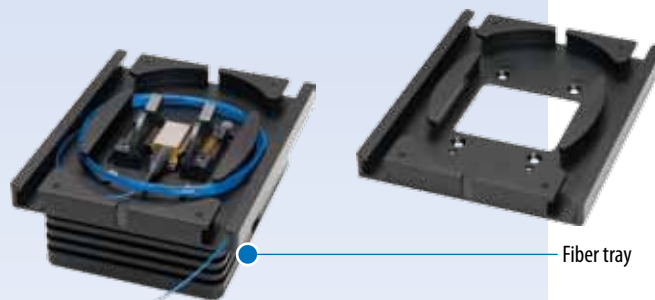- Quick-disconnect device harness

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 mounts have fiber management trays to keep your fiber under control and fan bases to significantly improve the performance of the mount.

212 & 214 DIL LaserMount

- Available with and without external TEC control
- Flexible pin assignments
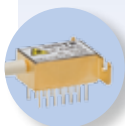
Micro 5.6 & 9 LaserMount

- Low cost TO-Can mount
- Post-mountable

Fan base

205 with fan base

224 TEC To-Can LaserMount

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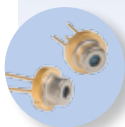
226 TEC LED LaserMount

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

Fiber tray

205 with fiber tray

Cover

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

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
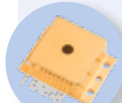
246 TO-3 LaserMount

- 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 datasheet or mechanical drawing for the device, and we will review your requirements and provide a quote for your custom application.

TECMounts

280 SERIES TECMOUNTS

The **280 Series TECMounts** provide a flexible heating and cooling platform designed to meet demanding temperature control requirements. The **280 Series** has larger plates with 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 **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 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.

Quick Specifications

Primary Specifications	284	286
Thermal Capacity *Watts, 0°C ΔT at 25°C Ambient*	30	100
Sensor (Standard Version)	10K Thermistor	
Plate Size	3"Ø	4.2"
Fan (12VDC)	Yes	

Standard Breadboard Plates

The **284** and the **286** cold plates are available in three standard hole sizes, depending on the requirements of your application: M3, 4-40, and M2.5.

Customizing the Cold Plate

When our standard breadboard plates just don't fit, the cold plate on **280 Series** mounts 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

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Caution Hot Surface!

High Temperature Option

The **280 Series** mounts are available in an optional high temperature configuration, allowing for operation up to 150℃, 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 **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.

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
LASERPAK SERIES LASER DIODE DRIVERS
TECPAK SERIES TEMPERATURE CONTROLLERS

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

Powerful Analog Interface

Both the **LaserPak** and **TECPak** 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.

Fully Functional Controllers, No Programming Required

Even though the Paks have a no display, it doesn't mean you have to sacrifice functionality for cost. ArroyoControl, our free control software, provides a complete user interface to the Paks, will all the same features, settings, and limits you would have in our benchtop instruments.

LaserPak Quick Specifications

Primary Specifications	485-02-15	485-04-08	485-08-05
Current Range (mA)	2,000	4,000	8,000
Photodiode Input Range (mA)	10	10	10
Compliance Voltage (V)	15	8	5

TECPak Quick Specifications

Primary Specifications	585-04-08	585-05-12
Current (A)	4	5
Voltage (V)	8	12
Maximum Power (W)	32	55
Sensor Inputs		
Thermistor	Yes	Yes
RTD, LM335, and AD590	No	No

At a Glance

Laser & TEC Control

Up to 8A Laser / 60W TEC

Analog or PC Control

Custom Configs Available

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.
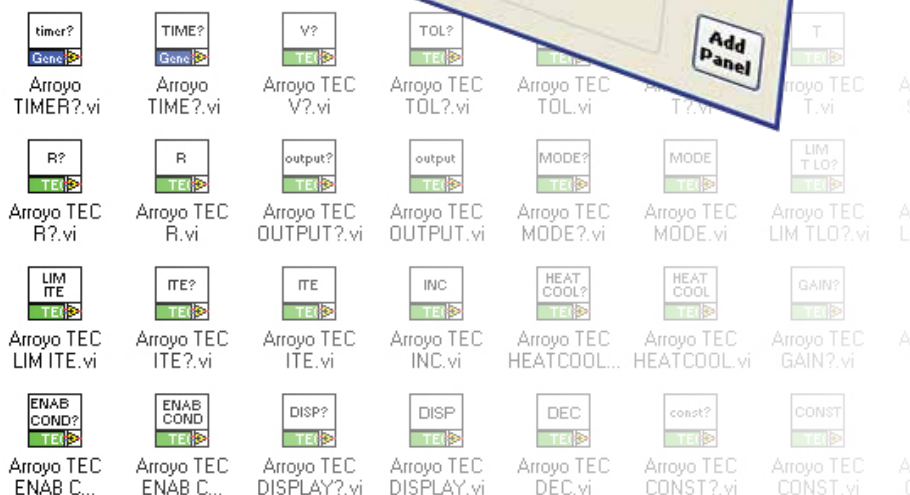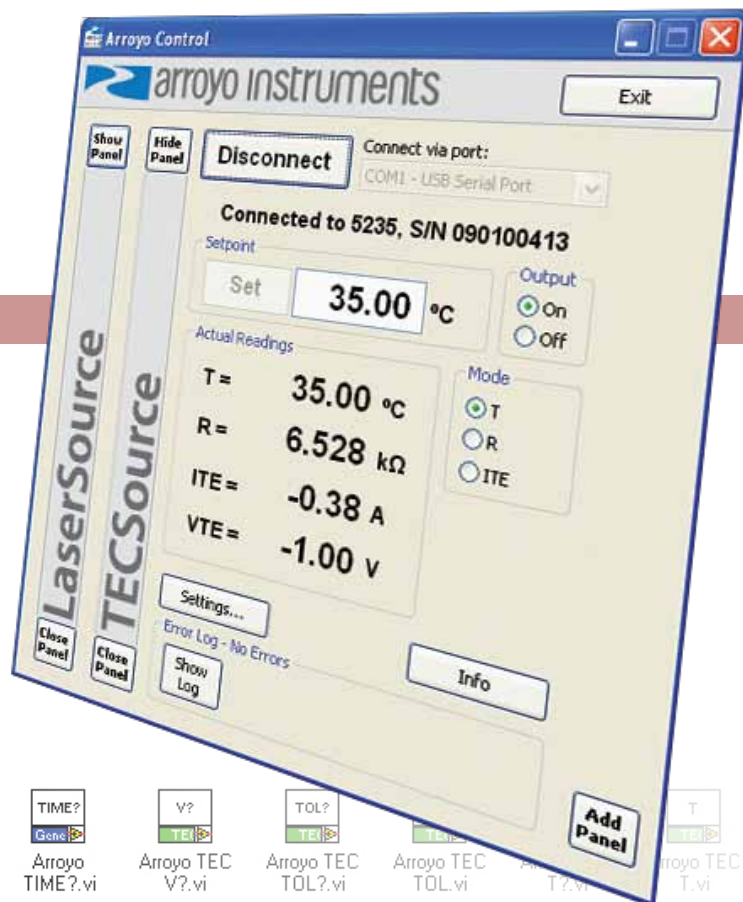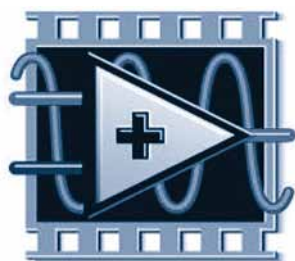
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624 Clarion Court
San Luis Obispo, CA 93401 USA

www.arroyoinstruments.com
sales@arroyoinstruments.com
+1-805-543-1302