

5305 TECSource, 5A/12V



Overview

The **5305 TECSource** is our most popular temperature controller. Affordably priced and providing 60W of TEC control, the 5305 is flexible enough to meet the demands of most temperature control applications. The 5305 supports all common sensor inputs (thermistor, RTD, AD590, and LM335), and has a 4-wire RTD mode to eliminate connector resistances.

AutoTune Automatic PID Calculation

All Arroyo Instruments temperature controllers feature AutoTune for automatic PID calculation. With AutoTune, you no longer need to fiddle with PID parameters to find values that work with your application. Simply hook up your mount, set the appropriate limits, and start the AutoTune process. The instrument will automatically calculate PID parameters that will work with your mount.

Excellent Stability

The 5305 offers excellent short term and long term stability. At less than 0.004°C stability over one hour, and 0.01°C over 24 hours, the 5305 provides an excellent solution for precision temperature control.

Fully Adjustable PID

The 5305 comes with eight factory set gain settings for the temperature control loop, which are sufficient for most applications, but also offers fully adjustable PID settings, allowing you to fine tune the response of the instrument. Also, because the loop is digital and uses the temperature (not sensor resistance) as the control variable, variations in sensor sensitivity across temperature (primarily seen with thermistors) does not affect the unit as it does with analog-based PID loops.

- **AutoTune automatic PID**
- 60W of TEC power
- 0.004°C stability
- Bi-polar output: heat & cool
- Thermistor, RTD, LM335, & AD590 sensors
- 4-wire RTD mode

Integrated Fan Supply

The 5305 includes an adjustable 4.5V to 12VDC power supply for power external fans, such as those on our 240 and 260 Series LaserMounts. By incorporating the power supply, it eliminates the need for an external power supply and simplifies cabling to the mount. If you will be using this power supply, make sure you choose the [1260B](#) or [1261B](#) TECSource Cable, which includes the additional wiring for the power supply.

Standard Computer Interfaces

The 5305 includes both USB and RS232 computer interfaces, allowing for quick and easy connection to a PC for remote operation. In addition, the TECSource's command set is compatible with ILX and Newport controllers, allowing you to leverage any existing software you may have already developed.



Simple User Interface

The 5305's user interface is remarkably simple... so easy to use, you'll have it up and running in no time. Unlike other instruments which rely on 7-segment LED displays and a confusing array of indicators and buttons, the 5305 instead presents the information on a high contrast VFD display in an easy-to-read format. The 5305 displays the temperature set point, actual temperature, current, and voltage simultaneously... no need to toggle through the readings like on most instruments. If you need a larger display for viewing at a distance, you can press the knob to toggle to a larger display of the actual temperature. Settings and error messages are in clear English, not cryptic codes and flashing status lights.

Specifications

Key Specs

Power (A, V, W)	±5A, ±12V, 60W
Stability (1 hour, °C)	0.004
Stability (24 hours, °C)	0.01

Temperature

Range (°C)	-99 to 250
Resolution (°C)	0.01
Thermistor (100µA) Accuracy at 25°C (°C)	0.03
AD590 Accuracy at 25°C (°C)	0.90
LM335 Accuracy at 25°C (°C)	0.90
RTD Accuracy at 25°C (°C)	0.35

Thermistor, 100µA Range

Accuracy (±[% reading + kΩ])	0.05 + 0.005
Range (kΩ)	0.05 – 45
Resolution (kΩ)	0.001

Thermistor, 10µA Range

Accuracy (±[% reading + kΩ])	0.05 + 0.05
Range (kΩ)	0.1 – 450
Resolution (kΩ)	0.01

LM335

Accuracy (±[% reading + mV])	0.3 + 1
Range (mV)	1730 – 4730
Resolution (mV)	0.1
Bias (mA)	1

AD590

Accuracy (±[% reading + µA])	0.03 + 0.1
Range (µA)	173 – 473
Resolution (µA)	0.01
Bias (V)	4.5

RTD

Accuracy (±[% reading + Ω])	0.03 + 0.1
Range (Ω)	20 – 192
Resolution (Ω)	0.01
Bias (mA)	1

Current

Range (A)	±5
Compliance Voltage (V)	12
Max Power (W)	60
Resolution (A)	0.01
Accuracy (±[% value + A])	0 + 0.03
Noise/Ripple (A, rms)	< 0.005
Current Limit Accuracy (A)	0.05

Voltage (measurement only)

Accuracy (±[% reading + V])	0 + 0.05
Range (V)	±12
Resolution (V)	0.01

Other

TEC Connector	DB-15, female
Display Type	2x20 VFD
Computer Interface	USB 2.0 Full Speed (USB Type B), RS-232 (DB-9, male)
Power	100V / 120V / 230V 50/60 Hz
Size (H x W x D) [inches (mm)]	3.5 (90) x 8.5 (215) x 11 (280)
Operating Temperature	+10°C to +40°C
Storage Temperature	-20°C to +60°C