

# Bipolar Temperature Controllers

ALA's Single Channel (**HCT-10**) and Tri Temp Bipolar Temperature Controllers (**HCT-30**) are heating and cooling controllers that include additional external feedback channel inputs. Specifically built for use in electrophysiology (low noise) and imaging, they have the features all types of labs require where precision control of heated and/or cooled small devices are necessary for experimental design and for keeping live tissue viable. Both devices can operate a resistive devices for heating and/or Peltier devices for heating and cooling. One controller is all you will need.

The **HCT-10** is a single channel controller. The HCT-30 is a 2 1/2 channel controller. Two channels for use with temperature feedback devices and an adjustable power supply channel for powering a device without feedback control. Both controllers have three speeds of operation for varying set-point reach times and an alarm mode for detection of a missing sensor or a dry bath. Other features include external output voltage proportional to temperature and external command input voltage.



- Heating/Cooling with one controller
- Input/output external control functions
- Built-in temperature switchover for safety
- Built-in speed of response modes
- Single or Multi channel options
- Cost effective

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Both the HCT-10 and the HCT-30 feature an industry exclusive ACM mode (Automatic Control Mode) that senses when a more than 7 degree C temperature difference occurs at the sensor that is in the prep verses the control point in the heated/cooled device. Control is automatically switched to the sensor in the device until the problem that caused the offset, such as the sensor falling out of the bath, can be corrected, thus saving the tissue from damage due to overheating.



HCT-30 shown connected to HCMIS and HCPC which are peltier device. An objective heater is shown connected to the power supply output.

| Specifications         |                                 |                                 |
|------------------------|---------------------------------|---------------------------------|
|                        | HCT-10                          | HCT-30                          |
| Dimensions/Weight      | 8.5" x 7.5" x 3.75"/3.2lbs      | 19" x 3.5" x 11"/6lbs           |
| Voltage/Current Output | 2-12 VDC/2 Amp                  | 2-12 VDC/2 Amp per channel      |
| Voltage/Current Input  | 24 VDC/2 Amp                    | 15 VDC/2 Amp                    |
| Min. Load $\Omega$     | 2.0 $\Omega$                    | 2.0 $\Omega$ per channel        |
| Thermistor             | 2252 $\Omega$ @ 25 $^{\circ}$ C | 2252 $\Omega$ @ 25 $^{\circ}$ C |
| Command Input/Output   | 10 mV/ $^{\circ}$ C             | 10 mV/ $^{\circ}$ C             |
| Temperature Range      | 0-65 $^{\circ}$ C               | 0-65 $^{\circ}$ C               |

| Ordering Information |  |        |  |
|----------------------|--|--------|--|
| HCT-10               | One channel bipolar temperature controller for heating and cooling applications, use with Peltier elements or resistive elements | HCT-30 | Three channel bipolar temperature controller for heating and cooling applications, use with Peltier elements or resistive elements |
| TS-1                 | Standard size thermistor probe   | TS-2   | Ministure size thermistor probe  |
| TS-1M                | TS-1 probe with cable to connect to HCT  | TS-2M  | TS-2 probe with cable to connect to HCT  |

