

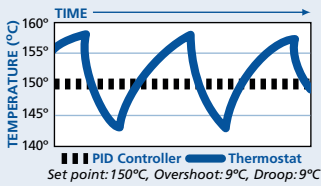
# Thermal Products Controllers, Thermostats & Accessories



Nor-Cal is your source for temperature controllers. Full thermal control of the process is available through front panel controls including set points and alarms. Timers and digital readouts are standard on some models. Enclosures are either Nema 4, 4x or 12. Most controllers are RS232/485 compatible. Choose from 1, 2, 4 and 8 zone controllers. Line voltage is from 100V to 240V. Custom voltages and zoning is available on request. PC control using standard software programs is available. Nor-Cal heater controllers come with a three year warranty.

### The Effect of Temperature Excursion on Heater Life

PID Controllers result in temperature control accuracy of  $\pm 2^\circ\text{C}$ , and extend heater element life by up to 10 times. Although the lowest cost initially, thermostats create the highest 3 year operating cost due to heater failure caused by temperature excursions. (See chart below) Although the highest cost initially, PID controllers with SCR Burst Firing create the lowest 3 year operating cost due to it's ability to eliminate temperature excursions. This can extend heater life up to 10 times.



### Heater Controllers

HC-SD series digital indicating, microprocessor-based heater controllers are available with a single temperature sensor input from a thermocouple or RTD sensor, and control outputs for one, two and four zones. These low-cost, self contained controllers' feature a programmable alarm, small panel footprint and operate at  $\pm 0.25\%$  accuracy. The outputs may operate in a variety of modes including: heat, alarm and timer. The countdown timer function operates in a choice of delay-ON, delay-OFF, signal-ON or signal-OFF modes. Front panel lock capability rounds out the feature set. Other features include EIA-485 Modbus serial communication, 1/32 DIN package, Nema 4x control console and a universal power supply.

### Controllers

MODEL NUMBER	VOLTAGE	MAX. AMP OUTPUT / ZONE	ZONES	AC PLUG
HC-SDC15-1-1	120V	10	1	Straight blade
HC-SDC15-1-2	208-240V	10	1	Schuko
HC-SDC15-2-1	120V	5	2	Straight blade
HC-SDC15-2-2	208-240V	5	2	Schuko

### Electronic Thermostats

Nor-Cal offers UL recognized electronic thermostats for fixed set-point thermal applications. Electronic thermostats replace the thermocouple/controller assembly on a heater with a single device attached to the heater jacket. These devices have an extended life of over 10 times the standard thermostat life. In addition, temperature variations are typically  $\pm 3^\circ\text{C}$ , a major improvement over typical thermostats'  $\pm 15^\circ\text{C}$ . These thermostats include a thermocouple sensor and power switching compactly integrated into the heater's power cable. A single thermostat may be attached to several heater jackets on the same line to reduce system costs. They are pre-programmed with the thermal set point you request. Call for more details.



### Thermocouples & Cables

MODEL NUMBER	DESCRIPTION*	LENGTH IN FEET
HC-TC-K-1	K-type with one foot lead and mini-connector	1
HC-TC-K-8	K-type with eight foot lead and mini-connector	8
HC-TC-K-KAP-8	K-type kapton with eight foot lead and mini-connector	8
HC-TC-CRD-K-6	K-type thermocouple extension cable with connectors	6
HC-TC-CRD-K-10	K-type thermocouple extension cable with connectors	10
HC-TC-CRD-K-25	K-type thermocouple extension cable with connectors	25

\*Most items available in various lengths and in J-type also. Call for pricing and information.

### Control Cables and Accessories

MODEL NUMBER	DESCRIPTION	LENGTH IN FEET
HC-PLG	Termination for end of last heater, 2 prong MNL plug	-
HC-PLG-2C	Termination for end of last heater, 2 prong MNL cap	-
HC-PLG-3C	Termination for end of last heater, 3 prong MNL cap	-
HC-PLG-3P	Termination for end of last heater, 3 prong MNL plug	-
HC-PCRD-6	SD3 controller to heater or 2 circuit MNL extension, 2 circuit plug, 2 circuit cap	6
HC-PCRD-6-3	SD3 controller to heater, 2 circuit plug, 3 circuit MNL cap	6
HC-PCRD-6-3B	SD3 controller to cloth heater, 2 circuit plug, 3 circuit MNL cap, center ground	6
HC-PCRD-CPC-6-2	SDC15 controller to heater, CPC, 2 circuit MNL cap	6
HC-PCRD-CPC-6-3	SDC15 controller to heater, CPC, 3 circuit MNL cap	6
HC-PCRD-CPC-6-3B	SDC15 controller to cloth heater, CPC, 3 circuit MNL cap, center ground	6
HT-CRD-6-2P	120V straight wall to 2 circuit MNL plug	6
HT-CRD-6-3P	120V straight wall to 3 circuit MNL plug (GNV heater)	6

