# DC Temperature Regulation Systems

## New Product Description and Features

INSTRUMENTATION AND MICROELECTRODES FOR NEUROSCIENCE RESEARCH

The **DC Temperature Regulation Systems** are designed to maintain a constant temperature of a subject or liquid without introduction of electrical interference. The proportional DC power supply slowly varies its output to the heating element based on the resistance of the monitoring thermistor. Electrical noise and switching transients common in AC-based devices is eliminated.

The DC Temperature Controller (40-90-8D) is powered through an internal power supply (country-specific line cord ordered separately). It has an easy-to-read three digit LED display on the front panel indicating the subject or liquid temperature in tenths of a degree Celsius. Failing thermistors or similar electrically "open" situations are indicated by a red LED on the front panel labeled "OPEN"

A junction box is provided with the Controller, which connects to the module via a 2.5m shielded cable (extension cable available); thermistors and heating elements plug into this box.

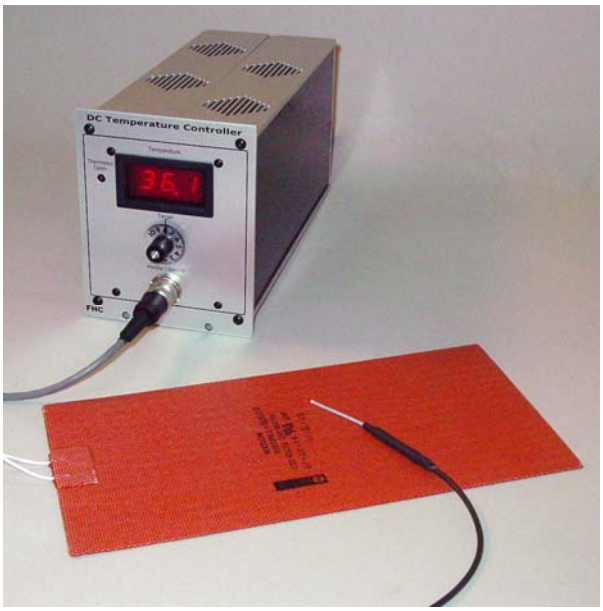
The 40-90-5D-02 Rectal Thermistor Probe is small enough (.062"/1.6mm diameter) to maintain the body temperature of a range of mammals (mouse, rat, cat etc.). Heating pads (40-90-2-XX) are available in sizes suitable for any application.

The 40-90-3 Liquid Immersion Heating Rod and 40-90-6 Liquid Thermistor Insert can heat up to 1L of liquid and maintain a constant temperature to serve as a water bath or warmed perfusate.

### *FEATURES:*

- **25° - 45°C Heating Range, 40 Watt capacity**
- **Proportional DC voltage does not generate electrical noise, no switching transient**
- **Thermistor probes and heating elements available for all lab applications**
- **Analog output of heater output for chart recording or other biological recording devices**
- **Compatible with other probes (ex. YSI 400) through factory modification**
- **Desktop or rack mountable**

FHC thermistors utilize 5000Ohm resistance. The DC Temperature Controller can be factory configured for 2252Ohm thermistors, e.g. YSI 400 series, and factory-modified for other heating elements (contact FHC Technical Support for more information).




An analog output provides a voltage related to the measured temperature (100mV/°C) for use with bio-feedback recording systems. (ex. Chart recorders etc.)

The DC Temperature Controller contains an internal power supply that can be user-configured for 50 or 60Hz. Country specific line cords are ordered separately. The module is compact and can be placed as a stand-alone unit on a desktop, or mounted in a standard 19" instrument rack with our SAF rack frame.



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*"Innovation through collaboration"*

CERTIFIED ISO 9001

# DC Temperature Regulation Systems

## Abbreviated Procedures, Specifications and Ordering Information

neurocraft™

INSTRUMENTATION AND MICROELECTRODES FOR NEUROSCIENCE RESEARCH

## SPECIFICATIONS

*DC Temperature Controller:*

**Output Voltage:** 0-35V DC (Ripple<25mV peak to peak)

**Output Current:** 0-1A

**Temperature Range:** 25°C - 45°C

**Temperature Display:** 3 Digit LED indicating temperature in degrees and .1degrees C

**Temperature Accuracy:** .2°C

**Thermistor Resistance Required:**

**Standard Configuration:** 5000Ohms at 25°C

**Heater Element Resistance Required:** 35 Ohms minimum

**Power Requirements:** 100-240 VAC, 50 60Hz

**Dimensions:**

| | |
|---|---|
| Height: | 13cm (5.22") |
| Width: | 10cm (4.20") |
| Length: | 25cm (9.75") |

**Weight:** 1.48 Kg (3.26 lbs)

**Mounting Options:**

Tabletop, 4 rubber feet prevent sliding.

Rack mountable with SAF Rack Frame (Cat. #55-11-0 Available separately)

## ABBREVIATED PROCEDURES

***Temperature regulation in animal applications:***

Position animal in stereotaxic.
Slide the Heating Pad between the animal and a suitable insulating material.
Direct contact between the Heating Pad and stereotaxic support plate is not advised.
Insert Rectal Thermistor Probe into the animal and tape in place.
Connect the Junction Box to the controller
Plug the Rectal Thermistor Probe and Heating Pad leads into the Junction Box.
Adjust controller to the desired target temperature using the Target knob. (ex. "6" for 37°C)

***Temperature regulation in liquid applications:***

Thread the Liquid Thermistor Insert and Liquid Immersion Heating Rod into the bath sidewalls so that they will be completely immersed.
Fill the bath with water and cover. It is recommended that the bath water circulate.
Connect the Junction Box to the controller
Adjust controller to the desired target temperature using the Target knob (ex. "6" for 37°C)

## ORDERING INFORMATION

**Temperature Control Module**

**40-90-8D** DC Temperature Controller

**Thermistor**

**40-90-5D-02** Rectal Thermistor Probe

**40-90-6** Liquid Thermistor Insert

**Heating Element**

**40-90-2** 12.5X25cm Heating Pad

**40-90-2-02** 25X25cm Heating Pad

**40-90-2-05** 10X12.5cm Heating Pad

**40-90-2-06** 6.5X9.5cm Heating Pad

**40-90-2-07** 5X12.5cm Heating Pad

**40-90-3** Liquid Immersion Heating Rod

*Additional Items Required for Operation (Ordered Separately)*

**55-XXX Line Cord (Country specific see sec 2.1.4 of this manual for catalog number)**

*Optional Accessory*:

**55-11-0 SAF Rack Frame for Stand-Alone Modules**



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