Hot Sleeve+
Operating Manual

Revision 1e - 3/13/2024

Thank you for purchasing Analytical Sales and Services **Hot Sleeve+™** Column Heater system. This manual will guide you through setup and operation or your new device.

Safety Warnings:

All heater systems are designed for use by properly trained individuals following Good Laboratory Practices who have read and understand this entire manual.

CAUTION: **Hot Sleeve+'s** are finely tuned instruments. The flexible heating unit or gray column sleeve is a sensitive and delicate device that when used correctly will offer years of reliable service. **Sleeves must NOT be bent backward or excessively flexed in any direction.** Doing so could possibly break the thin wires embedded within the sleeve and cause the heater to stop heating properly.

CAUTION: The temperature controller must be operated away from liquids so as not to accidentally spill solvents through vent openings on top cover. Do not immerse or operate any part of the Column Heater in liquids.

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Product Specifications

Power Requirements:	24 VDC
Heating Range:	5°C above ambient to 85°C
Heating Elements:	12-47 Watt, 24 VDC Rated, Hot Sleeve+
Heater Accuracy:	+/- .5°C
Controller Accuracy:	+/- .1°C
Calibration Points:	45°C

Environmental
Operating temperature: 32° to 122° F ambient (0° to 50° C)
Operating humidity: No greater than 75% relative humidity (non-condensing)

This manual covers the following controlled heater products:

• Hot Sleeve+ 5L
  For columns up to 5cm long x 0.65" O.D.

• Hot Sleeve+ 10L
  For columns up to 10cm long x 0.65" O.D.

• Hot Sleeve+ 15L
  For columns up to 15cm long x 0.65" O.D.

• Hot Sleeve+ 25L
  For columns up to 25cm long x 0.65" O.D.

• Hot Sleeve+ 30L
  For columns up to 30cm long x 0.65" O.D.

• MonoSLEEVE

General Inspection

Verify that the column heater package contains the following:
• Hot Sleeve+ heater, MonoSleeve controller, Power Supply
• Column Heater Manual, Green Remote Plug, Test Data Sheets
• Please visit our website to download the GUI software
www.analytical-sales.com/product/monosleeve-single-column-heater-controller-monosleeve/

Please notify Customer Service if the Column Heater has any missing or damaged parts. Contact numbers: 973-616-0700, Fax 973-616-0133

The **HotSleeve+** is a self-calibrating "smart" heater that utilizes "Plug & Play" technology. This technology eliminates error generated when switching heaters from one system to another. It incorporates a unique "Tube Style" design which encapsulates a single HPLC column up to 30cm in length.

Five lengths are available: 5cm, 10cm, 15cm, 25cm and 30cm. Prep and semi-prep sizes are also available.

*The **HotSleeve**+ replaces the original Hot Sleeve column heater. Use with either the MonoSLEEVE™ controller or the MultiSLEEVE™ controller, sold separately.*

The **MonoSLEEVE™** controller is used for applications which require single heating zones. Used in conjunction with the **Hot Sleeve+™** heater, it maintains one channel.
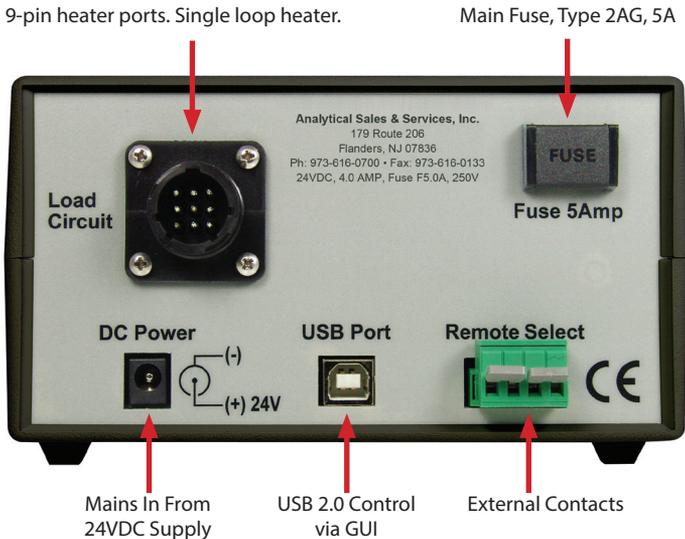
The MonoSLEEVE controller is designed for use in analytical format liquid chromatography applications only.

The actual temperature and the user selected set point are displayed on the front of the temperature controller. Both the user set point and the actual temperature are in full display by pressing the Menu button.

Setup

Make certain that the temperature controller is turned off. Insert the power cord into the main receptacle, and then the plug into the supplied 24VDC Desktop Power Supply. Last, insert the heating plug into the back of the controller marked Load Circuit shown below.

9-pin heater ports. Single loop heater.   Main Fuse, Type 2AG, 5A

Mains In From 24VDC Supply   USB 2.0 Control via GUI   External Contacts

Power Switch

Menu Button to set initial temperature

Turn the Column Heater on. The temperature controller will perform a self-diagnostic test upon power-up. If, after powering up, the display indicates something other than reasonable temperature values, notify Customer Service for further action.

The Column Heater contains one fuse. If the display does not appear to illuminate at all, check the main fuse.

Note that the LCD display on the front panel will show two numbered values displayed in °C for the channel. The top number, T=, is the actual column enclosure temperature. The bottom number, S=, is the column temperature set point.

Operation

Press the MENU button on the front panel to enter the temperature setting mode. Use the set point adjustment arrow buttons to raise and lower the desired set point per heating channel. Pressing the up or down arrow button alone will not change the set point value.

Pressing the MENU button will cycle through set point zero, remote 1, and remote 2.
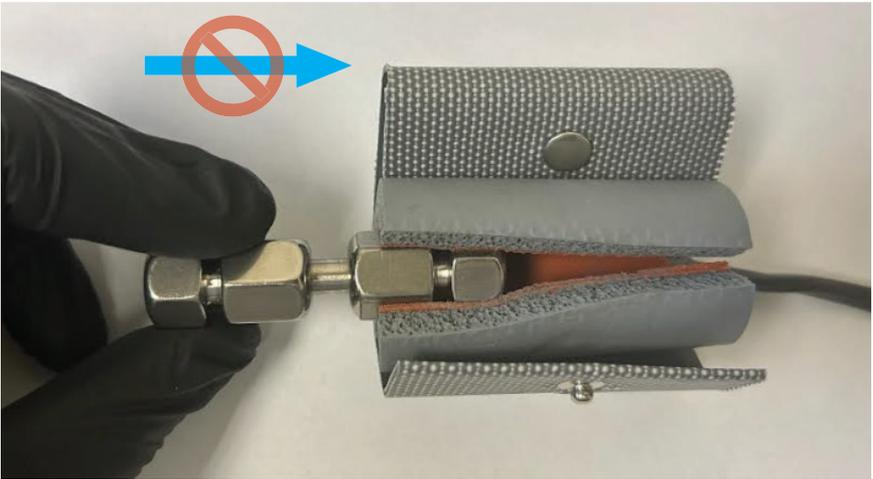
Set the temperature to 35°C. After a few moments the column enclosure temperature will begin to rise as indicated by the T=display. Allow the column heater to reach 35°C and verify that the column heater will control properly. The set temperature will equilibrate quickly. Upon successful evaluation, set the heater to the desired control temperature.

Use and Care

The Column Heater is engineered to be lightweight and efficient. The materials used in fabricating the heater and controller sections may be sensitive to solvents. Proper installation includes reliable leak testing before installing the heater for each use. Do not immerse or operate any part of the Column Heater in liquids. In the event of solvent leakage, wipe sleeve down with clean paper towel before further use.

The Temperature Control Module is custom designed to offer optimum performance in heating applications. It has fast 100Hz sampling that improves control responsiveness, variable time base burst firing that increases the heater life and gives better temperature controllability, and a compact size which allows it to be placed in small areas.

Columns are not intended to be inserted in from the sides of the Hot Sleeve+. Over time, the hex on the column will damage the silicone lining, therefore reducing the thermal insulation, overall performance of the Column Heater and/or damaging the resistance wire thermal element.
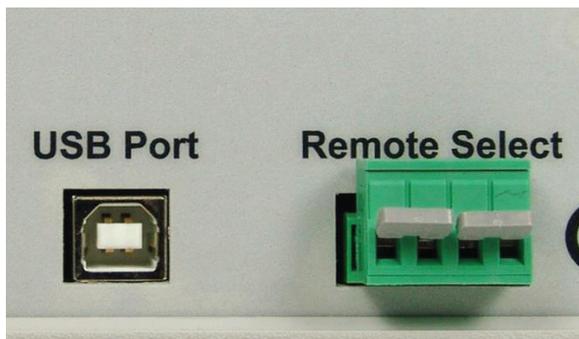

Example of how to NOT insert columns

Columns should be inserted from the slit of the Hot Sleeve+. Begin by gently opening the slit with your fingers. Do not flatten or unroll the Hot Sleeve as that will damage the heating element within the sleeve. Next, lightly insert the column one half at a time through the top slit of the column heater. Then, lower the column through the top slit until both hexes are fully seated. Finally, button the Column Heater closed.

Example of how to insert columns from the top slit

External Control

Your MonoSLEEVE controller provides two options for external control. The first is through USB 2.0 with Graphical User Interface (GUI) software provided as a download from the Analytical website. The second is through contact closures from an outside source, i.e, autosampler, pump, etc. Attach leads to the supplied Green plug. Once contact is established at the other end of the leads, the controller will automatically disengage or engage heating values.

Remote Graphical User Interface (GUI)

Along with your MonoSLEEVE, you may also download a graphical user interface which will allow you to control each channel from a computer should you wish to.

Please download the GUI at www.analytical-sales.com/product/monosleeve-single-column-heater-controller-monosleeve/. Plug in the USB cable and start-up the program and the interface at the right will appear.

Select AUTO to initialize the port. All current programmed information will appear within the display.

Select Auto Port or enter port manually if known. COMM Port (COM1 is default) and When communication is established, COMM OK will be shown.

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PC Communications

Auto Port Selection

Manual Port Selection

Select Port

Message

Firmware Revision

SETUP

Set Temp 0

Set Temp 1

Set Temp 2

SEND SETUP

SENSOR TEMPERATURE

OUTPUT%

SET TEMPERATURE

CURRENT COUNTS

PCB TEMP

○ SENSOR ERROR STATUS

○ HIGH TEMP ALARM

○ CURRENT LIMITING

○ PCB OVER TEMP

This area indicates values from the front of the controller only.

DECLARATION OF CONFORMITY

Analytical Sales and Services, Inc. hereby declares that the product(s) listed below conform to the European Union directives and standards identified in this declaration.

Analytical Sales and Services, Inc. erklärt, daß die aufgeführten Produkt(e) in Überein-stimmung sind mitden Bestimmungen der angegebenen EU-
Richtlinien und mit den aufgeführten normative Dokumenten.

Analytical Sales and Services, Inc. dichiara con la presente, che I prodotto(I) sottomen-zionati sono in conformitá con le direttive e norme Europee,
specificate in questa dichiarazione.

Analytical Sales and Services, Inc. déclare par la présente, que les produit(s) sous-men-tionnés, sont conformes aux directives et normes Européennes identifiées dans cette déclaration.

Analytical Sales and Services, Inc. declara por la presente que los producto(s) abajo mencionados, están conformes con las directivas y normas Europeas identificadas en esta declaración.

Product (s) / Produkt(e) / Prodotto(I) / Produit(s) / Producto(s):

Hot Sleeve+ HPLC HEATERS

EU Directive(s) / EU-Richtlinien / Direttiva(e) Europee / Directives Européenne(s) / Directiva(s) Europeas:

Low Voltage (2014/35/EU, 73/23/EEC, 93/68/EEC)
Electromagnetic Compatibility (2014/30/EU, 89/336/EEC, 92/31/EEC, 93/68/EEC)

Standard(s) / Norm(en) / Norma(e) / Norme(s) / Norma(s):

EN55011:1998   ENN61000-3:1995+A1:1998+A2:1998+A14:2000
EN61326: 1997 +A1: 1998 +A2:2000   EN61000-3-3:1995
EN61010-1:2001:2010+A1:2021   EN 61010-2-010:2020

Conformities / Konformitäten / Conformità / Conformités / Conformidades:

CE Self-Certification for use in R&D
CE Self-Certification for pressure systems (pneumatic) used in R&D
Restriction of Hazardous Substances: RoHS III (2015/863/EU), WEEE II (2012/19/EU),
REACH Regulation (EC) Article 59 (10) of Regulation (EC) No. 1907/2006

**For technical support or to reorder supplies,
contact Analytical Sales and Services, Inc.**

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