



MonoSLEEVE™

Operations Manual



Thank you for purchasing Analytical Sales and Services **MonoSLEEVE™** Column Heater system. This manual will guide you through setup, and operation of your new heater.

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: MonoSLEEVE's are finely tuned instruments. The flexible heating units used by this controller are sensitive and delicate devices that when used correctly will offer you years of reliable service. **Sleeves must NOT be bent backward or excessively flexed in any direction.** Doing so could possibly break the thin wires imbedded 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 on the top cover. Do not immerse or operate any part of the Column Heater in liquids. In the event of solvent leakage, wipe sleeve clean before further use.



Contents

| | |
|------------------------|---|
| Safety | 2 |
| Product Specifications | 3 |
| General Inspection | 3 |
| System Setup | 6 |
| Operational | 7 |
| Use and Care | 7 |
| External Control | 8 |
| GUI Interface | 9 |

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Manufactured by
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Product Specifications

| | |
|----------------------|--|
| Power Requirements: | 90-264 VAC, Internal Conversion to 24 VDC |
| Heating Range: | 5°C above ambient to 100°C |
| Heating Elements: | 12-100 Watt, 24 VDC Rated |
| Heater Accuracy: | +/- .5°C |
| Controller Accuracy: | +/- 0.1°C |
| Calibration Points: | 45°C set within HotSleeve™+ or AgileSleeve+® |

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:

- MonoSLEEVE
- HotSleeve, 5, 10, 15, 25, 30 cm lengths
- AgileSleeve+, all lengths and I.D.'s

General Inspection

Unpacking and Inspection

Verify that the column heater package contains the following:

- MONOSLEEVE Controller, 24VDC Power Supply, Power Cord, Manual, Green Remote Plug, USB 2.0 Cable, and Test Data Sheets if in kit form.

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

The MonoSLEEVE™ controller is used for applications which require single heating zones. Used in conjunction with the **HotSleeve™**+ or **AgileSleeve+®** heater, it maintains one channel.

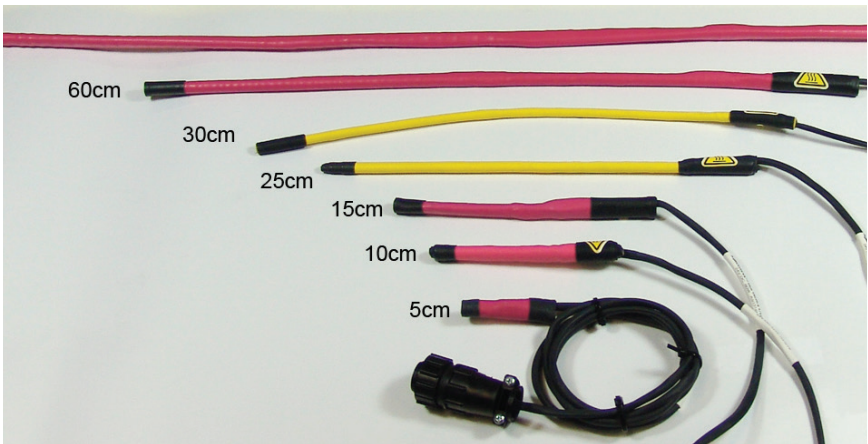


The MonoSLEEVE controller is designed for use in analytical format liquid chromatography applications only.



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.

The MonoSLEEVE will function with **HotSLEEVE™**+ and **AgileSleeve+®** heaters only. Each smart heater has a unique blue banding on the cord indicating built-in Smart Chip sensing.

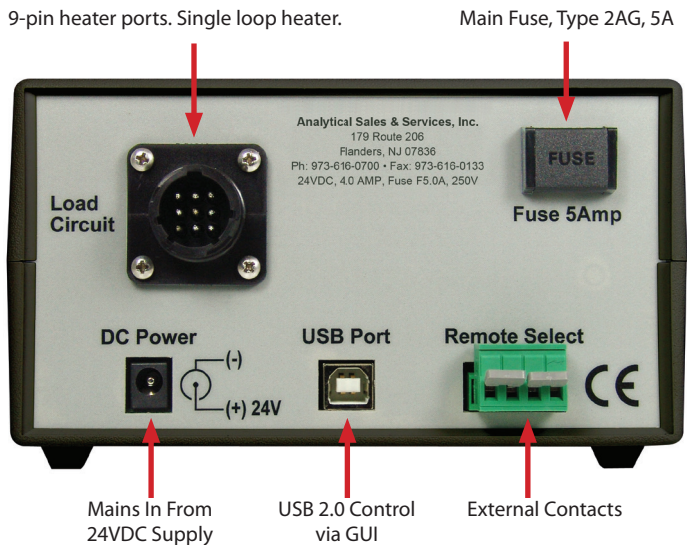


NOTE:

MonoSLEEVE **will only accept** HotSleeve+ and AgileSleeve+ heaters with new “Plug and Play” technology. Heaters are not “Hot Swappable” while unit is powered on.

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.



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 TEMP= is the actual column enclosure temperature. The bottom number SET0= is the column temperature set point.

Operation

Depress 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.

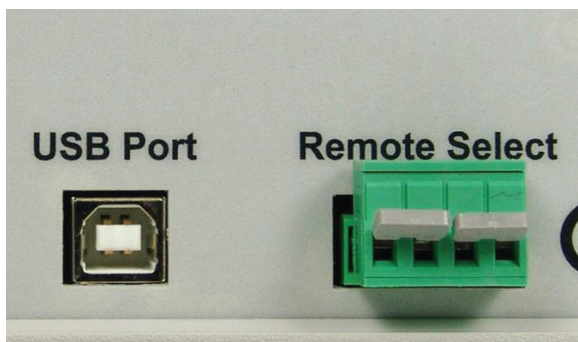
Depressing the MENU button will cycle through set point zero, remote 1, and remote 2.

Set the temperature to 35°C, after a few moments the column enclosure temperature will begin to rise as indicated by the TEMP= 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.



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)

Graphical User Interface (GUI) software is available which allows you to control each channel from a computer should you wish to.

Go to: <https://www.analytical-sales.com/downloads/ASALE528.exe> to download the software to your computer. 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.

ANALYTICAL SALES 5R7-528

PC Communications

Auto Port Selection

Manual Port Selection

Select Port

Message

Firmware Revision

SENSOR TEMPERATURE

OUTPUT%

SET TEMPERATURE

CURRENT COUNTS

PCB TEMP

SENSOR ERROR STATUS

HIGH TEMP ALARM

CURRENT LIMITING

PCB OVER TEMP

SEND SETUP

Set Temp 0

Set Temp 1

Set Temp 2

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

MonoSLEEVE will operate with any of the following smart heaters:

HotSleeve+ “Tube Style Heaters”

| Cat. No. | Description |
|----------|---|
| HSI-5L | HotSleeve+, 5cm Self-calibrating Column Heater |
| HSI-10L | HotSleeve+, 10cm Self-calibrating Column Heater |
| HSI-15L | HotSleeve+, 15cm Self-calibrating Column Heater |
| HSI-25L | HotSleeve+, 25cm Self-calibrating Column Heater |
| HSI-30L | HotSleeve+, 30cm Self-calibrating Column Heater |

AgileSleeve+ Capillary Heaters

| Cat. No. | Description |
|----------|---|
| ASI1032H | AgileSleeve+, 10cm x 1/32" ID Self-calibrating Heater |
| ASI1016H | AgileSleeve+, 10cm x 1/16" ID Self-calibrating Heater |
| ASI1532H | AgileSleeve+, 15cm x 1/32" ID Self-calibrating Heater |
| ASI1516H | AgileSleeve+, 15cm x 1/16" ID Self-calibrating Heater |
| ASI2532H | AgileSleeve+, 25cm x 1/32" ID Self-calibrating Heater |
| ASI2516H | AgileSleeve+, 25cm x 1/16" ID Self-calibrating Heater |
| ASI3032H | AgileSleeve+, 30cm x 1/32" ID Self-calibrating Heater |
| ASI3016H | AgileSleeve+, 30cm x 1/16" ID Self-calibrating Heater |

Why can't I recalibrate my HotSleeve™ heater myself?

Our heaters are calibrated to an internal core temperature using an actual column (ss mass) for the greatest accuracy and to better represent working conditions the user will encounter. We consider the heating time to equilibrate the column mass to define the calibration point. When a user uses something like a stainless steel temperature probe or a laser point handheld reader, only the surface temperature for that portion of the sleeve will be measured, which results in a skewed or incorrect temperature.

Analytical uses a HPLC column which has been emptied of packing material, fitted with thermistors, re-potted with aluminum dust, and then recapped with the leads passing through one end-fitting. By using this method we calibrate the heating element to an averaged core temperature of $45^{\circ}\text{C} \pm 0.1^{\circ}\text{C}$, which is matched to the controller. Analytical can set a different calibration temperature if requested. A user cannot recalibrate the sleeve, and if recalibration is needed the user can send the sleeve back to Analytical and have it recalibrated if it is still under warranty. A HotSleeve that is no longer under warranty can be recalibrated for a small fee.

Analytical does not provide our calibration devices to end-users, nor do we provide the calibration software to change internal precision values to the controller. Using any software or external equipment will void the warranty of the HotSleeve and controller.

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 Übereinstimmung sind mit den Bestimmungen der angegebenen EU-Richtlinien und mit den aufgeführten normative Dokumenten.

Analytical Sales and Services, Inc. dichiara con la presente, che i prodotto(i) sottomenzionati sono in conformità con le direttive e norme Europee, specificate in questa dichiarazione.

Analytical Sales and Services, Inc. déclare par la présente, que les produit(s) sous-mentionnés, 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.

Products(s) / Produkt(e) / Prodotto(i) / Produit(s) / Producto(s):

MonoSLEEVE HPLC HEATERS

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

Low Voltage (73/23/EEC, 93/68/EEC)

Electromagnetic Compatibility (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

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

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Analytical Sales and Services, Inc.



179 Route 206
Flanders, NJ 07836

Phone: 973-616-0700
Fax: 973-6160133

Email: info@analytical-sales.com
Web site: www.analytical-sales.com