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

MultiSLEEVE is a trademark of
Analytical Sales & Services, Inc.

# Analytical
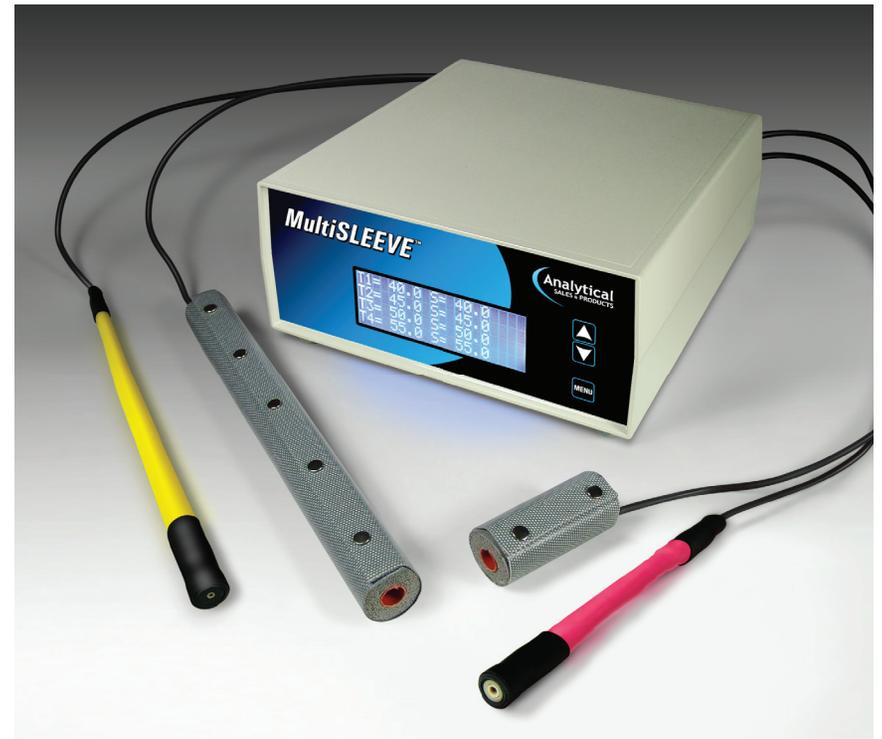## SALES & SERVICES, Inc.

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# Analytical
## SALES & SERVICES, Inc.

# MultiSLEEVE™
## Operations Manual

Thank you for purchasing Analytical Sales and Services **MultiSLEEVE**™ Column Heater system. This manual will guide you through setup, and operation or 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:** MultiSLEEVE'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 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.**

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|---|---|

Manufactured by
Analytical Sales and Services, Inc.

# 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 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) sottomenzionati 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-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):

MultiSLEEVE HPLC HEATERS

**EU Directive(s)** / EU-Richtlinien / Direttiva(e) Europee / 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

MultiSLEEVE will operate with any of the following smart heaters:

## HOT SLEEVE "Tube Style Heaters"

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

## AgileSLEEVE Capillary Heaters

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

## 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 Plus or AgileSLEEVE Plus |

## 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:
• MultiSLEEVE
• HotSLEEVE PLUS - 5, 10, 15, 25, 30 cm lengths
• AgileSLEEVE PLUS - All lengths and I.D.'s

## General Inspection

Unpacking and Inspection

Verify that the column heater package contains the following:

• MULTISLEEVE heater, PTC-200 controller, Power Cord, Manual, GUI Software, Green
  Remote Plug, Test Data Sheets

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

The MultiSLEEVE controller is used for applications which require multiple heating zones or multiple LC system heating. Used in conjunction with HotSLEEVE PLUS™ and/or AgileSLEEVE PLUS™ heaters *(see page 10)*, it maintains four independent channels simultaneously and accurately while reducing overall equipment costs.



**Figure 1. MultiSLEEVE Temperature Controller with Heaters**

The MultiSLEEVE controller is designed for use in analytical format liquid chromatography applications only. Mixing prep with analytical formats is not recommended.



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.

Select COMM Port (COM1 is default) and Initialize. When communication is established, COMM OK will be shown.
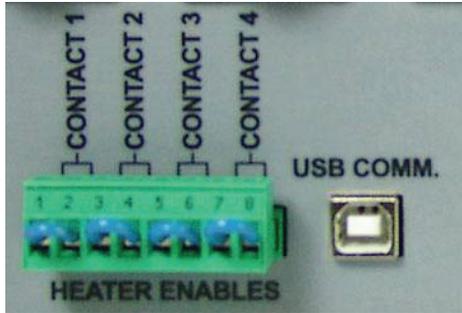


This area indicates values from the front of the controller only.  Values will change only when sample On/Off is active.

This area sets the temperature value per channel and enables or disables heater output.

## External Control

Your controller is equipped with an external control feature. The first is through USB control with the supplied Graphical User Interface (GUI) software provided on the CD. 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.
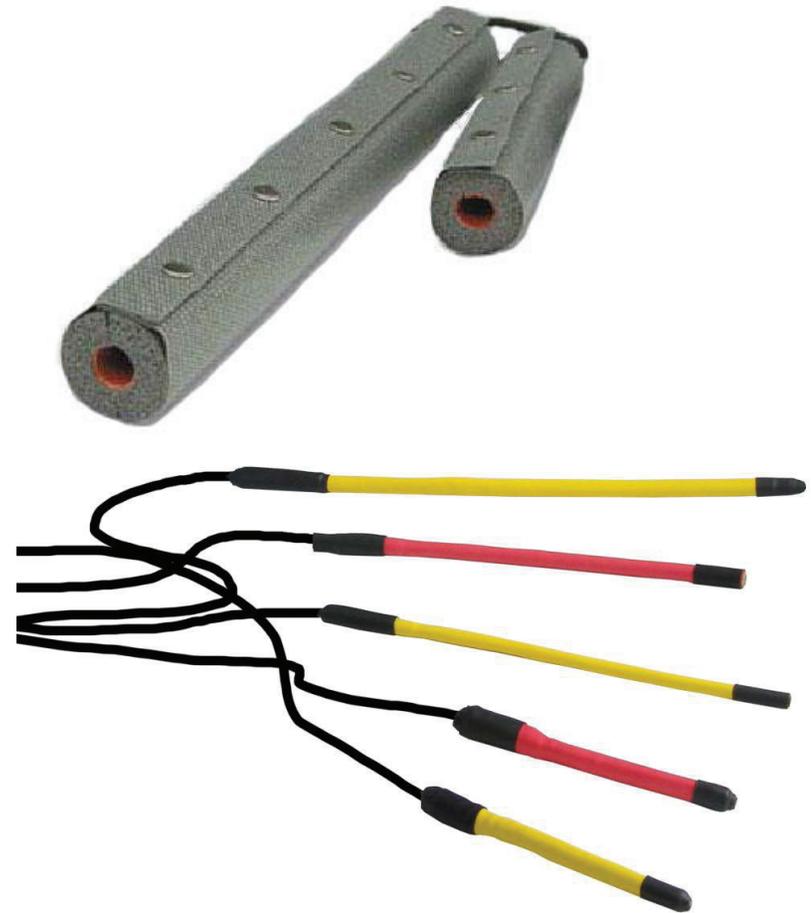
## Remote Graphical User Interface (GUI)

Along with your MultiSLEEVE you also received a CD containing a graphical user interface which will allow you to control each channel from a computer should you wish to.

Place the GUI CD into your computer. You may transfer the program to your workstation or start the program directly from the CD. Plug in the USB cable and start-up the program and the interface at the right will appear.

Select COM1 and Initialize the port. All current programmed information will appear within the display.

The MultiSLEEVE will function with HotSLEEVE PLUS™ and AgileSLEEVE PLUS™ heaters only. Each smart heater has a unique blue banding on the cord indicating built-in Smart Chip sensing.
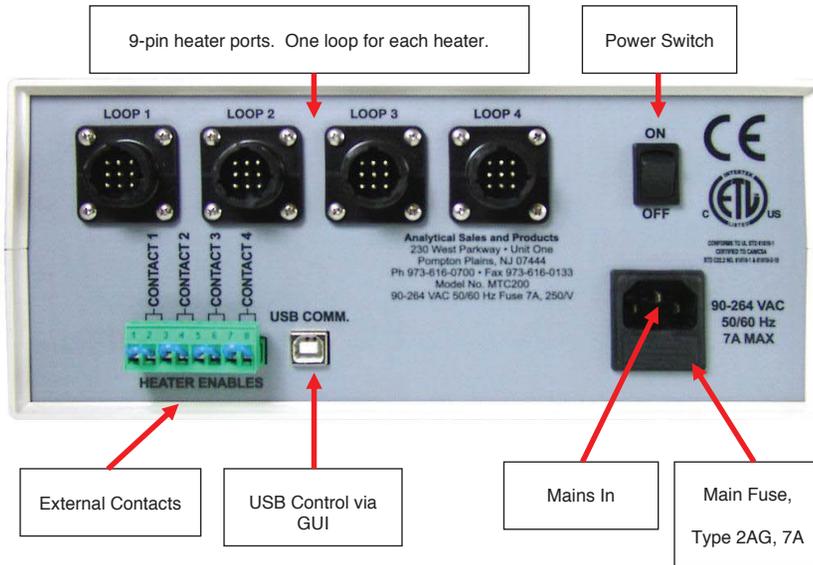


**NOTE:**
MultiSLEEVE *will only accept* HotSLEEVE PLUS and AgileSLEEVE PLUS heaters with new "Plug and Play" technology.

## 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 silver plug into the back of the controller shown below.



9-pin heater ports. One loop for each heater.

Power Switch

External Contacts

USB Control via GUI

Mains In

Main Fuse,

Type 2AG, 7A

Menu Button to set initial temperature settings

Display, Actual –vs- Set Temp

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 each channel. The left number T= is the actual column enclosure temperature. The right number S= is the column temperature set point. If only a single heater is attached, only a single channel will be displayed on the front panel.

## Operation

Depress the MENU button on the front panel to enter the temperature setting mode. Use the set point adjustment 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.

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.