

## Instructions for the Peltier 1x1 Cell Holder

### For the Agilent Cary 1/100/3/300

The Peltier 1 x 1 Cell Holder enables you to perform temperature controlled measurements for a single sample and reference. The temperature of each cell holder is independently regulated, allowing you to utilize both the sample and reference cell holders or just the sample cell holder.

The cell holders are mounted onto the standard Cary cell holder base (supplied with the Agilent Cary). The Extended Sample Compartment is required.

The pump supplied can be used for a water circulating system or alternatively you can use a water bath.

#### NOTE

If you are using the Cary WinUV software, these instructions are also available in the on-line Help. To view these instructions, start the Cary WinUV software, select Help Topics from the Help menu and select 'Accessories' from the Cary home page.

### Specifications

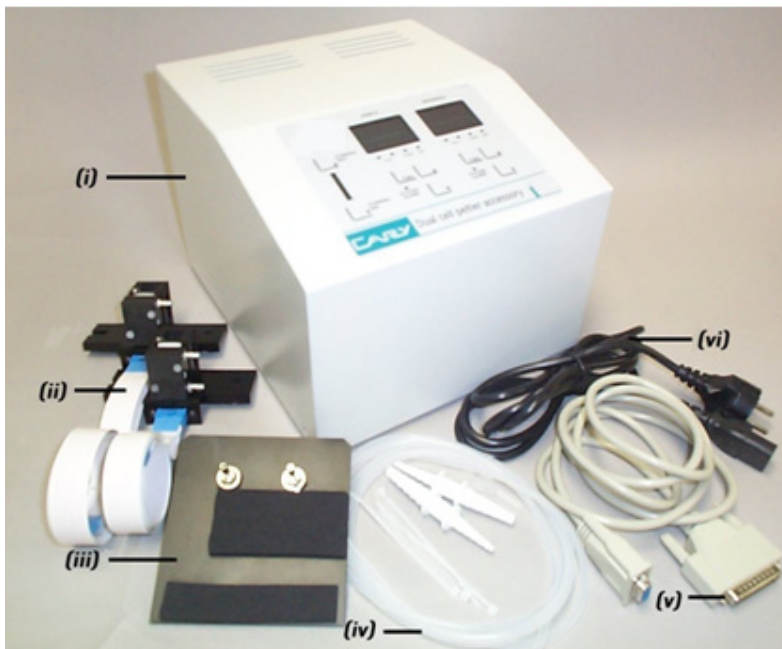
Temperature control precision	± 0.1 °C
Temperature range	0-100 °C
Temperature stability	± 0.1 °C
Temperature accuracy	± 0.2 °C
Display range	0-100 °C
Water flow	0.5 L/min (max)

### Unpacking

Unpack the accessory, and check that you have received the following:

- Two Peltier Cell Holders (with ribbon cables attached)
- Temperature control module
- Connector plate to use with the Extended Sample Compartment
- Tubing, connectors and two micro stirrer bars
- Water pump (optional)
- Cable Kit (RS232 cable and Power cable)





**Figure 1** Peltier 1x1 Accessory Parts

- i) Temperature Control Module
- ii) 2 Peltier Cell Holders (with ribbon cables attached)
- iii) Connector plate to use with the Extended Sample Compartment
- iv) Tubing and connectors
- v) RS232 cable
- vi) Power cable (this will vary with the country of destination)

## Installation

### You will need:

- Extended Sample Compartment
- A flat blade screwdriver
- A pair of scissors
- A marker for labeling
- A water reservoir

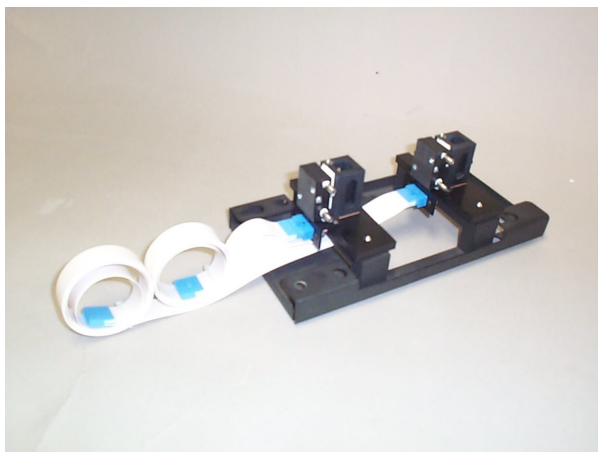
### To install the accessory:

- 1 Open the sample compartment lid and remove the front panel from the instrument (if this has not already been done).
- 2 Clear the sample compartment of any cell holders and then remove the cell holder base (if present).

#### NOTE

You will find it easier to fit the Peltier cell holders to the cell holder base first, connect the tubing to the cell holders, and then install the entire assembly in the sample compartment.

- 3 Fit the Peltier cell holders to the cell holder base (refer to your Cary hardware manual for further details). Pull the flat ribbon cables under the Peltier cell holders. The flat ribbon cables and the Peltier cell holders connect as shown in Figure 2.



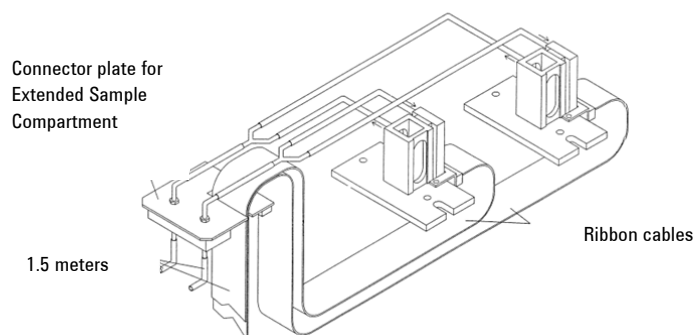
**Figure 2** The Peltier Cell Holders fitted to the cell holder

- 4 Mark the end of the ribbon cable extending from the sample cell holder 'S' and the cable from the reference cell holder 'R'. This will make identification easier once you have connected the cells to the temperature control module.
- 5 Assemble the tubing as shown in Figure 3 and connect it to the Peltier cell holders. Direct the tubing under the cell holders to prevent interference with the light path.

**NOTE**

The tubing supplied comes in one long piece. This will have to be cut to the appropriate lengths similar to those shown in Figure 3.

- 6 Install the cell holder base (with the cell holders and tubing attached) in the sample compartment, sliding the two keyholes in the rear of the base over the two raised black screws at the rear of the sample compartment. The locating pin at the front left of the sample compartment should slot into the hole at the front of the cell holder base.
- 7 Tighten the two screws located at the rear of the sample compartment and the screw at the front right hand side of the sample compartment.
- 8 Holding the connector plate (item iii, Figure 1) with the black high density foam facing upwards, slide the ribbon cables through the slit in the plate, as shown in Figure 3. Connect the free ends of the tubing assembly to the elbow connectors present in the plate. Check that the foam on the connector plate does not extend too far over the edges. If it does, it will need to be cut back so the plate slides easily into the compartment.
- 9 Remove the standard baseplate from the Extended Sample Compartment, replacing it with the Extended Sample Compartment Connector Plate and install in the instrument.
- 10 Attach two lengths of rubber tubing to the external connectors on the connector plate. This tubing should also be connected to your water pump.

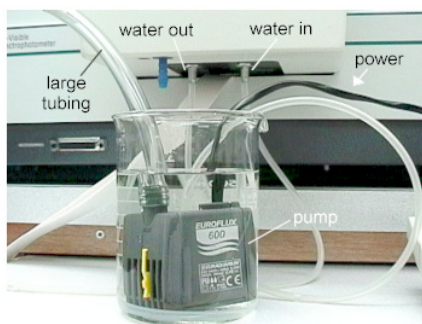


**Figure 3** The tubing setup for the cell holders

- 11** Connect the two ribbon cables to the back of the temperature control module as follows:
  - a** Plug the ribbon cable from the sample cell, marked 'S', into the upper outlet (labeled '1') on the rear of the module.
  - b** Plug the ribbon cable from the reference cell, marked 'R', into the lower outlet (labeled '2') on the rear of the module.

## Water Pump

After the tubing has been connected to the cell holders and the connector plate, the water pump can be connected to the external connections on the connector plate.



**Figure 4** Tubing setup for the water pump

- 1** Use a beaker or another container as a water reserve.
- 2** Put the pump supplied in your container and fill the container with distilled water, so that the water level is above the top of the pump.
- 3** Use the connector provided to attach the pump to the 'in' water flow valve (one of the connector plate connectors).

**NOTE**

The connector allows different sized tubing to be attached to either side of it.

- 4 The 'pump to connector tubing' will need to be larger than the 'connector to connector plate tubing'. It should be approximately 12.5 mm diameter x 1.6 mm wall thickness. The tubing that is provided can be used for the connector to connector plate connection.
- 5 Make sure the 'out' water flow goes back to the same water reserve so as continual filling is not required.

### Connecting to the computer

- 1 Attach the 25-pin end of the RS232 cable (item v, figure 1) to the 1 x 1 Peltier.
- 2 Attach the 9-pin end to either Com Port 1 or Com Port 2 of the PC.

#### Check the Com Port settings by performing the following:

- 1 Open Cary WinUV data collection application.
- 2 Click **Setup**.
- 3 Select the 'Accessories' Tab.
- 4 Ensure **Automatic Temperature Setting** is selected.
- 5 Select **1 x 1 Peltier**.
- 6 Click on Comms Setup and check that the settings are as follows:
 

Port	(1 or 2, depending on which port the 9 pin plug is connected to)
Rate	4800
Word size	8
Parity	None
Stop bits	1

### Setting the temperature

**NOTE**

Cary WinUV software version 1.0 or greater is required to operate this accessory.

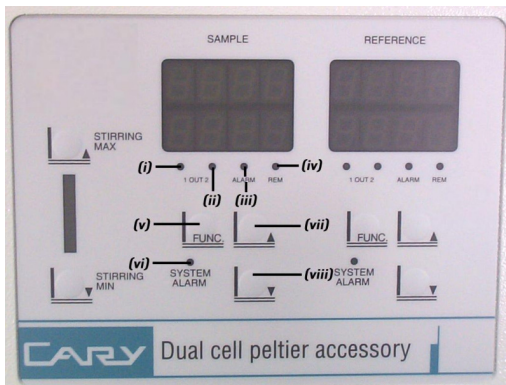
#### Software control

The temperature may be controlled via the software interface. This can be achieved by performing the following steps:

- 1 Open your required application.
- 2 Click on **Setup**.
- 3 Select the 'Accessories' Tab.
- 4 Ensure **Automatic Temperature Setting** is selected
- 5 Select **1 x 1 Peltier**.
- 6 Two text boxes will now be available—one for the front and one for the rear. Type in your required temperature or click on the arrows next to the box to change the temperature in 0.1 °C increments.

### Manual control

The temperature may also be set manually on the Peltier accessory by using the arrow temperature control keys, see Figure 5.



**Figure 5** Peltier 1x1 unit display

- i) indicates heating
- ii) indicates cooling
- iii) general alarm
- iv) indicates the accessory is in Remote Control Mode
- v) service parameters (only to be used by a qualified service engineer)
- vi) indicates there is no water circulating when the unit is cooling
- vii) & viii) manual temperature control

### Operation

The cell holders are now ready for use:

- 1** Switch on the pump provided.
- 2** Preheat the cells and the solutions. This may take up to thirty minutes depending on the nature of the solutions.
- 3** When all components of the system are at the required temperature, close the sample compartment lid and commence measurement.

You may monitor the temperature of the cell contents by using the Cary Temperature Probe accessory. Refer to the Temperature Probe manual for further details.

### Maintenance

Regularly inspect the accessory to check for water leaks or degradation of the tubing.

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This information is subject to change without notice.



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