

Connecting a DS Micro Flow Cell

This sheet provides instructions on how to install DS Micro Flow Cell sampling technology on your ReactiR system. The table on the reverse side shows the components involved in a DS Micro Flow Cell installation and identifies the applicable ReactiR base units for each configuration.

For details about all ReactiR sampling technologies, please refer to the *Sampling Technology Guide* provided with iC IR software release 4.1 and later.

DS Micro Flow Cell sampling technology enables you to monitor continuous flow chemistry. The chemistry flows directly to the sensor in the flow cell and back through the tubing that you provide. One or two DS Micro Flow Cells connect to the factory-standard Sample Interface Module (SIM) on any laboratory ReactiR base unit (MonARC production systems do not use DS Micro Flow Cells).

There are two models of DS Micro Flow Cells—one for ambient temperatures, and one that is heated. Both types of flow cell connect to a ReactiR 45m, iC10, or 4000 SIM through a DS single or MultiplexiR (“MUX”) Optical Interface Module.

I. Connecting Optical Interface Module to SIM

The first step is to verify that your ReactiR base unit has the Optical Interface Module installed. If the DS Optical Interface Module is not installed, refer to the Quick Reference: *Connecting a DS Optical Interface Module* for prerequisites and instructions. Then, proceed to section II on this sheet.

II. Connecting Micro Flow Cell to Optical Interface Module

1. On the DS Micro Flow Cell, use your thumb to slide the protective cap back and expose the optics connector.

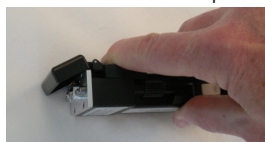


Figure 1: DS Micro Flow Cell with protective cap ON (left), pulled back (right)

2. Insert the DS Micro Flow Cell optics connection end into the Optical Interface Module on the ReactiR base unit. The cover on the interface module flips in as you guide the flow cell into position.

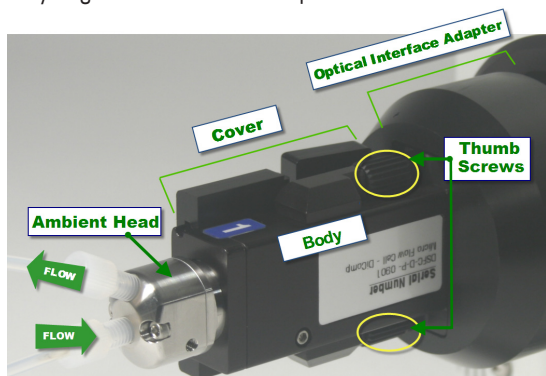


Figure 2: DS Micro Flow Cell (ambient) installed

3. Secure the DS Micro Flow Cell with the two captive screws in the vertical plane. **Figure 2** shows the thumb screw location.

Tip: You can tighten both thumb screws with a single hand motion. Place your hand around the flow cell so your thumb is over the top screw and your fingers are below the bottom screw. Then, touch the top and bottom screws and roll both your thumb and fingers in a clockwise rotation.

4. Connect your tubing to the flow cell head with the flow direction as shown in **Figures 3, 4, and 5**. Input must flow straight into the center of the flow cell head.

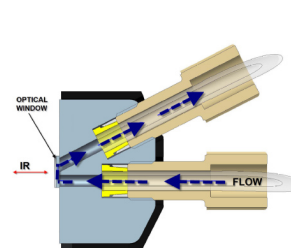


Figure 3: Flow direction (Fittings are Omnifit style 1/4-28)

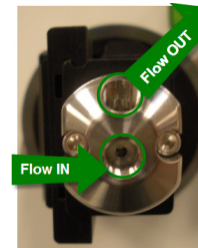


Figure 4: Flow direction (ambient)

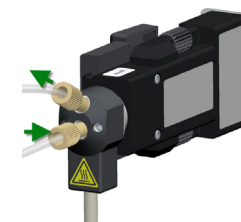


Figure 5: Flow direction (heated)

Connecting Flow Cell to Heater Controller

1. Connect the cord from the flow cell head to the front of the heater controller as shown in **Figure 6**. (The receptacle is labeled “Flow Cell.”)



Figure 6: Heated DS Micro Flow Cell connected to Heater Controller

Flow Cell cord to Heater Controller

2. Connect the power supply (provided) to the back of the Heater Controller and plug the power supply into an outlet.
3. Adjust the temperature using the buttons on the front of the controller, as follows:

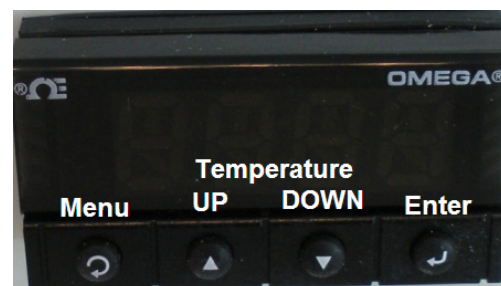


Figure 7: Heater Controller menu buttons

- a. Press the **Menu** button and cycle to the **SP1** option.
- b. Press the **Enter** button to go into temperature setting mode.
- c. Press the **UP** and **DOWN** buttons to cycle to the required temperature.
- d. Press **Enter** to save the temperature setting.
- e. Press the **Menu** button again to return to the default menu setting.

III. Orienting DS Micro Flow Cell Head (if needed)

Figures 2–5, and 8 show that flow input to a DS Micro Flow Cell must be straight into the center of the flow cell head. Flow cell heads are symmetrically designed to allow 180-degree vertical orientation in the flow cell body, so before attaching your tubing, verify proper orientation of the flow cell head.

For example, if you are installing two DS Micro Flow Cells in a ReactIR 45m, the flow cell body inserts one way into the D-shaped receptacle on the MUX interface. As a result, it may be necessary to reverse one of the flow cell heads to maintain the proper flow direction. Figure 8 shows this type of installation. A proper orientation has the following characteristics:

- Both slide-back protective covers on Multiplex Optical Interface modules are on the outside of flow cell bodies.
- Input flow tube is at the center of the flow cell head with the output flow directed upward (only input flow is labeled in Figure 8).

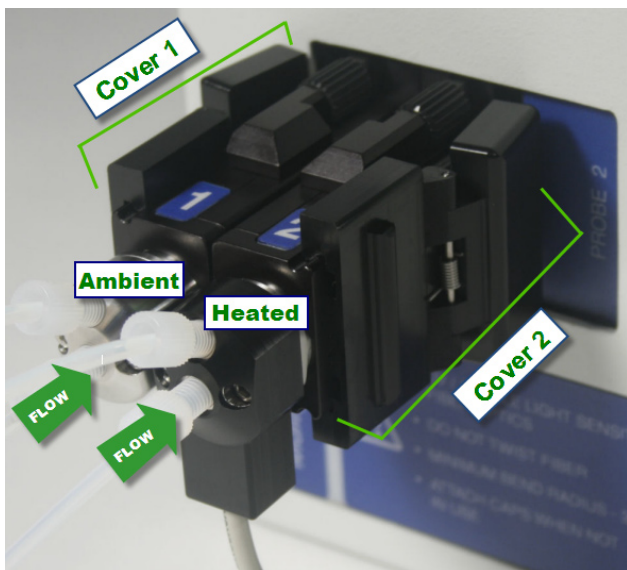


Figure 8: Two flow cells (ambient on left, heated on right) in proper orientation.

To reverse a DS Micro Flow Cell head for proper input flow:

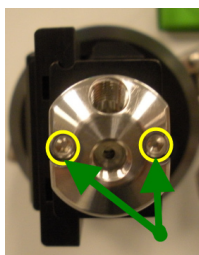







Figure 9: Screws on flow cell head (ambient)

1. Using a 3/32 allen key (provided), loosen the two screws and disengage the flow cell head (Figure 9).
2. Rotate the head 180° and reinsert it into the flow cell body. Take care to use the alignment pin so the input flow tube aligns with the center of the flow cell head.
3. Tighten the screws.

V. DS Micro Flow Cell Options and Parts per ReactIR Base Unit

The following table shows the components, by ReactIR base unit, for a DS Micro Flow Cell installation.

| Image | Component | Part Number | ReactIR Base Units | | |
|---|-------------------------------------|-------------|---|---|---|
| | | | 45m | iC10 | 4000 |
| | | |  |  |  |
|  | DS Micro Flow Cell (ambient) | | | | |
| | Head volume: 50µL | 14430683 | | | |
| | 10µL | 14430685 | ✓ | ✓ | ✓ |
| Includes flow cell body and one head | | | | | |
|  | DS Micro Flow Cell (heated) | | | | |
| | Head volume: 50µL | 14430682 | | | |
| | 10µL | 14430684 | ✓ | ✓ | ✓ |
| Includes flow cell body and one head, plus heater controller and power supply | | | | | |
| | Heater Controller | 14430686 | | | |

NOTE: Tubing and Omnifit-style 1/4-28 fittings are not provided.

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