

EFC-82

FRACTION COLLECTOR

Warnings

For safe and correct use of this instrument, it is essential that both operating and service personnel follow the generally accepted safety procedures and instructions provided in this manual.

The instrument described in this guide is a microdialysis fraction collector and should only be used for collecting microdialysis samples. It should only be used in the laboratory by qualified personnel. If the instrument is used in a manner not specified by Eicom, the protection provided by the instrument may be impaired.

Before running the instrument, you should check that nothing hinders the movement of the arm and needles. Nothing should be placed in or around the arm that may impede its movement or cause injury/death. Pay particular attention to your hand/finger, tubing, a well plate or the sample rack.

The needle installed on the vertical arm may contain a hazardous substance and there is a possibility that it may break. You are strongly advised to stay clear of the instrument until the needle and arm have come to a complete stop.

Voltages present inside the instrument are potentially dangerous. If there is a problem with the instrument, the power cable should be removed until a qualified service person can repair it.

The leakage current from this instrument is within the limits allowed by the safety standards of laboratory equipment. An efficient ground connection is imperative for the physical protection of the user.

Features

This instrument is designed to collect microdialysis samples which flow out from a microdialysis probe connected to a syringe pump or some other type of pump. The flow rate should be in the range from 0.5 $\mu\text{l}/\text{min}$ to 8 $\mu\text{l}/\text{min}$. Higher flow rates may result in leaks from the tubing connectors. The collection time is programmable from 1 second to 99 min and 59 sec. Eicom recommends setting it to more than one minute. 96 sample vials can be used and one, two or four channels are available.

Sample Vial

There are two types of configurations depending on the vial types you want to use. These two configurations are set up in our factory. To change the configuration, please contact Eicom. You may need to purchase another sample rack for a different configuration.

1. Your unit was set up for a 500 μ l CENTRIFUGE VIALS CONFIGURATION.
2. Your unit was set up for a 96 WELL PLATE CONFIGURATION.

1. A 500 μ l CENTRIFUGE VIAL CONFIGURATION

One configuration is for a standard individual sample vial, for example a 500 μ l centrifuge vial which are commercially available and are also called Eppendorf vials (Eicom does not provide these vials), or for Gilson vials if you are using the Gilson Autosampler (model 231 XL or 234 XL). The vial cap cannot be used while collecting samples.

2. A 96 WELL PLATE CONFIGURATION

The other configuration is the 96 well plate configuration. This configuration allows the use of plate seal mats to cover each well while samples are being collected. Eicom does not provide the 96 well plates or the plate seal mats.

Below are the suppliers we recommend.

- **Standard 96 Well Plate**

Sarstedt (Aktiengesellschaft & Co.), catalog #72.985, 96-well Multiply-PCR Plate
<http://www.sarstedt.com/php/main.php>

- **Plate Seal Mat**

Axygen, catalog #AM-96-PCR-RD, 96-well Plate Seal Mat
<http://www.axigen.com/jsp/coreIdDetail.jsp?coreId=AM96PCRRD>

Both products are also available from VWR.

The plate seal mat can be used and it may prevent contamination of the samples by dew drop and/or sample evaporation. Before you start sampling, please pierce the plate seal mat. The needle alone cannot pierce it.

Setup

1. Please place the instrument on a horizontal, stable and clean table.
2. The horizontal arm is held by a fixer which is fixed by a screw to the back panel. The vertical arm is strapped in with a twisting wire. Please release this fixer and this wire. The fixer can be pulled out from the back panel after removing the screw (see Fig. 1).



Fig. 1 Unscrew and pull the fixer.

3. Remove the screws at the tips of the two rack arms. Insert a cooling rack into the arm (see Fig. 2). Set the rack so that the white panel under the rack faces toward the front.

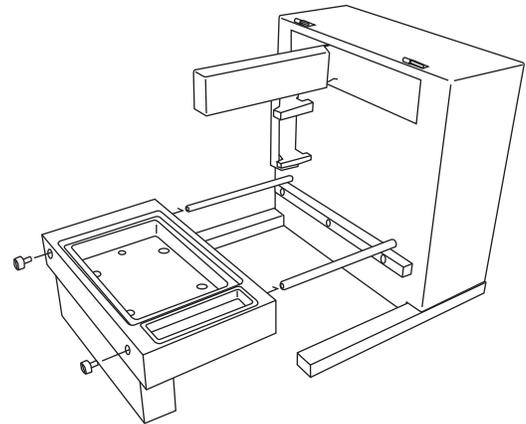


Fig. 2 Setting up the cooling unit.

The white panel under the rack should face the front.

4. Connect the black cord of the keypad to the connector on the back panel (see Fig. 3).



Fig. 3 Connecting with the keypad cable.

The RS232C port is used for communication with the push-pull system. The black square case between the power switch and the I/O terminal contains a fuse.

5-A. When using a 500 μ l centrifugal vial configuration:

Place a sample vial tray in the cooling rack (see Fig. 2). Put the vials in place and confirm that no vials float away from the tray. Do not use the plate seal mat at this time.

5-B. When using a 96 well plate configuration:

Place a sample vial tray in the cooling rack (see Fig. 2). Put a 96 well plate on the tray in its position and fix it in place using two nuts. Do not use the plate seal mat at this time.

6. Check that nothing hinders the movement of the arm and needles. Nothing should be placed in or around the arm that may impede its movement. Turn on the main power which is located on the back panel (see Fig. 4). A creaking noise from the motor for one second is normal. The arm will move and its position will be initialized.



Fig. 4 Main power switch.

7. Now, you can set up the needles. Please choose one of the following:

Using 500 µl centrifugal vials

Using the keypad, you are going to input a program in order to hold the arm at its first position.

- a) Press the "FILE" key. This is followed by pressing key "1" and then "C". Now the data in file 1 is deleted.
- b) Press the "PROG." key. "A" flashes on the display screen of the keypad. Choose the "A" or "B" mode for the needle movement setting by pressing the "M.T. :Ch" key and then press "SET". Do not choose the "C" mode as it is for the 96 well plate configuration only. The movement path is shown in Fig. 5.

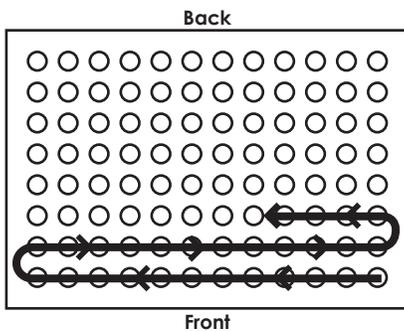
Using a 96 well plate

Using the keypad, you are going to input a program in order to hold the arm at its first position.

- a) Press the "FILE" key. This is followed by pressing key "1" and then "C". Now the data in file 1 is deleted.
- b) Press the "PROG." key. "A" flashes on the display screen of the keypad. Change the flashing "A" to "C" by pressing the "M.T. :Ch" key and then press "SET". Mode "C" is the 96 well plate mode. When using a 96 well plate, always choose mode "C". The movement path is shown in Fig. 5.

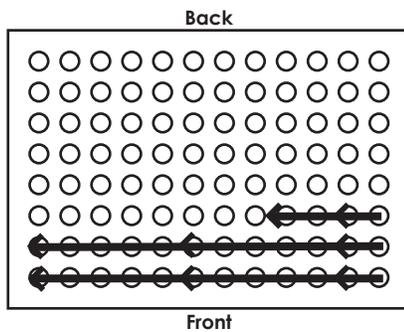
Mode A

(for 500 µl centrifugal vials)



Mode B

(for 500 µl centrifugal vials)



Mode C

(for a 96 well plate)

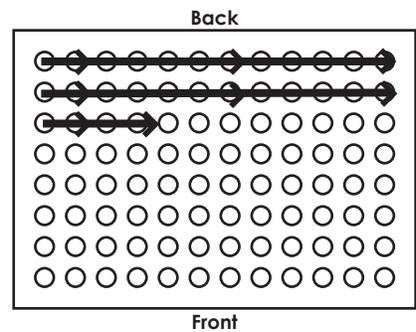


Fig. 5 Movement Path.

- c) Now change the flashing channel number to either 1, 2 or 4 using the "M.T. :Ch" key and then press "SET".

Using 500 μ l centrifugal vials (Continued)

- d) Enter number 1 for "FRACTION" by pressing "1" and then press "SET". Then enter number 1 again and press "SET". These two "1" settings indicate that you are collecting the first samples only. Press "PROG" to finish programming.
- (e) Leave the time (min:sec) at 00:00 and press "SET". Press the "PROG." key. A new program has been set up. The display shows the following (for instance when you choose file 1, mode A and 4 channels):
- ```
— 1 A 1 01 > 01 00:00
00:00 4 2 00 > 00 00:00
```
- (f) Confirm that nothing obstructs the arms movements. Also remove your hands from the area around the fraction collectors main body. Then press the "M.T. :Ch" key again and the arm will move and position itself at the first sampling location. Insert the dispenser needles into the closest needle port located on the side of the arm (see Fig. 6). Place the needles such that their tips can touch the bottom of a vial. To collect a small volume of a sample from a vial, the needle needs to touch the bottom. To collect a large volume, the needle should be pulled up so that it is not touching the bottom of the vial. This decreases any chance of cross contamination.

### Using a 96 well plate (Continued)

- d) Enter number 1 for "FRACTION" by pressing "1" and then press "SET". Then enter number 1 again and press "SET". These two "1" settings indicate that you are collecting the first samples only. Press "PROG" to finish programming.
- (e) Leave the time (min:sec) at 00:00 and press "SET". Press the "PROG." key. A new program has been set up. The display shows the following (for instance when you choose file 1, mode C and 4 channels):
- ```
— 1 C 1 01 > 02 00:00
00:00 4 2 00 > 00 00:00
```
- (f) Confirm that nothing obstructs the arms movements. Also remove your hands from the area around the fraction collectors main body. Then press the "M.T. :Ch" key again and the arm will move and position itself at the first sampling location. Insert the dispenser needles into the farthest needle port located on the side of the arm (see Fig. 6). Place the needles such that their tips can touch the bottom of a well. To collect a small volume of a sample from a well, the needle needs to touch the bottom. To collect a large volume, the needle should be pulled up so that it is not touching the bottom of the well. This decreases any chance of cross contamination.

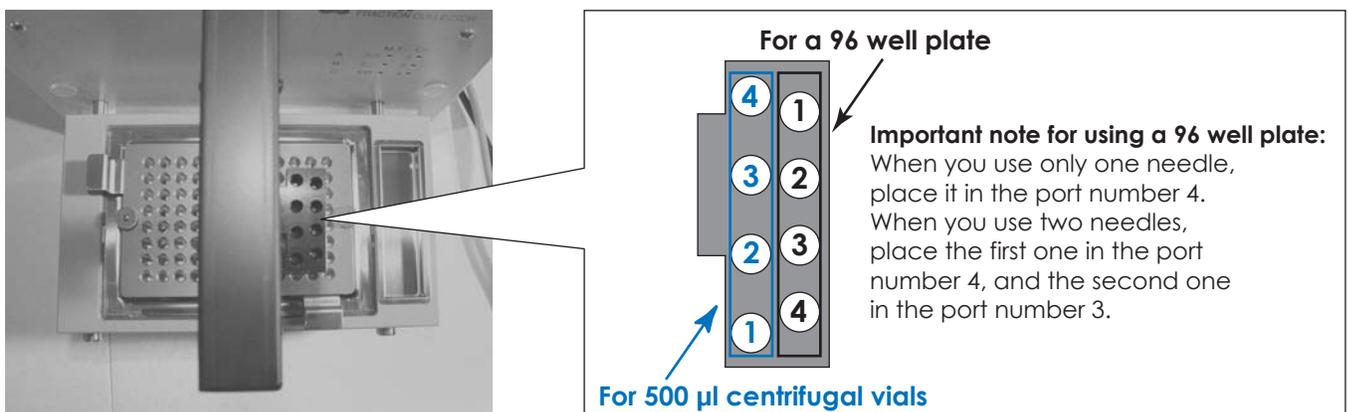


Fig. 6 Needle ports.

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(g) Now fasten the nuts in order to fix the position of the needle. Please fasten them using your fingers first and then fasten them using a wrench at a 90–180 degree angle. Do not fasten too tightly (see Fig. 7).

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Set up the other needles when they are required. The number of needles set up should be the same as the number of programmed channels. Do not set up needles that are not in use. When using 2 channels set up the two needles in the needle port at the front and the needle port located second from the front.

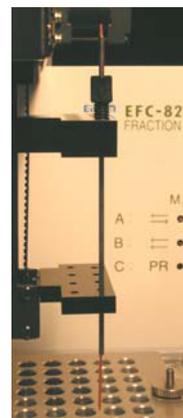


Fig. 7 Fasten the nuts to fix the position of the needle.

Sample Hood

The hood can be connected to the main body by sliding it into the hinge. To hold the hood in place, please unscrew one of the hinges on the main body and put the L part of the hood in the hinge and fix it in place using screws (see Fig. 8).



Fig. 8 Fixing the hood.

Plate Seal Mat

The mat should be fully inserted into each well and pierced before use. The needles cannot pierce it by the force of the arm alone. You may be able to use a tool for piercing the mat. This tool is sometimes used for placing yellow micro-pipette tips in a tip rack.

Programming Tips

Always clear the files before entering new ones. Otherwise a program error will always occur when you enter either a larger fraction number or time compared to the next line. To understand how to program, please go back to page 4, item 7.

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