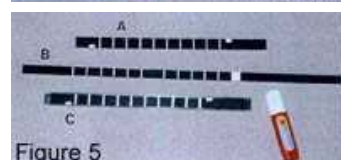
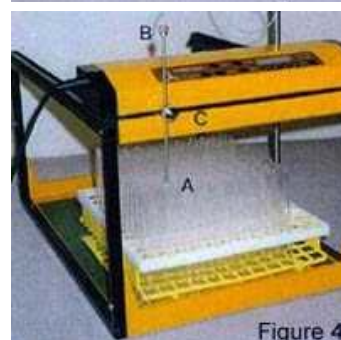
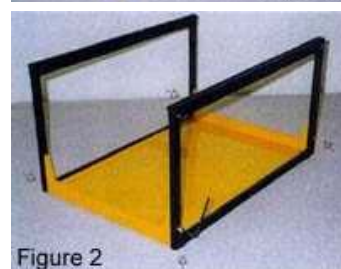
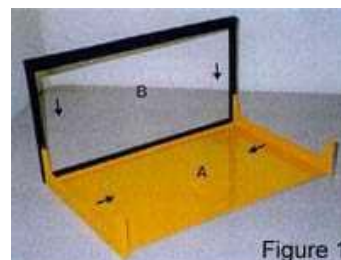


OMNICOLL

OPERATING INSTRUCTIONS

1. ASSEMBLY OF OMNICOLL

- Unpack all components carefully.
- Push the tub-sheet into slots of yellow supports (fig.1 A). Insert the black frame into the corresponding slots of yellow supports (fig.1 B). Pay attention to proceed at the same speed on both sides otherwise it will come to blocking. The tub-sheet should not slip out of slots.
- Proceed in the same way for the right side.
- Fix both frames in position with four bolts using the hexagonal key (fig. 2)
- Place the fixing mat in the tub-sheet (fig. 3 A). When needed clean the mat from dust and dirt with humid cloth. The mat has to be dry again before use.
- A metal rod fixed to the right side frame can be used for fixing of chromatography column, pump etc. Push the metal bar through both fixation nuts and fasten them to the frame with screws (fig. 3 B, C).
- Place the pump support (if needed) on the metal bar (fig. 3 D)
- It is recommended to use tubings of external diameter of 1.5 to 1.8 mm. Push the tubing through the metal tube so that a tip of about 5 mm comes out of it (fig. 4 A) and fix the tubing in the right position by screw (fig. 4 B). Fix the tubing carrying holder with the screw (fig. 4 C) so that it is about 5 to 10 mm above the tubes in which the fractions will be taken.



2. How to program OMNICOLL

2.1 Principle of programming

Laboratory practice show that programming of instruments equipped with microprocessors is not easy and mistakes are easily made especially when such instruments are used only occasionally.

We have developed a new method, which should eliminate such problems and make the programming easy for all types of tube stands.

The fraction positions are indicated by white lines drawn on the black magnetic coding band. These lines are detected by photodetectors. The fraction collector stops at these positions. The beginning and the end of the row are indicated by large lines (6 to 10 mm) made on the lower and upper edge of the coding band respectively (fig. 5 A). After detection of these signals the control unit will move to the first fraction of the next row.

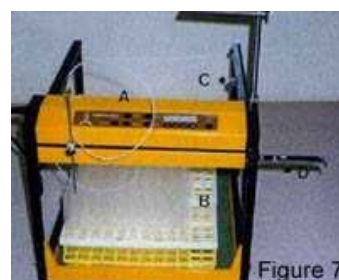
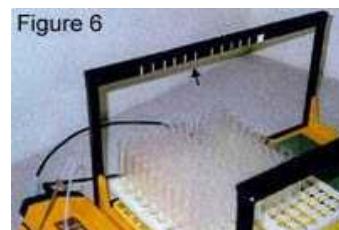
The distance between rows of fractions is programmed in a similar way (fig. 5 B). If you wish that the collector were switched off automatically after the last row, draw the last line broader (ca. 1 cm).

This simple coding principle allows use of any fractions stands or other recipients with OMNICOLL.

2.2 Use of OMNICOLL with supplied Nalgene tube racks

The coding bands with lines are ready for use with supplied two Nalgene racks. You can take 12×10 fractions in tubes of 16-mm diameter.

- Place the longer and narrower coding band (Y-axis) on the left inner metal frame just under the gear-bar (fig. 6). The position of this magnetic band can easily be modified. The first line should lie ca 10 cm from the front of the frame.
- Push the X-axis band holder out of the control unit and place the shorter and larger coding band inside (fig. 5 B). Replace the holder into the control unit (fig. 7 D).



2.3 Programming of OMNICOLL for any racks or recipients

2.3.1 Setting of tube distance in the row (X-axis)

- Measure the distance between tube centres and choose the number of fractions in the row. Draw the number of lines with the supplied white correction pen in the determined fraction distance. You could also simply place the coding band on the tubes and mark the fraction-position with a normal pencil. On marked places you can then draw the white lines correctly. Reserve first ca. 2 cm of the band for end-position signal. Draw these end-signals on the lower and higher edge of the band similarly as can be seen on fig. 5 A. Leave min. 6 mm of free space between the first and last line of the row and the end-signal. The end signal in the lower or upper edge of the band tells the microprocessor that the arm of the control unit is on the right or the left side of the unit.
- Put the coding band into the holder and insert it to the control unit (fig. 7 D).

2.3.2 Setting of the row distance (Y-axis)

- Measure the distance between rows. When several tube racks are used pay attention to different distance between the last row of the first rack and the first row of the second rack.
- Mark the row distances with a pencil on the coding band for Y-axis and draw white lines with the correction pen (fig.5 B). If you wish to stop the fraction collector after the last row, make the last line broader (ca. 1 cm). This functions as a stop signal.
- Place the band on the left internal part of the metal frame just under the gear bar (fig.6). Since the coding band is kept in place by magnetic force it can be easily positioned according your needs. The first row line should be ca 10 cm from the front. (When the control unit is placed in the starting position on the front of the frame, the photoelectric detector on the left side of the control unit must be situated before the first line. Otherwise the control unit will stop at the position of the next row.)

2.3.3 Selection of linear or meander-like collection

You can select the linear or meander collection in a following way:

- Switch off the plug-in power supply by removing it from the mains. Press continuously the button „LINE“ while pushing the power supply into the mains plug again. Line or Mean will appear on the display. By pressing the „LINE“ button select the desired collection way. Confirm your choice by button „SET“. (Certain difference between positions of the tube centres may occur between fractions taken in opposite collection directions. If the fraction lines are not too broad, this difference is approx. 1 mm).

2.4 Start of the fraction collection.

- Connect the cable of the control unit of OMNICOL with the cable of the power supply plug.
- Place the control unit right on the front of the gear rails (fig. 4 and 7 A). The distance from the edge should be the same on the left and right sides. The gear wheels of the control unit must engage correctly in the gears of both rails. Be sure that nothing will disturb the movement of the control unit during fraction collection.
- Connect the power supply to an AC mains outlet (230 V/50–60 Hz). The control unit and its arm move automatically to the first position of the first row.
- Press the SET button (short acoustic signal is heard). By pressing the COUNT/TIME button you select fractionation according to time or to volume. The yellow LED indicates which collection mode has been selected (see also section 3).
- Use the four buttons under the display to select the value desired. Confirm it by pressing the SET button again (long acoustical signal is heard). The fraction time can be set from 0.1 min to 999.9 min. (about 16.6 hours) in 0.1 min. steps or from 1 to 9999 min. in 1 min steps*. For the setting of volume see section 2.5.
- Put the tubing through the cylindrical tubing holder so that tubing tip surpasses the cylindrical tubing holder 2 to 5 mm (Fig 4. A). Secure the tubing in the position by the nut (fig. 4 B). Tighten the tube holder in the arm by the nut (fig. 4 C).
- Place the tube rack on the fixing mat so that the first tube is just under the tip of the tubing and the edge of the rack is parallel to the yellow frontal support. (fig. 7 B). Place the additional racks immediately behind the first and following racks.
- Press the START button to begin the fraction collection. The green LED will light on and if you use the pump PRECIFLOW, it will be activated.
- You may use the magnetic block to stop the fraction collection. Place the supplied magnet on the right inner side of the frame (fig. 7 C).

** The time resolution of OMNICOLL can be selected in the following way:*

Press continuously the button TIME while connecting the power supply to the mains-socket. The actual time resolution will appear on the display (0.1M or 1M). By pressing the button TIME you can select if you want to use 0.1 min. steps (0.1M) or 1 min. steps (1M). Confirm your choice by pressing the button SET.

2.5 Fraction collection according to volume

If you utilise the peristaltic pump PRECIFLOW you can take fractions of precise volume (from 0.01 to 500 ml per fraction). The heart of this pump is a stepping motor controlled by a generator of electric impulses (microprocessor). After each impulse the motor turns by one step. This movement displaces a small precise volume of liquid. The collector counts these impulses and make thus possible to deliver an exact volume of liquid to each fraction. This

method is much better than the old drop counting, where the volume is affected by the viscosity or surface tension etc.

Since the diameter of the tubing used in the pump affects the speed of the flow, the pump has to be calibrated before use in order to establish the relation between the count number and volume of the liquid.

Calibration of the PRECIFLOW pump and OMNICOLL.

- The pump will be connected to collector by the remote control cable (No. 6910) and connection box (No. 6911). The power supply is connected also to this connection box. (It is impossible to make a wrong connection because plugs would not fit to the connector).
- With the COUNT/TIME button select the count modus (the corresponding LED will be on).
- Press the SET button and set certain count number for example 100. Confirm it by pressing the SET button again.
- Select the speed control on the pump (for example 999) and switch the pump on.
- Press the START button on the collector to start the fraction collection. (If the tubing's were not filled completely with the liquid (for ex. Water) take a second fraction.
- Measure the volume of this fraction.
- From this ratio you can easily calculate the count number corresponding to the desired fraction volume.

Since tubing of 1 to 4 mm of internal diameter (wall thickness 1 mm) can be used in the PRECIFLOW, the fraction volume can be selected in a wide range. (Using tubing with internal diameter of 3 mm, one count corresponds to one drop).

2.6 How to increase the capacity of OMNICOLL

Since several lower parts of collector can be coupled together, the capacity of the collector can be increased many times. The control unit can move from freely from one lower unit to another on gear rails. Only two rectangular coupling bars are needed to keep two units together.

- Remove the two blind bars from the rear side of the frame of the first unit and the front side of the second unit. Insert the coupling bars on their place and fix with the four bolts.
- Be aware that you must remove the stop signal from the first frame unit and place it onto the next one. You may also use the magnetic stop contact.
- **Make sure that nothing will block the movement of the control unit during the fraction collection.**

2.7 Collection with an interval between fractions

You can also use the OMNICOLL for collection of samples with a time interval varying between 0.1 min. and 16.6 hours (999.9 min.). This is particularly welcome during fermentation and other biological and chemical processes. For this application you have to switch the microprocessor of the control unit to the „high“ modus.

Programming in the high modus.

- Pull out the power supply from the mains (the voltage on the processor has to be 0 V).
- Press continuously the SET button on the control unit and connect the power supply again to the mains.

- After appearance of „**norm**“ or „**high**“ on display release the SET button.
- Using button TIME/COUNT select the high modus. Confirm it by pressing the SET button (long beep signal).
- In the „high“ modus you can cyclically select the parameters TIME-COUNT-PAUSE-NUMBER.
- The programming of these parameters is the following:

After the selection of the parameter with the TIME/COUNT button, press the SET button. After a short beep the name of the parameter will appear during one second, followed by last used value of the parameter. You can change this value by means of buttons under the display. Press the button SET to confirm the new value (long beep). The programmed parameter can be recognised also by means of LED according to the following table:

PARAMETER	LED TIME	LED COUNT	DISPLAY
TIME	+	-	tiMe
COUNT	-	+	coUn
PAUSE	+	+	PAUS
NUMBER	-	-	nuMb

After setting of the parameters, the collection is started by the START button. The collector will take the number of samples as programmed under the NUMBER and will stop for the time programmed under PAUSE. The cycle will go on until one STOP signal will be encountered. The pump is activated automatically only during fraction collection.

2.8 Remote control of OMNICOLL.

It can be frequently useful to take samples during a process at a moment, which is not known in advance. For example when during fermentation (or other biological, chemical or physical processes) certain limit values have been attained and an alarm signal switched on. This signal can be used to take a fraction. This fraction may be essential to recognise why it has happened. The fraction collector takes one or several samples after detection of a signal 3 to 12 V (or 12 to 30V with 3300 resistor switched in the series). The pump will be activated automatically.

2.8.1 Collection of single samples.

If the collector operates in **normal** modus it will take a single fraction of selected time or volume after reception of a signal impulsion. It will then move to the next position and wait the following signal. This operation will go on until the detection of a stop signal.

2.8.2 Multiple sample collection

If the collector operates in the **high** modus, after detection of a signal it will take the number of fractions programmed under NUMBER (1 to 999).

This feature is particularly interesting when it is necessary to wash tubing before taking the fresh significant sample. (This is very important during fermentation where the culture may be inactivated when kept in tubing during long periods of time. The same is true for any other process where the sample quality may be affected by staying in the tubing.)

4. PRACTICAL ADVISES

- Keep all position lines clean. If necessary you can wash old or damaged lines with acetone and draw new lines on the same position.
- Instead of white lines you may also use strips (1.5 to 2 mm wide) of white adhesive tape.
- Keep the fix mate clean and dry. Humid or dust covered mate has only a small adhesion.
- Take only 10 fractions in a row even though your stand has more positions. It will help you to find more easily the desired fraction and you will eliminate mistakes.
- The alignment of the tube rack is easier if you press it against the front part of the frame supports. By pushing the magnetic Y-axis coding strip you will find the position corresponding to this rack position. By removing the tub sheet from the frame unit it will be possible to use even larger or taller fraction containers. We can supply also tub sheets for use of funnels according to your need. This makes it possible to use even largest containers for taking fractions. (For this application a modified tubing holder can be made.)
- On demand we can also supply an adapter allowing taking several fractions (2–20) simultaneously.

5. MAINTENANCE

OMNICOLL does not require any special maintenance.

Keep you collector clean. If necessary clean it with damped cloth. You may use neutral detergents or ethyl alcohol.

6. SAFETY

OMNICOLL is particularly safe because it's power supply delivers only low voltage of 9 V. The consumption of the current is also very low, especially when motors are not in action.

7. SPECIFICATIONS

Fraction range: (linear or meander-like collection)

Normal modus:

Time: 0.1 to 999.9 minutes in 0.1 min. steps
Volume: 0.01 to 500 ml (external counts using Preciflow pump)

High modus: same as above with the possibility of time pause
(*from 0 to 999.9 minutes*) between fractions

Remote control:

Normal modus: collector takes a *single* fraction upon an external voltage pulse of 3–12 V (or 12–30 V with a 3300 ohm resistor)

High modus: collector takes 1 to 999 fractions after reception of a single voltage impulse of 3–12 V (or 12–30 V with a 3300 Ohm resistor)

Capacity: **any tube racks** or container type on the surface 45×31cm
Using supplied Nalgene racks: 216 tubes 16 mm diameter
160 tubes 20 mm diameter
96 tubes 30 mm diameter
The capacity can be increased many times by coupling of several lower parts of OMNICOLL

Power supply: 9 V/12 W (mini-power supply 230 V/50–60 Hz, CE)
Operating temperature: 0–40 °C
Relative humidity: 0–90 %
Weight: 6.5 kg
Dimensions: 34 W × 30 H × 49 D cm
Fuse: 1.5 A (on print board)

Inputs and outputs:

Contact No.:

- 1 - Input remote control 0 V (blue)
- 2 - Impulses of the stepping motor of the Preciflow pump (0 and 12 V) (green)
- 3 - Input voltage 0 V (white)
- 4 - Input voltage + 9 V (red)
- 5 - Output remote control for the pump (+ 9–12 V) (brown)
- 6 - Input remote control (+ 3–12 V or 12–30 V with 3300 ohm resistor) (yellow)

8. ACCESSORIES (optional)

- Connection box for remote control of the OMNICOLL and the PRECIFLOW pump (cat. no. 6911)
- Set for coupling of lower parts for increase of the collector capacity (cat. no. 6912)
- PRECIFLOW pump (cat. no.: 4801)

9. GUARANTEE

LAMBDA gives a two-year guarantee for work and components when the instrument has been used according to our operating instructions:

Conditions of guarantee:

- The instrument must be returned with a complete description of the defect or problem.
- The customer pays the cost of sending the instrument to our service office.
- Damage or loss during transport of items will not be compensated by LAMBDA.
- Failure to fulfil these requirements will disqualify the customer from compensation.

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