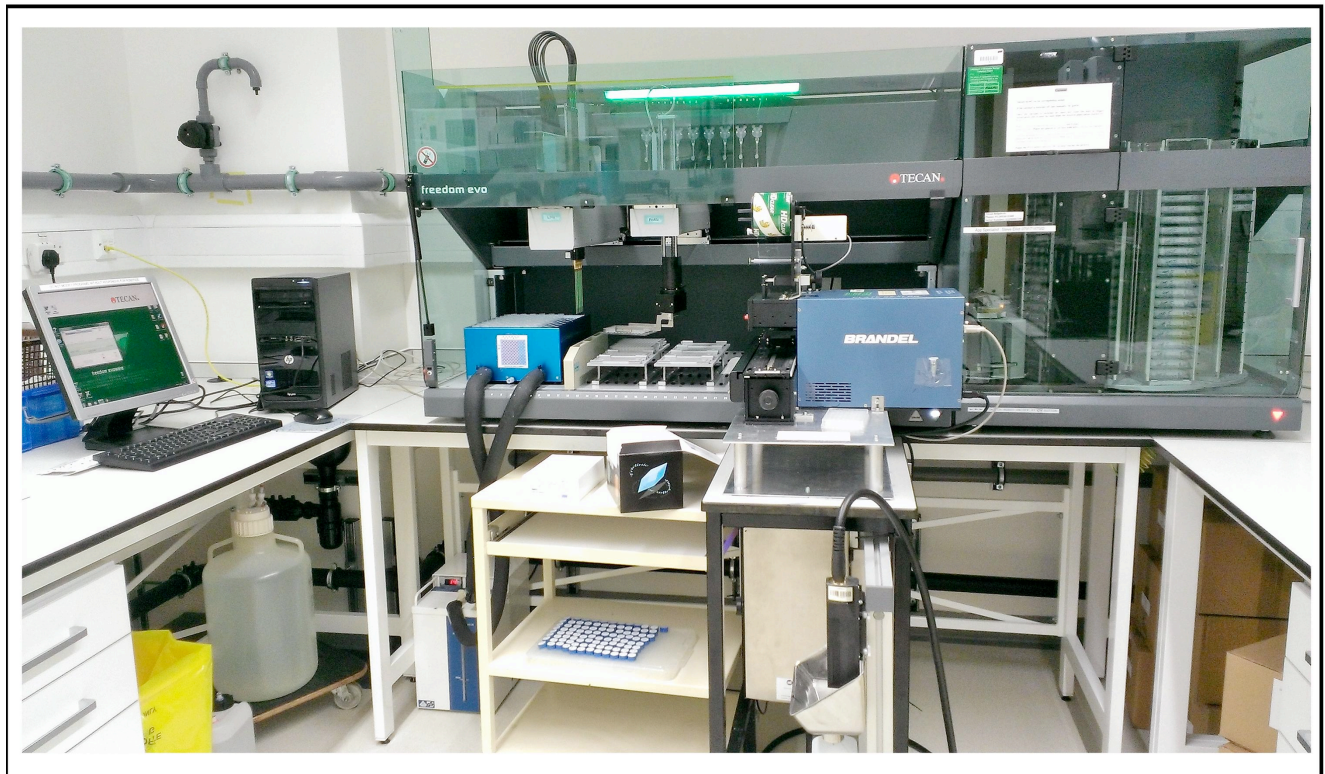
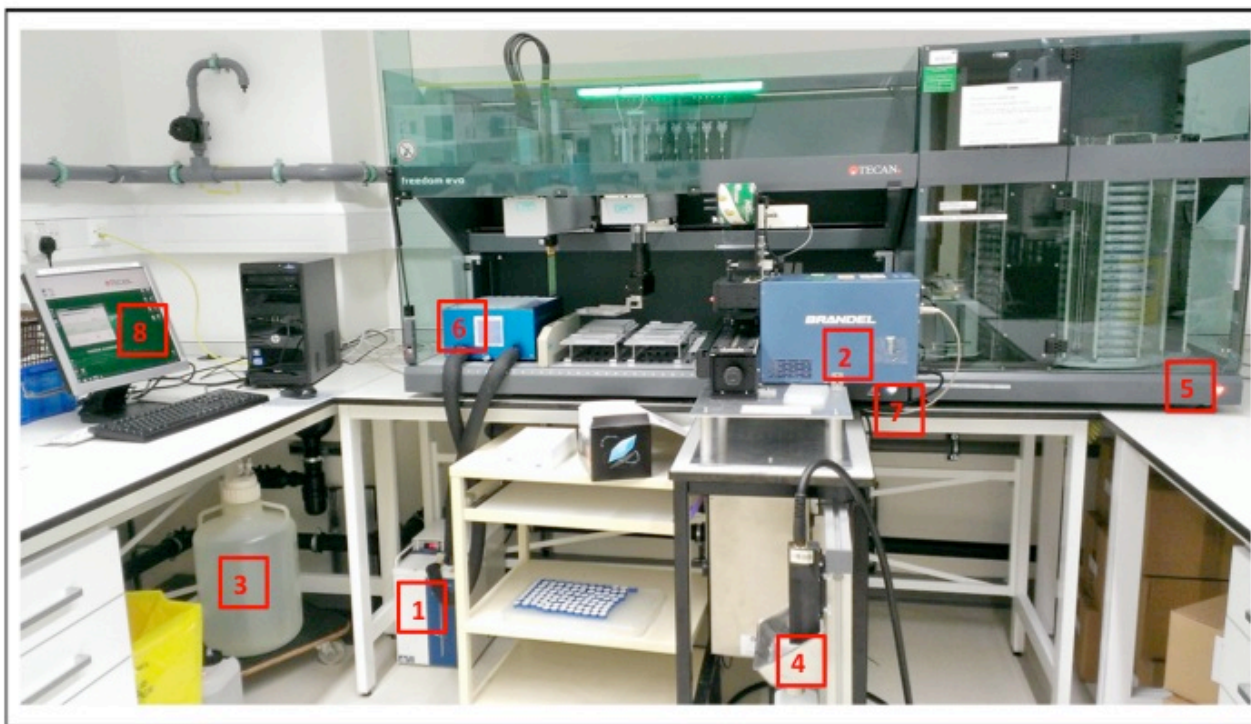


# Tecan EVO manual



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Revised Protocol  
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This document contains 13 pages.



**Figure 1. Set up for automated production of LMB screens (room 1S205).**

1. Chiller unit (set at 14°C).
2. Brandel sealer.
3. Bottle filled with DI water.
4. Inkjet Printer head (on the wash station).
5. Carousel for plate storage.
6. Tube-carrier (chilled at 14°C).
7. Tecan Freedom Evo power button

To date, the system is run with Windows 7 professional:

Service pack 1

System model: HP Pro 3400 Series MT

System type: 64-bit operating system

And Freedom EVOware v. 2.4.12.0:

- a- EVOware Plus (allowing simultaneous movement of the main devices with a scheduler)
- b- EVOware standard (for programming or runs without scheduler)

## **Protocol for making 72 LMB screens (main protocol)**

The entire set-up is shown in Figure 1 (p. 2). The step-by-step instruction is given below to make 72 LMB screens in 96-well MRC plates.

**Caution: Please wear gloves.**

1. Turn on the two black switches of the chiller unit. The unit is located underneath the bench. Wait until the temperature reaches 14°C before placing tubes in the chilled tube-carrier.

Note: The temperature is set by pressing together the “set” and the “increase/decrease” buttons on the chiller head.

2. Prepare the Sealer. Please make sure that you have:

a- enough tape for a run.

b- checked the alignment of the tape.

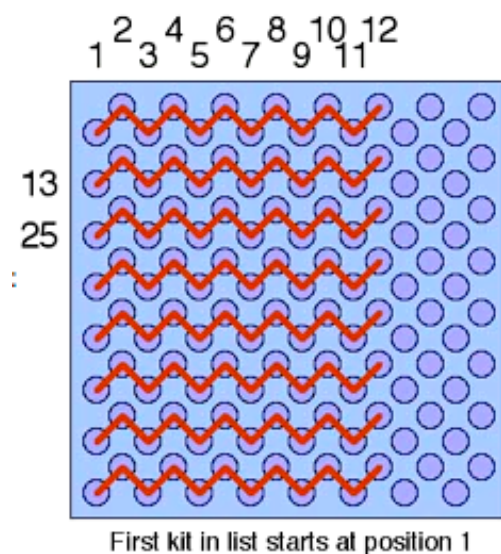
c- tested few plates (see p.13 for more details about the sealer).

3. Discard any left over water in the big white bottle from the previous experiment. Rinse with 20% Ethanol and then with DI. Top-up the bottle with DI. Then attach the 2 plugs on the bottle top (**red and blue labels**).

4. Prepare the printer (follow the instructions on page 12).

5. Place 72 LMB plates into the carousel (plate type: MRC 96T-UVP SWISSCI). See instructions on the front door of the carousel or on page 7.

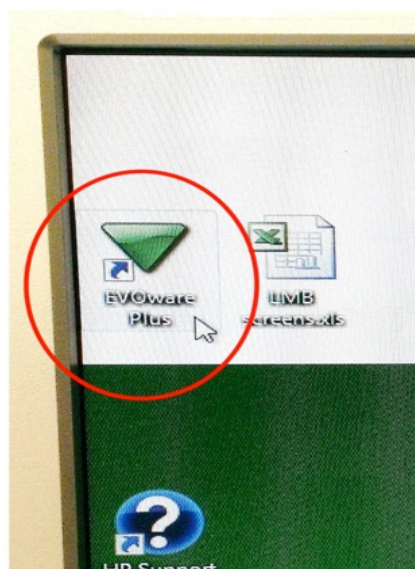
6. Shake the required screening kits gently upside-down for one minute and load the 96 tubes into the blue tube-carrier according to the sequence shown on the carrier and Figure 2 (p. 4). **If you have any doubt, please call a responsive for robotic (see p. 14)!**



**Figure 2: Loading order for 96 tubes into the tube-carrier.**

7. Switch on the carousel (no switch, see wall-socket) and the EVO (Press a couple of seconds the green switch "ON" located on the front of the deck, hidden behind the sealer).

8. Open the "EVOware plus" software.



Note: The instrument will take few minutes to initialize.



9. Tick "Run maintenance" and select "Start\_up\_flush". Then click "start your selection". Click "Run" >>> EVO proceeds with thorough flush. Click "Cancel" once the flushing is completed.

10. Tick "Run an existing process", click "Start your selection" and select "MRC\_kit\_dispensing".

**Note: "MRC\_kit\_dispensing\_THICK" is for viscous screens like Pi screens (i.e. LMB 18 and LMB 19).**

11. Click the play button (green triangle).

12. On the next tab, enter "**Instances**" = **18**.

Note: "Instances" corresponds to the number of plates to be prepared divided by 4.

13. Click "Run" >>> The protocol will start with the plate at the top of plate-carrier 1 in the carousel.

**Inspect the preparation of the first 4 plates to make sure that everything is running smoothly. In case of any doubts, please call a responsive for robotic (see p.14).**

Note: To start the protocol at different locations see the recovery notes page 8.

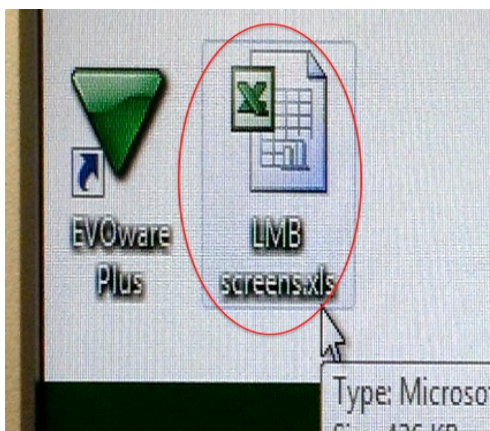
**In case of little trouble (e.g. leaking), turn off everything. In case of major trouble (e.g. the floor is flooded!), leave the room and call 4444.**

**Once the process is over:**

1. Click "Cancel". Detach the plugs from DI water bottle and connect to the smaller bottle filled with 20% Ethanol solution.
2. Proceed with the "Start\_up\_flush" again (repeat step 9 "Run maintenance", see p. 5).
3. Switch off the software ("Exit") and all devices except the printer.
4. Remove the empty tubes (using gloves) from the tube-carrier and dispose them off into the yellow bags.

Note: if the protocol was interrupted and more than 1 ml was left in tubes, you should first discard the remaining screen solutions in the (non-chloronated) solvent bin.

5. **Please don't forget to fill in the "LMB\_screen.xls" spreadsheet with the requested details about plate making (the file is located on the desktop).**



## **Carousel**

1. Switch on/off the corresponding socket (located on the your right when facing the robot).

If the carousel is switched off you can turn the carousel manually. Be gentle!

Once the carousel is switched on: open and close the door to trigger initialisation and re-open the door when the required plate-carrier reaches the front.

2. In order to insert a total of 72 plates in the carousel, fill the first 3 carriers (each carrier can accommodate 22 plates), and place 6 plates starting from the top of the 4th carrier.

**Plates are placed in carriers with notch edges facing outwards.**

The first position of a plate-carrier is the top position. During the process, the plates are taken from top to bottom of a carrier (the protocol then continues with the following carrier).

**Note: Pause the EVO before opening the carousel during the process.**

Opening the door of the carousel during the process triggers a bug in the plate management system.

## Protocol recovery

Most of the problems are due to either the sealer, the reluctant start of the software or the operator placing a plate the wrong-way-round in the carrier (causing the tips to crash onto the plate later).

Click on the option "Recover" (icon representing a red lightning) and "Clear locations", then select:

a- "Brandel" if a plate is still on the stage of the sealer >>> remove the plate and sort out sealer before continuing with the recovery process!

b- "MP-4Pos" if the trouble is on the deck of the EVO >>> remove all plates from the deck before continuing with the recovery process!

Then click "Clear selected location" and "Continue" >>> EVO initialises and restarts.

**The recovery process is not suitable for any situation. An alternative is to clear the EVO and sealer stages, shuffle the empty plates left in the carousel in order to restart from position 1 (carrier 1), and restart "MRC\_kit\_dispensing".**

**Enter the correct number "Instances" (number of plates left / 4)!**



## **Troubleshooting: “broken tip” error**

You should ideally consult a responsive for robotics (p.13) when you encounter this kind of trouble. However, if you have to deal with the error “The tip x is broken in the configure of the LiHa”, please follow the steps below:

**Step 1.** Open the file evoware.inf

C:\\Program data\\Tecan\\EVOware\\database

**Step 2.** Check the following parameters for [LiHa Machine]

Tipcount=8

Instrumentwidth=200

ZTravel=0

BrokenTips=0 ; 0 ; 0 ; 0 ; 0 ; 0 ; 0 ; 0

LowVolume=0 ; 0 ; 0 ; 0 ; 0 ; 0 ; 0 ; 0

**Step 3.** Open EVO Tools, open Validate Configuration Tool.

Play the executable file (.exe) in order to validate the checksum of the file.

**Step 4. Enter the required log-in details:**

**Enter user name: Admin**

**Password: Admin2013**

**Step 5.** Initialise the system and perform a flush.

Note: When this kind of problems persist and no responsive for robotics is around, contact Helpdesk T-UK:

[Helpdesk-uk@tecan.com](mailto:Helpdesk-uk@tecan.com)

[Rachel.varney@tecan.com](mailto:Rachel.varney@tecan.com)

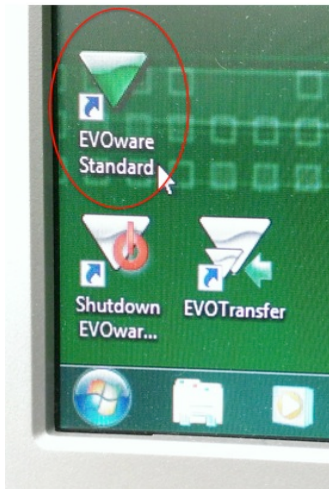
## Alternative protocols

Alternate protocols are available to users according to other needs:

**With EVOware plus:** "MRC\_kit\_dispensing\_no\_printer".

This protocol can be used to slightly shorten the main protocol in case the printer is broken (i.e. manual labelling of the plates).

**With EVOware standard (alternative software for the EVO):**



- "MRC\_KIT\_DISPENSE\_MANUAL\_SEAL" (when the sealer is broken).

- "MRC\_KIT\_DISPENSE\_ONLY" (for manual printing and sealing!).

- "MRC\_KIT\_DISPENSE\_FROM\_BLOCK\_4\_PLATES".

- "MRC\_KIT\_DISPENSE\_FROM\_BLOCK\_1\_TO\_4\_PLATES".

Note: For saving a screen, proceed with one plate at a time (the spare volume during a multi-dispense is 280  $\mu$ l!).

**Please see a responsive for robotics (p.13) before using these protocols for the first time. Also, make sure there is no plan of making plates the same day.**

## **Backup**

### **Complete backup (i.e. produce automatically an “etz” file):**

Go to: All programs, Tecan, Evoware, Tools.  
Press "Evotransfer" (Tick "Complete").

The file is in *C:Program data/Tecan/Evoware/xxxxxxDATExxx.etz*

### **Minimum Backup (Configuration package):**

Go to: All programs, Tecan, Evoware, Configuration.  
Press "Backup"

The files are in: C:Program data/Tecan/Evoware/Backup/

**Think about eventual backup of worklists and driver (sealer).**

## Printer (Markem Imaje Inkjet-Printer)

The display shows the former label “LMBXX DATE”.

- 1- Place the cursor after the letter B (of “LMB”) using arrows.
- 2- Add the 2 new numbers corresponding to the new screen (e.g. “03”).
- 3- Press “Del” twice to remove the previous screen numbers.
- 4- Press “Esc”, then select “save” and press “Enter”
- 5- Press “Esc”, then select “load printer” and press “Enter”
- 6- Press “Esc” (“Close” is already selected) then “Enter”

The display now shows various icons, just press “Enter” again >>> The display now shows the new label with the (refreshed) date.

**Troubleshooting:** A red light blipping means something is wrong (usually a cartridge going empty). Please call a Responsive for robotics (see p.14). If the problem cannot be solved, please stop the printer (press “on/off” and “accept” closing down process) and label the plates manually.



## **Sealer (Brandel)**

The switch is on the back of the sealer.

Check there is enough tape on the CrystalClear roll: This is the case when a bit of the roll is still hiding the white stripe behind it (look right along the axis of the roll).

Note: You cannot see the white stripe if the roll still has plenty of seal length.

Test plate sealing 4-5 times manually (use spare plate and trigger sealing with the button “Manual start”, on the front panel).

If necessary, change the alignment of the seal slightly ( $1/4$  or  $1/2$  turn) with the black thumb wheel (at the back of the roll).

Test plate sealing 4-5 times manually again to see the effect on the alignment.

Once the sealing looks good after 4-5 plates, the sealer is ready to operate with the EVO. There are no “remote mode” or other settings to worry about.

### **Program parameters for Brandel sealer on the Tecan Evo**

The following parameters should be set on the Brandel sealer alignment unit:

1. Rapid Belt Speed: 80
2. Sealing Belt Speed: 40
3. Pressure Offset: 0
4. Start Seal Offset: 100 (may vary)
5. End Seal Offset: 25 (may vary)
6. Plate Eject Distance: 1000
7. Final Elevator Position: 0
8. Knife Jam Index: 200