**Imaging Center**
**Biomedical Core Facility**
Ruth & Bruce Rappaport Faculty of Medicine
Technion - Israel Institute of Technology

מרכז דימות
מרכז תשתיות ביורפואי
הפקולטה לרפואה ע"ש רות וברוך רפפורט
הטכניון - מכון טכנולוגי לישראל

Instruction LSM900 short 2020-11-03.docx    2020-11-02

# LSM 900 quick operation manual

## Switch on

- In the main Electronic rack turn on the following switches **1 → 2 , 3 turn the lasers model key**
- Switch on main cable **(4).**
- Switch on the Joystick controller and press the green button on its main panel **(5).**
- Turn on the computer and log in **(6)**
  User name: **multilabs**
  Password: **123456**

| Position | Objective lens | Magni-fication | NA | coverslip | Working distance | Immersion | Parfocal length |
|----------|----------------|----------------|------|-----------|------------------|----------------|-----------------|
| 1 | W Plan Apochromat | x20 | 1.0 | 0 | 1.8 mm | Water dipping | 75 mm |
| 2 | W Plan Apochromat | X10 | 0.5 | 0 | 3.7 mm | Water dipping | 75mm |
| 3 | EC Plan Neofluar | X5 | 0.16 | 0.17mm | 18.5mm | Without | 45mm |
| 4 | W Plan Apochromat | x40 | 1.0 | 0 | 2.5 mm | Water dipping | 45 mm |

## Software and acquisition

- Log into **BookitLab** and activate your reservation to start **Zen blue 3.0**
- To acquire images click **ZEN System**
- **Sample mounting and viewing**
- On the microscope's right side change the shutter to Eye
  Set the filter turret position to DIC and the condenser below the stage to II or III \BF according to the objective lens (see objective lens info on touchpad).
  In the software in **Locate** tab choose **Switch to >Transmission**
  Set up Kohler illumination.
- **Reflected light (fluorescence)**
  Open fluorescence shutter
  Set the filter turret to the "Dapi" reflector position
  And choose the desirable LED through the touchpad or in **Locate** window > **Colibri 5/7**
- **Image Acquisition**
  On the microscope's right side choose LSM
  In Zen, **Acquisition** tab:
  Load a saved configuration from the **Experiment Manager** or open an image and click **Reuse** or open new setup with the **smart setup** wizard.
  Select **Show all tools** and open the following tabs:
  Light Path, Channels, Acquisition Mode-
      With one track checked, in fast settings (512x512, speed 8, no averaging) click **Continuous** to focus.
      Optimize each channel separately by checking **Range Indicator** and setting pinhole (1 Airy unit) detector gain, laser power, offset, digital gain.

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Check all channels and set acquisition parameters: zoom, pixel number, scanning speed, averaging. After setting zoom press "confocal" so that the system will calculate number of pixels according to the optimal Nyquist number for the given objective. If scanning time is too high you can consider saving time by:

- Lowering pixel dwell time.
- Setting scanning direction to meander instead of comb
- Decreasing number of averaging iterations
- Using frame instead of line mode

Press **Snap** to acquire image

For multidimensional images check the desired dimension (Z, time,) and after setting the relevant parameters click **Start Experiment**

==See instruction booklet for more details==

- **Saving images**
  Save image as CZI filetype in **D:\ USERS DATA\PI name\user name\mm-yyyy**

- **Data backup**
  Data are copied automatically every night, if computer is on and connected to the internet.
  **PLEASE do not use any type of USB flash drive to retrieve your data.**
  **There are computers with active scanning anti-virus software at the Computerized Analysis Room, connected to the servers.**

## Ending session

Before you finish please make sure the next user is coming.
If yes:
- Close the ZEN software
- **Log off your reservation at BookItLab**
- clean water dipping objectives by dipping in DDW (e.g., in 35mm dish) and gently wipe with 85%petroleum-Ether with 15% Isopropanol
- Leave nosepiece at 5x objective lens
- Center the stage
- Leave surfaces clean

If no user is coming in the next two hours, also, **in this order**:
- Close the ZEN software
- Log off your reservation in BookItLab
- Switch off the joystick controller **(5)**
- Switch off **(4)**
- Turn off the laser model key (**3**)
- Switch off **2→ 1** in the switch box
- Cover microscope
- Turn off air condition
  Do not turn off computer unless you are the last user before the weekend.
  **Please do not use any type of USB drive to copy your data.**

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p. 2