

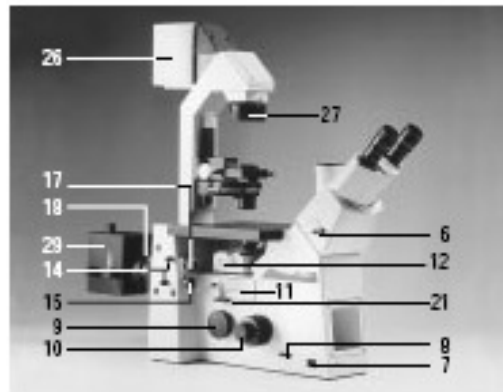
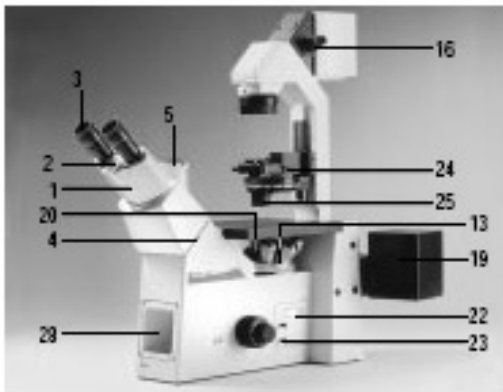
LEICA DMIRE2 MICROSCOPE MANUAL



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ANATOMY OF THE LEICA DMIRE2 INVERTED MICROSCOPE



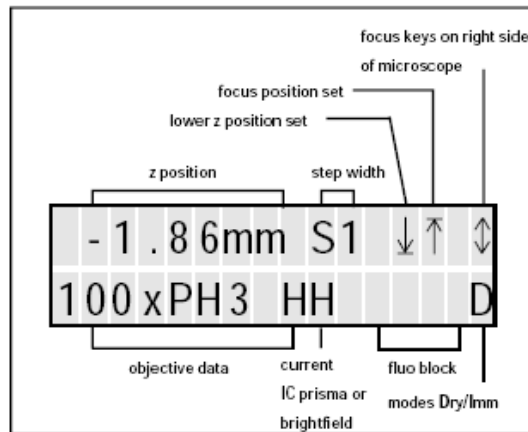
- | | |
|---|---------------------------------------|
| 1. Binocular phototube | 16. Filters |
| 2. Eyepiece adapter tube | 17. Aperture diaphragm adjustment |
| 3. Eyepieces | 18. Lamp housing mount |
| 4. Tube mount | 19. Lamp housing |
| 5. Tube port for photo/TV connect | 20. Stage plate |
| 6. Beam splitter | 21. Analyser |
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| 8. Brightness adjustment | 23. Switch rod for lateral TV port |
| 9. Lateral TV port | 24. Transmitted light illumination |
| 10. Coaxial coarse & fine focus | 25. Condenser |
| 11. Fluorescence module | 26. Transmitted light lamp housing |
| 12. ICT prism adjustment | 27. Transmitted light field diaphragm |
| 13. Sextuple objective nosepiece | 28. SLR port |
| 14. Centring buttons for incident light | 29. Second lamp housing |
| 15. Field diaphragm adjustment | |

INITIALISATION PROCEDURE

1. Ensure that both the DMIRE2 control box (CTRMIC) and the mercury arc lamp power supply have been switched on (shown below). After switching on the CTR6000 control box the microscope will take a few seconds to initialize



2. During microscope initialisation the stage position will be reset and recently used settings will be recalled. After initialisation the microscope status menu will appear on the L.C.D. display screen (shown below).



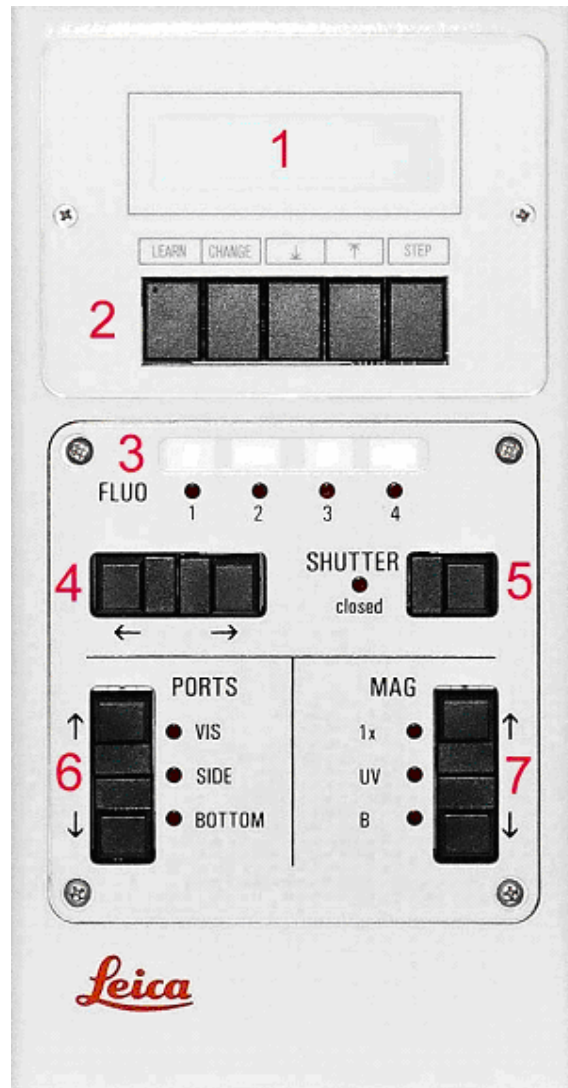
LEFT SIDE OF MICROSCOPE (DETAILED VIEW)



- A Halogen lamp intensity adjustment wheel
- B Coaxial coarse & fine focus
- * Beam splitter (not functional)

- C Epifluorescence illumination diaphragm (controls brightness of illumination)
- D Epifluorescence field diaphragm (controls area of illumination)
- E Objective prism turret
- F Filter cube turret

DMIRE2 FRONT PANEL





1. LCD DISPLAY OF MICROSCOPE STATUS (ALPHA-NUMERIC).

Displays the following information:

- Position of objective lens relative to upper limit (e.g. -145 μ m)
- Step size setting for focussing (S0-3)
- Upper & lower limits for stage position ($\uparrow\downarrow$)
- Current objective settings (5x, 10x, 25x, 40x, 63x)
- Current filter cube. For brightfield (BF) or fluorescence optics (A, N21, I3; below)
- Dry/ immersion mode (D/I)

2. LCD DISPLAY CONTROL BUTTONS

| | |
|---|---|
| LEARN | Puts microscope in learn mode (DO NOT USE). If you press this button by accident, you will see the word “EXIT” flashing. Press the LEARN button again to exit the learn mode. |
| CHANGE | Toggles between voltage readout and objective readout. |
|  | Set lower limit of travel for objective (DO NOT USE) |
|  | Set upper limit of travel for objective (DO NOT USE) |
| STEP | Adjust step size for coarseness of focussing. Four settings are available (S0 , fine; S1 , medium fine; S2 , medium coarse & S3 , coarse). |

3. L.E.D. PANEL SHOWING ACTIVE FLUORESCENCE FILTER CUBE

| FILTER | COLOUR OF LIGHT | FLUOROCHROMES |
|-------------------------|-------------------------|-----------------------------|
| (1) | ----- | ----- |
| (2) DAPI 31000UZ | UV light (BP350/50) | DAPI |
| (3) GFP | Blue light (BP470/40) | FITC, Alexa 488 |
| (4) mRFP | Green light (BP 584/50) | TRITC, Texas Red, Alexa 546 |

4. FILTER CUBE SELECTION SWITCH (TWO-WAY)

Pressing the left button will rotate the motorised filter cube turret left, whereas the right switch will rotate the filter cube turret right. The active filter cube will be illuminated (red) in the horizontal LED panel (see above).

5. MERCURY LAMP SHUTTER SWITCH (ONE WAY)

Red LED is on when shutter is closed

6. PORT SELECTION SWITCH (TWO WAY)

| | |
|---------------|---------------------------------------|
| VIS | Light directed to binocular eyepieces |
| SIDE | Light directed to scanner |
| BOTTOM | Disabled |

The active port will be illuminated (**red**) in the vertical LED panel.



CONTRAST METHODS

BRIGHTFIELD

Use the wheel on the front left side of the microscope stand near the base to turn on and adjust the halogen lamp brightness (shown below).



The lamp voltage will be displayed automatically on the microscope control panel when the intensity is adjusted. To switch off transmitted light illumination adjust lamp intensity to 2.5V then continue rotating the wheel beyond this point. 0V on control panel display indicates illumination is off. To switch on, rotate the wheel in the opposite direction.

FLUORESCENCE

Ensure transmitted light has been switched off (0V on LCD display panel) and the mercury lamp is switched on. Cycle through fluorescent cubes by pressing the fluorescent cube selection switches (*).



Press the shutter switch to close the mercury lamp shutter (red light is on when shutter is closed).

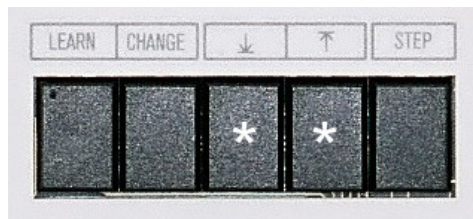
MAGNIFICATION

The following objective lenses are fitted on the DMIRE2:

| TUR Ret pos | Objective type | Mag | N.A. | Immersion | Cover-glass | DIC prisms (upper S1) | DIC prisms (upper S23) | DIC prisms (lower) | Pixel size (1xc-mount) (um/pixl) |
|-------------|----------------|------|-----------|-----------|---------------|-----------------------|------------------------|--------------------|----------------------------------|
| 1 | N PLAN | 2,5x | 0.07 | DRY | With/without | - | K1 | C | 2.58 |
| 2 | HC PL FLUOTAR | 10x | 0.30 | DRY | With /without | Not avail. (K11) | K3 | A | 0.64 |
| 3 | HC PL APO | 20x | 0.70 | DRY | 0.17 #1.5 | K3 | K3 | D | |
| 4 | HCX PL APO | 40x | 0.85 | DRY | 0,17 #1.5 | K3 | K7 | A | 0.16 |
| 5 | HCX PL APO CS | 63x | 1.30 | GLYC | 0.17 #1.5 | K7 | K7 | D | |
| 6 | HCX PL APO | 100x | 1.40-0.70 | OIL | 0,17 # 1.5 | K7 | Not avail. (K10) | D | |
| | HCX APO * | 40x | 0.80 | WATER | With /without | - | - | - | - |

CHANGING OBJECTIVE

To reduce the chance of immersion medium getting on to a dry objective, the microscope will not allow you to move freely between oil immersion and dry lens mode. To switch from one mode to another, simultaneously press the upper limit and lower limit buttons on the microscope control panel (asterisks).



The words “**CHANGE OBJECTIVE**” will flash on the LCD display. Now you can change the objective using the objective turret control buttons located behind the coaxial coarse and fine focus controls on the **LEFT** side of the microscope (upper button increases the magnification; lower button decreases the magnification)

FOCUSSING

1. Coaxial focus knobs

Coaxial focussing knobs are located on the left and right side of the microscope. Turning the knob so that your thumb moves away from you focuses down. Turning the knob so that your thumb moves toward you focuses up.

2. Focussing buttons

In addition to using the conventional coaxial focussing mechanism, it is possible to use the focussing buttons located on the right side of the microscope (behind coaxial focus control) to focus your specimen. The upper key will focus up whereas the lower key will focus down.

If an upper limit is set for the objective (See DMIRE2 Front Panel – LCD Display Control Buttons) then the objective will not move above that limit when using the focussing buttons. The only way to focus above the upper limit is to use the focusing knobs.*

The focussing mechanism is electronic and has five settings:

| Setting | Step Size |
|---------|---------------|
| S0 | Fine |
| S1 | Medium fine |
| S2 | Medium coarse |
| S3 | Coarse |

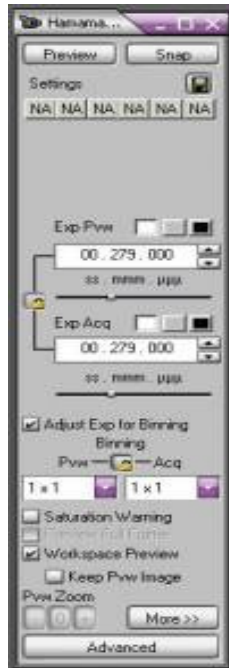
* This is a safety feature to prevent accidental damage of the objective.

SCANNING MODE

1. If you didn't already does it start the Image-Pro Plus software available both as a Desktop shortcut and the Windows start menu.
2. On Image-Pro Plus press the small camera in the toolbar for acquisition.



3. On the Acquire dialog:



- Press “Preview” to preview your image.
 - Adjust the exposure time with the small bars in the center of the window for optimal contrast.
 - When you're happy with your image press “Snap” to get the image.
4. Save the image to your folder on D:\users.