

# Phase Contrast Accessory LS620/LS520/LS420

## User Guide for Phase Contrast and Brightfield

Uses Olympus IPC objectives and pre-center phase contrast slider



LS620 with Phase Contrast Accessory  
LS620/LS520/LS420 (and Manual XY Stage)

**IMPORTANT:** This Guide describes how to set up and use the Phase Contrast Accessory LS620/LS520/LS420 with Etaluma's manual Lumascopes LS620, LS600, LS520, and LS420.

All steps are described for LS620 but apply also to the LS600, LS520, and LS420.

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In this document, **Phase Contrast Accessory LS620/LS520/LS420** will be referred to as **Phase Accessory**.

## I. Setup of Phase Accessory

### A. Items included with Phase Accessory

- Phase/brightfield condenser with green LED for narrowed illumination wavelength range
- Pre-center phase contrast slider (Olympus CKX3-SLP) for use with Olympus IPC phase objectives
- Power/phase communication cable LS620/LS520/LS420 (attached to the Phase Accessory)
- Phase bracket that attaches to the rear tab of the LS620 deck (already attached when Phase Accessory is ordered with the LS620; if the Phase Accessory is ordered separately, the phase bracket will be included and must be attached to the rear deck tab before the Phase Accessory can be mounted).
- 3 mm hex wrench, included when Phase Accessory is ordered by itself (without a Lumascope)

### B. Phase contrast objectives (Olympus IPC 4x, 10x, 20x, and 40x) are sold separately

(see <http://www.etaluma.com/products/fluorescent-microscope-objective-lenses/>)

### C. Mounting the Phase Accessory on the LS620

1. Ensure the LS620 is positioned on a lab bench, counter, or other stable, flat surface. Remove the Phase Accessory from its shipping box (save box and packing materials).
2. If the Phase Accessory was ordered at the same time as the LS620, the phase bracket will already be attached to the rear tab of the LS620 deck. If the Phase Accessory was ordered separately, the phase bracket will be sent with the Phase Accessory and must be attached. Position the phase bracket under the deck tab (cup side up) using the 2 alignment pins that insert into holes on the underside of the deck tab. Screw in the 4 provided screws with a 3 mm hex wrench.
3. To mount the Phase Accessory, place the flat base plate at the bottom of the phase condenser arm into the phase bracket attached to the LS620 deck and tighten using the large thumb screw on the underside of the phase bracket.
4. Connect the free end of the power/phase communication cable to the round port on the left side on the LS620 back panel labeled **External Lamp Power Out**; this allows the Phase Accessory to be controlled by Lumaview 720/600-Series (Lumaview LS520/LS420 for the LS520 and LS420).



Fig 1. Phase Accessory with base plate that attaches to LS620 phase bracket and cable that plugs into LS20 back; also slider with ring.



Fig. 2. Photo of Lumascope 620 back panel.

## II. Using the Phase Accessory

### A. Phase Contrast

1. Install the desired Olympus **IPC phase objective** in the LS620.
2. Because the slider phase ring is pre-centered, no alignment is necessary. Insert the **slider** into the condenser slot so that the round opening containing the phase ring is centered in the light path. Detents on both sides of each round opening can be felt and heard as the slider clicks into position.
3. Open the **phase condenser aperture** (small lever on condenser front above slider) by moving it fully to the left.
4. In Lumaview LV 720/600-Series (see **LS620/LS600 Startup Guide** downloadable at <http://www.etaluma.com/products/downloads/>), click on the **Manual Image** icon in the Left Toolbar (top icon) to open its dialog box. Check **Brightfield**. Live Image should be bright. Set **Gain** and **Illumination** to the lowest levels. Lower **Exposure** as needed to the desired brightness (may vary with sample and magnification). If more brightness is needed, increase **Illumination**.
5. Use **Focus** knob to focus on sample. See **LS620/LS600 Startup Guide** for instructions on snapping images.

### B. Brightfield

1. The Phase Accessory is recommended for optimal brightfield due to its collimated light and ability to be controlled by Lumaview. It should also be used when imaging in a dark environment such as an incubator. Brightfield images will be in gray scale due to the LS620 CMOS monochromatic camera.
2. Install the desired **objective** in the LS620.
3. Remove the **slider** from the phase condenser or slide it so that a round opening with no phase ring is centered in the light path. Detents on both sides of each round opening can be felt and heard as the slider clicks into position.
4. Close the **phase condenser aperture** (small lever on condenser front above slider) to a low level by moving it to the right.
5. In Lumaview LV 720/600-Series (see **LS620/LS600 Startup Guide** downloadable at <http://www.etaluma.com/products/downloads/>), click on the **Manual Image** icon in the Left Toolbar (top icon) to open its dialog box. Check **Brightfield**. Live Image will be very bright. Set **Gain** and **Illumination** to the lowest levels. Lower **Exposure** as needed to the desired brightness (may vary with sample and magnification). If more brightness is needed, increase **Illumination**. If too bright, lower **Exposure** and/or close the **phase condenser aperture** further.

6. Use **Focus** knob to focus on sample. See **LS620/LS600 Startup Guide** for instructions on snapping images.