Leica DFC450 & DFC450 C

Digital Microscope Cameras for Analysis and Documentation
FAST AND EASY ANALYSIS AND DOCUMENTATION

Excellent picture quality is essential for precise image analysis, documentation, and reporting. The Leica DFC450 and DFC450 C digital microscope cameras provide detailed high-resolution pictures with outstanding accuracy and brilliant color reproduction. The exceptional picture quality and ease of use, make these cameras the perfect choice for all analysis and documentation needs.

**Excellent picture quality**

These cameras digitize the image information from the CCD chip directly in the camera head, which leads to excellent noise suppression and perfect acquisition of the unprocessed CCD signal. Digitization takes place with a resolution of 12 bits and Leica Microsystems’ true color calibration takes care of the natural color reproduction, which produces excellent picture quality.

**Easy to use**

Leica Microsystems’ digital technology simplifies all operations, from image capture through image archiving, and allows digital retouching and analysis. In addition, intelligent camera options allow users to conveniently set up the camera parameters. Leica Microsystems’ cameras have sophisticated white balance and advanced illumination control and are ready to produce perfect images in seconds.

**Leica dFC450 C for low light applications**

The Leica DFC450 C allows crisp, sharp images to be created with minimum noise in low light situations. Interfering thermal noise is effectively reduced with active cooling by means of a Peltier cooling device. With the innovative, fast readout procedure, even high-resolution low light recording is now possible.

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1. Quality control: cross section of a screw head
2. Failure analysis: inspection of a metallic sample
3. Analysis of particles (with LAS Cleanliness Expert)
4. Semiconductor: Wafer Inspection
5. Ant from Leica Science Lab (see: www.leica-microsystems.com/science-lab)
Leica DM8000 M with Leica DFC450 digital microscope camera and PC system with Leica LAS software
High-performance Leica LAS software

Leica Application Suite (LAS) integrates Leica microscopes, macrosopes, digital cameras, and software into one common environment to provide an easy-to-use and consistent imaging solution with unrivalled performance. The versatility of LAS makes it suitable for a diverse range of life science and industrial applications such as materials quality control, pathology, pharmaceutical testing, and many more. LAS accelerates the visualization, enhancement, measurement, documentation, and archiving of digital images. This powerful software solution can control all functions of Leica compound microscopes, stereomicroscopes, and macrosopes. By providing all the necessary tools for the installed applications to communicate with each other and with peripheral devices connected to the computer, LAS simplifies routine and research analysis.

LEICA DFC450 & LEICA DFC450 C:

- Fast (18 fps) and large (1260 × 960 pixel) live image for fast focusing and positioning of the specimen.
- High quality 5-megapixel CCD for brilliant captured images.
- Wide range of exposure times to match all types of illuminations and contrast techniques.
- Freely defined region of interest for fastest live image update and precise focus position (ZoomFocus).
- Standard hardware interface for easy and quick connection to all microscopes (C-mount, FireWire-B).
- Powerful software and intuitive user interface for convenient image capture and processing functions.
- Complete camera kit with camera head, Firewire cables and Firewire PCexpress board for easy installation to PC.

LEICA DFC450 C ONLY:

- Active peltier cooling for high dynamic range and minimum noise level in low light situations.
- Additional binning mode for increased brightness and faster frame rate in low light situations.
## Technical Details

### Digital Camera

<table>
<thead>
<tr>
<th>Parameter</th>
<th>LEICA DFC450 / LEICA DFC450 C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Camera type</strong></td>
<td>Digital camera for microscopy with control software</td>
</tr>
<tr>
<td><strong>Sensor</strong></td>
<td>Interline transfer frame readout CCD – ICX282</td>
</tr>
<tr>
<td><strong>Sensor size</strong></td>
<td>8.7 × 6.5 mm, diagonal 11 mm (type 2/3&quot;)</td>
</tr>
<tr>
<td><strong>Color filter</strong></td>
<td>RGB Bayer mosaic</td>
</tr>
<tr>
<td><strong>Protective color filter</strong></td>
<td>Removable dust protection, UV/IR filter</td>
</tr>
<tr>
<td><strong>Shutter control</strong></td>
<td>Electronic global shutter / 2 frames interlaced readout</td>
</tr>
<tr>
<td><strong>Number of pixels / pixel size</strong></td>
<td>5 megapixel, 2560 × 1920 / 3.4 µm × 3.4 µm</td>
</tr>
<tr>
<td><strong>Max. scalable resolution (only PC)</strong></td>
<td>7 Megapixel, 3072 × 2304</td>
</tr>
<tr>
<td><strong>Color depth</strong></td>
<td>36 bit</td>
</tr>
<tr>
<td><strong>A/D converter</strong></td>
<td>12 bit</td>
</tr>
<tr>
<td><strong>Dynamic range</strong></td>
<td>&gt; 59 dB / &gt; 900:1 dB</td>
</tr>
<tr>
<td><strong>Readout noise</strong></td>
<td>σ &lt; 4.5 LSB (12 Bit) typical</td>
</tr>
<tr>
<td><strong>Exposure time</strong></td>
<td>1 msec – 60 sec / 1 msec – 600 sec</td>
</tr>
<tr>
<td><strong>Gain control</strong></td>
<td>1× – 10×</td>
</tr>
<tr>
<td><strong>Cooling</strong></td>
<td>not available / Δ –20°C compared to ambient</td>
</tr>
<tr>
<td><strong>Region of interest</strong></td>
<td>Freely adjustable in 2 pixels steps from 2 × 2 up to full resolution</td>
</tr>
</tbody>
</table>

### Image Formats

<table>
<thead>
<tr>
<th>Mode</th>
<th>Pixels</th>
<th>Speed FPS, FAST/HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Frame</td>
<td>2560 × 1920</td>
<td>9 fps / 4.5 fps</td>
</tr>
<tr>
<td>Color Binning</td>
<td>1280 × 960</td>
<td>18 fps / 8.2 fps</td>
</tr>
<tr>
<td>Color Binning 4 × 4 (only available for DFC450 C)</td>
<td>640 × 480</td>
<td>30 fps / 15 fps</td>
</tr>
<tr>
<td>Grayscale R G B</td>
<td>1280 × 960</td>
<td>18 fps / 9 fps</td>
</tr>
</tbody>
</table>

### Computer

**Min. Computer configuration**

- Intel Core 2 Duo 2.4 GHz, or faster
- 2 GB RAM, high res graphic card with 128 MB or 256 MB RAM, Direct X V9c or V10
- FireWire-B port or free PCI-express slot

**Windows**

- Windows 7 and Windows 10 (LAS and LAS X)
- Windows 8 (LAS only)
- DFCTwain

### Interfaces

- **Recommended video adapter**: C-mount 0.63× or 0.7×
- **Data**: Single Cable FireWire – B-B, 9/9-Pin, screw lock
- **Digital input connector**: Opto-decoupled trigger
- **Digital output connector**: Flash synch or readout active

### Physical and Environmental

- **Power consumption**: ~ 4W / ~ 6W
- **Power supply**: via FireWire cable
- **Housing**: Aluminum die cast
- **Size**: 112 × 74 × 69 mm / 132 × 74 × 69 mm
- **Weight**: 410 g / 490 g
- **Operating temperature**: –5°C to +50°C
- **Relative Humidity**: 10% – 80% non-condensing

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**Quantum efficiency of Leica DFC450 camera (WB applied)**

**Color sensors**

2560 × 1920 pixels

**Grayscale image**

1280 × 960 based on green pixels only
ASSEMBLY DIAGRAM

ORDER NUMBERS

12 730 411 1  Leica DFC450 camera kit, comprising: Leica DFC450 camera, LAS Software, FireWire cable B-B, PCI-express FireWire-B board

12 730 412 2  Leica DFC450 C camera kit, comprising: Leica DFC450 C camera, LAS Software, FireWire cable B-B, PCI-express FireWire-B board

ORDER NUMBERS (OPTIONS/EXTRAS)

12 730 446 1  Notebooks kit FW-B

12 730 447 2  PCI-Express FireWire-B card for PCs without FireWire (2 ports)

12 730 183 3  PCI-32 FireWire A+B+USB card for PCs without FireWire (5 ports)

12 447 066 4  FireWire-B notebook kit, comprising of PC-Express card (2 ports), power supply 100-240 V, FireWire-A-B adapter

11 600 269 5  FireWire B-B cable, 2.5 m, 9/9-Pin

CONNECT WITH US!

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