

# Leica TCS 4PI

## Specifications



### **Microscope Stand**

- Leica DM RXE

### **Lasers & attenuation/switching modules**

- Ar 100 mW 457 nm, 476 nm, 488 nm, 514 nm
- DPSS 10mW 561 nm
- HeNe 2,5 mW 594 nm
- HeNe 10 mW 633 nm
- Ti: Sapphire 1.2 ps, 1W, MaiTai 720–920 nm
- AOTF 4 or 8 channels, visible range
- EOM, IR range
- Merge module for 4 lasers

### **Confocal/Two Photon Unit**

- 3 individual ports for external lasers for up to 6 lasers connected simultaneously
- Programmable 8-channel AOBS beam splitter
- Spectral range of detector optics: 400–800 nm
- Adjustable pupil illumination
- One pinhole, variable diameter size

### **Scanner**

- K scanner with two independent galvanometers
- Line frequency: up to 2000 lines/s
- Frame rates: 3 fps (512 x 512 pixels), 20 fps (512 x 32 pixels)
- Scan resolution: up to 4096 x 4096 pixels
- Scan zoom 1–32 x
- Scan rotation -2 to +92 degrees
- Scan field: 22 mm diagonal in intermediate image plane

### **Detectors**

- Highly sensitive prism spectrophotometer detector, 1–4 simultaneous channels
- Continuously adjustable bandwidth and center wavelength
- Spectral steepness factor  $< 1$
- Low-noise photomultipliers
- Up to 12 bit digitization per channel
- Two channel high sensitive imaging APD (Avalanche Photo Diodes)

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### **Electronics:**

- Scanner control with FPGA (Field-programmable gate arrays)
- Up to 8 detector channels, 12 bit digitization, simultaneous
- Ultra-wide SCSI interface to PC
- High-performance PC workstation
- Two flat screen monitors

### **Software**

- Fully operator-configurable user interface
- Intuitive and guided
- Context-sensitive online help system
- Multi-dimensional series acquisition
- Programmable manual control panel
- Region of interest scan
- Excitation line/frame multiplexing
- Emission spectrum recording
- Multi-color restoration, spectral unmixing
- Time-lapse recording
- Surface reconstruction
- Multiple measurement functions
- Physiology software
- Multi-color software
- FRET application
- FRAP application
- 3D software with multiple reconstruction & rendering functions
- Macro developer software
- Linear deconvolution

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### **4Pi Unit**

#### **Software**

- Graphical 4Pi control software

#### **Control Unit**

- 4Pi electronics unit with ethernet interface

#### **Interferometer**

- Double objective interferometer head (spectral range 480 nm–920 nm)
- CCD 4Pi interferometer viewer with frame grabber
- High-precision stage with piezo control
- Shutter for objective selection
- 4Pi phase control piezo mirror

#### **4 Pi objective pairs**

- HCX PL APO 63x1.20 W 0.17/0.17
- HCX PL APO 63x1.20 W 0.17/0
- HCX PL APO 63x1.40 OIL 0.17/0.17
- HCX PL APO 100x1.35 Glyc 0.22/0.22
- HCX PL APO 100x1.46 OIL 0.17/0.17 TIRF

#### **Z drive:**

- 4 Pi high resolution xz 0,1 nm Piezo Stage (Z-scan travel 380  $\mu$ m)
- Anti vibration stage with XY trackball control
- 4Pi precision sample holder