Confocal Scanner Unit CSU-W1

The CSU-W1 is a confocal scanner unit which has evolved from the proven microlens array built-in Nipkow disk confocal system for live cell imaging, and features a wider field of view and higher quality of image than previous models. The CSU-W1 can be combined with various microscopes to build a confocal microscope system for cutting-edge research in biology and medicine, such as research on iPS cells.

FEATURES

- **Wide field of view**
  A larger Nipkow disk achieves the world's largest 17 × 16 mm field of view among confocal microscopes, four times larger than that of previous models. Since it can capture the details of many cells or an entire tissue in a single view, responses involving many cells and phenomena rarely occurring over a wide area can be easily observed.
- **High quality of image**
  Arranging pinholes on the disk with wider space reduces crosstalk between pinholes and bokeh often seen in thick samples, making images clearer. Thus, the CSU-W1 can observe much deeper areas of thick samples which were difficult to observe in the past.
- **Low phototoxicity**
  The CSU-W1 inherits the features of low photobleaching and phototoxicity from the microlens array built-in Nipkow disk confocal system and thus can observe live cells for a long time without causing them any damage.
- **Basic models**
  Three basic models are available: a single camera model which observes multiple wavelengths on a time-sharing basis, where wavelengths are changed by emission (EM) filters on a filter wheel; a two camera model which simultaneously observes two wavelengths, where a dichroic mirror is used for fluorescence unmixing; and a split-view model which simultaneously observes two wavelengths, where the field of view is divided into two areas for each wavelength.
- **Bright field light path**
  A bright field light path is provided as standard, which is achieved by switching the disk position. The positions of a bright field image and a confocal image are accurately adjusted.
- **Confocal effect**
  In addition to an existing disk with 50 µm pinholes, a disk with 25 µm pinholes, which has greater confocal effect, is available. Users can select one or both disk types.
- **Supporting Near Infrared Light**
  The NIR port supporting near infrared light excitation of up to 785 nm is available as an option. It enables the observation by near infrared light, which can reach deeper regions in live organisms than visible light.
- **Assisting photostimulation**
  The external light input port for introducing light from an external scanner is available as an option, enabling experiments such as for photo activation.

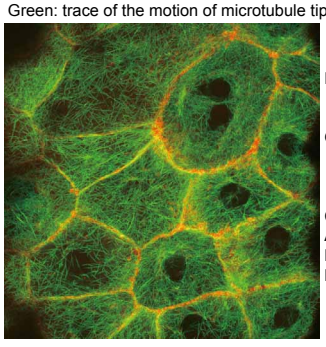
MAJOR SPECIFICATIONS

- Image formation speed: Max. 200 frames/s
- Attachable microscopes: (a dedicated adapter is necessary for this)
  Olympus IX1 and IX3 series,
  Nikon ECLIPSE Ti,
  Zeiss AxioObserver,
  Leica DMI6000B, DMI4000B
- Camera connection: C mount only (magnification: × 1, × 0.83)
- Excitation light wavelength: 405 to 785 nm
- Observation fluorescence wavelength: 420 to 850 nm
- Filter wheel: One built-in filter wheel with ten holes for filters (single-camera model)
- Operating environment: 15 to 35°C, 20 to 75% RH, no condensation
- External dimension (mm): 480 (W) × 327 (L) × 252 (H) (single camera model)
- Weight: 14.3 kg (single camera model)

APPLICATION EXAMPLE (EMBRYO OF ZEBRA FISH)

The CSU-W1 can finely obtain wide and high quality images of microtubule motion in multiple cells.

Red: cell membrane
Green: trace of the motion of microtubule tips



Fluorescent protein
EB3-GFP
RFP
Objective lens
× 60, water immersion

Courtesy of Makoto Suzuki, Assistant Professor, and Naoto Ueno, Professor, Division of Morphogenesis, National Institute for Basic Biology

Contact us:
To Yokogawa Japan:
http://www.yokogawa.com/scanner
For worldwide locations, please see the back cover.