

# FP3002

## The Next Generation Fiber Photometry System



With the sensitivity to pick up the activity of a single cell and the bandwidth to record from multiple freely moving animals and/or brain regions simultaneously, the original FP3001 set the standard for multi-fiber photometry recordings. Through our collaborative work with over 100 labs worldwide, we have designed the second-generation system — the FP3002 — that includes many improvements and optimizations for user accessibility and processing power while integrating an important new feature: lasers for optogenetic stimulation, further broadening its utility in neuroscientific research.

### Key Benefits

- Real-time processing and flexible control with a new computer interface
- 3 excitation wavelengths for simultaneous dual-color imaging and motion control
- Ability to record from up to 8 regions in freely-moving animals
- Fully redesigned magnetic patch cord mounting system for easier setup
- Increased accuracy – through the use ultra-stable scientific LEDs with patent-pending fiber optic feedback mechanism
- High sensitivity - through the use of an upgraded sCMOS camera and knife's edge image splitter
- Micro-second precision with synchronization across multiple devices
- Ability to collect analytical measurements for accurate across-subject comparisons
- Integrated optogenetics stimulation system with function generator

### Plug and Play Fiber Photometry Solution

The FP3002 system combines 3 excitation wavelengths with an ultra-sensitive sCMOS camera sensor for simultaneous dual-color activity imaging in up to 8 regions of interest, all in freely-moving animals. Using state-of-the-art integrated lasers, the FP3002 system allows users to optogenetically stimulate while recording from the same fiber. Our compact and portable system offers a complete and comprehensive solution for fiber photometry with no assembly required.



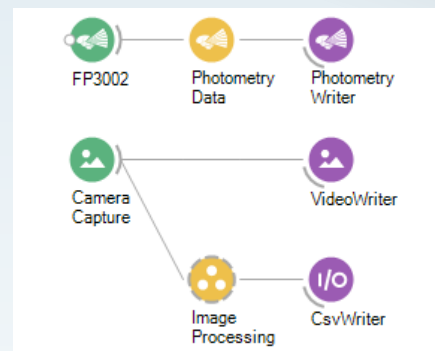
# FP3002

## The Next Generation Fiber Photometry System



### Versatile Interface for Seamless Hardware Integration

The FP3002 system is designed for maximum versatility and efficiency, making it simple to synchronize with existing hardware in the lab. The FP3002 interface is powered by user-accessible software, making it easy to align fiber photometry recordings with various data streams including behavior hardware, cameras, and even custom-built devices.



### Technical Specifications

**Acquisition Rate:** 16-200 Hz;

**Absolute Sensitivity Measure:** 4.51 (photons needed to equal noise)

**Simultaneous Recordings from multiple fibers:**

- 8 branching patch cord (200  $\mu\text{m}$  each)
- 4 branching patch cord (400  $\mu\text{m}$  each)

**Excitation LEDs:**

- 415 (isosbestic)\*: 400 - 425nm, 0.1 -  $\geq 300 \mu\text{W}$
- 470 (e.g. GCaMP, dLight)\*: 445 - 486nm, 0.1 -  $\geq 300 \mu\text{W}$
- 560 (e.g. RCaMP)\*: 535 - 569nm, 0.1 -  $\geq 130 \mu\text{W}$
- Step Size: 25 nW
- \*min and max through 200  $\mu\text{m}$  fiber

**Emission Channels:**

- Green Emission Channel: 494 - 531 nm
- Red Emission Channel: 586 - 627 nm

**Numerical Aperture:** 0.37 - 0.4

**Digital Inputs:** 2

**Digital Outputs:**

- Output 0: yoked to laser function
- Output 1: pulse synchronized to camera shutter or LED trigger

**Timing Synchronization:** sub-millisecond synchronization with external equipment

Learn more at: [mbfbioscience.com/products/FP3002](https://mbfbioscience.com/products/FP3002)



### About MBF Bioscience

A rich history of creating the future of neuroscience.

MBF Bioscience is a leader in neuroscience research technology. We develop cutting-edge tools that enable scientists to collect and analyze data from fixed tissue and living organisms with high precision and accuracy. This data helps scientists understand brain diseases and processes at the system, cellular, and subcellular levels.

Our products have been used in over 17,000 peer-reviewed papers.

### What our customers say

“ We’ve been very happy for many years with MBF products and the course of upgrades and improvements. Your service department is outstanding.  
William E. Armstrong, Ph.D.  
University of Tennessee

“ MBF Bioscience is extremely responsive to the needs of scientists and is genuinely interested in helping all of us in science do the best job we can.  
Sigrid Veasey, M.D.  
University of Pennsylvania