

Dual-Wavelength Commutator-Based Photometry System

The Plexon Commutator Photometry System is a dual-wavelength camera-based system for use with freely-behaving animals. A branching patch cable enables simultaneous recording from four different regions. The system stimulates with blue (465nm) light and uses UV (410nm) light as an isosbestic control signal. The fluorescence is measured with a camera, which allows for multiple fibers to be measured at the same time.

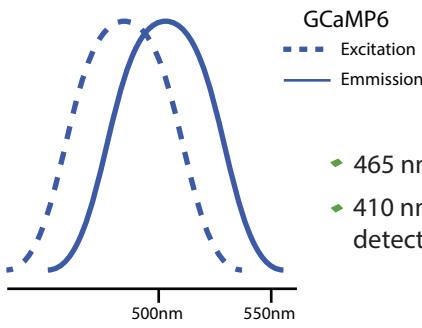
Features

- The Inertial Measurement Unit (IMU) commutator has no optical joint, enabling smooth, artifact-free rotation
- Capture neural activity in freely behaving animals and minimizes degradation and tethering constraints
- LED scheduler reduces risk of photobleaching by configuring ON/OFF schedule for LEDs
- Record from multiple locations in a single animal
- Detect fluorescence at 525 nm using one detection camera
- Align photometry signals with behavioral events
- Integrated with video tracking software

Photometry Module

Excitation Wavelength	410 nm, 465 nm
Detection Wavelength	505-545 nm
Number of Fibers	Up to 4
LED driver	Yes, two high current LED drivers
Inputs	12
Outputs	12
Timing Interface	Yes
SPI Interface	Yes
Commutator	Yes

Dual-Wavelength Commutator Photometry offers two excitation wavelengths:



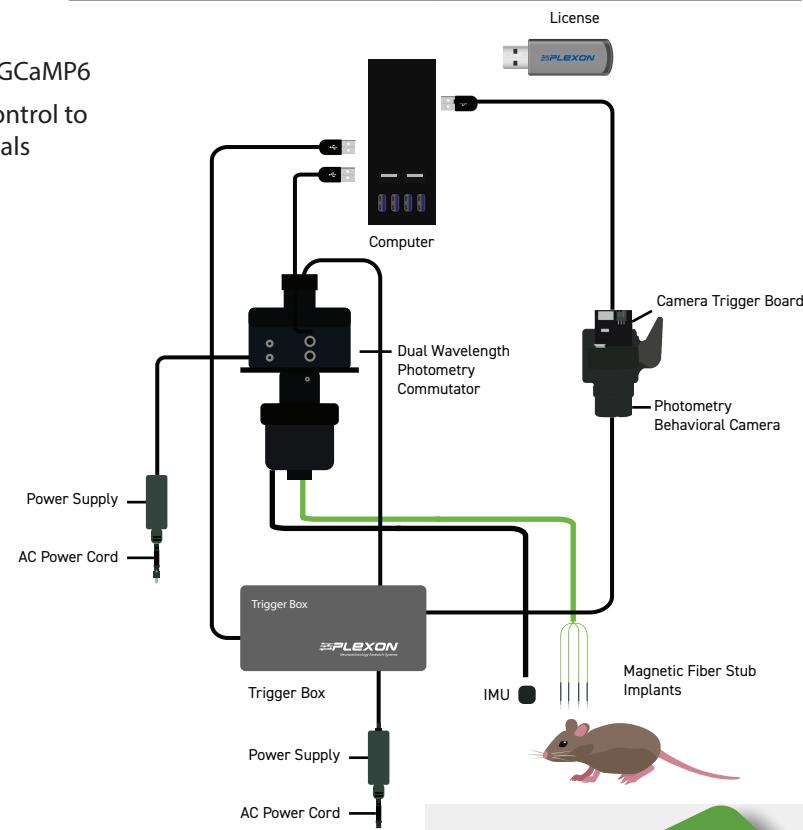
- 465 nm for selectively activating GCaMP6
- 410 nm for use as an isosbestic control to detect calcium-independent signals

Advanced Software for Photometry Signal Visualization and Behavioral Tracking

- Visualize raw photometry data in real time
- Heatmaps for each individual fiber illustrate changes in fluorescence during recording
- Create zones and automatically count the number of behavioral events that occur during recording
- Define photometry events based on raw photometry signal threshold crossings and combine with behavioral events to identify if a change in fluorescence occurs during a specified behavior
- Interface with External Equipment
- Track speed and position of subject

Behavioral Camera

Resolution	640 (H) x 480 (V)
Max frame rate at full resolution	30fps



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