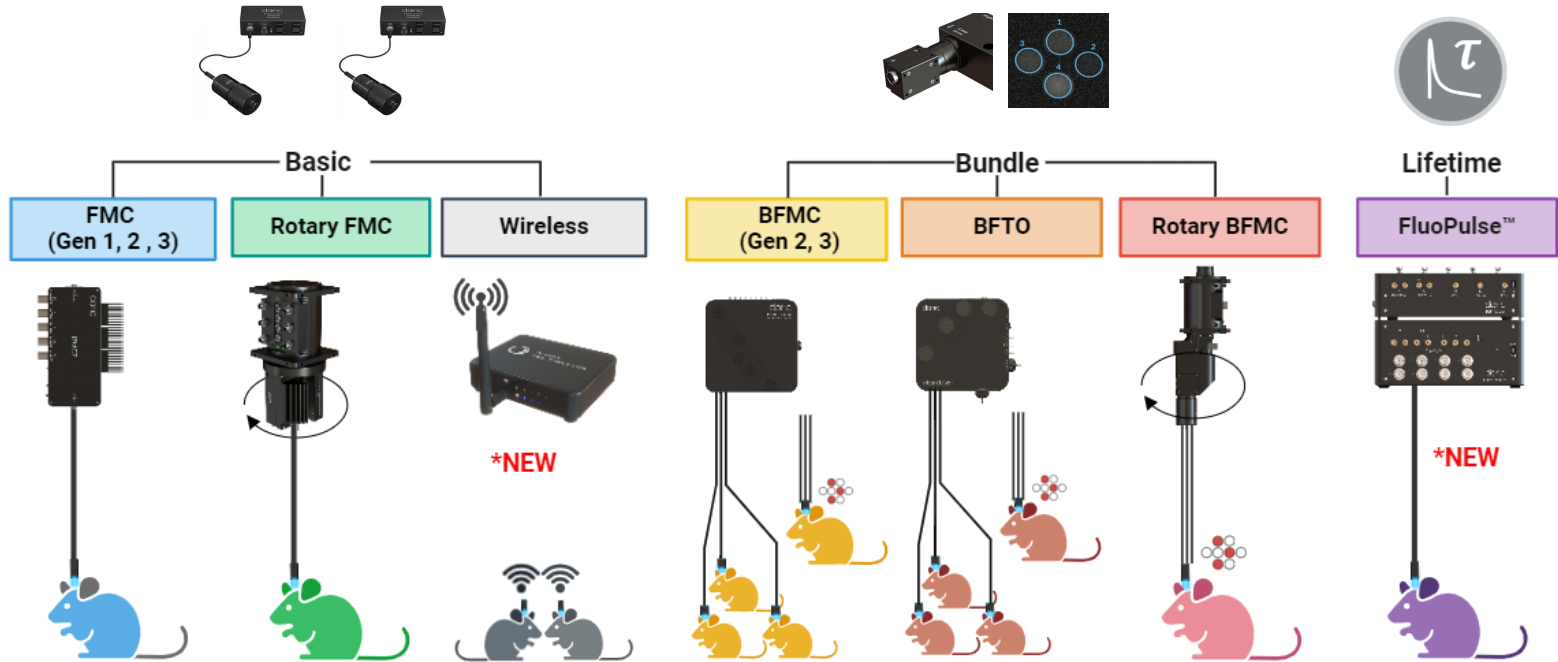


Choosing between *Doric* Photometry Systems

2025

How to choose between *Doric* Photometry systems?



- Photodetector (one detector per signal)

- CMOS camera images multiple fibers simultaneously

- Fast photodetector measures changes in *fluorescence* lifetime

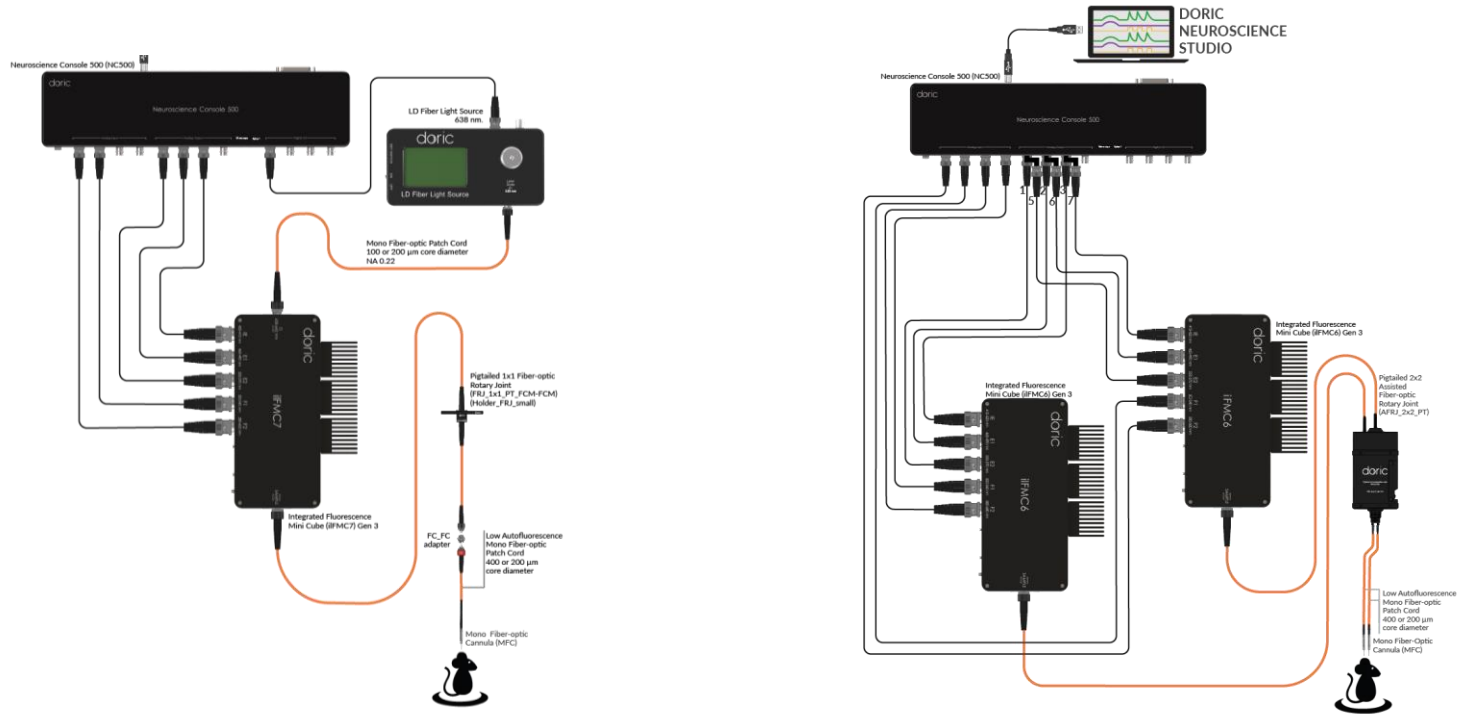
Basic systems



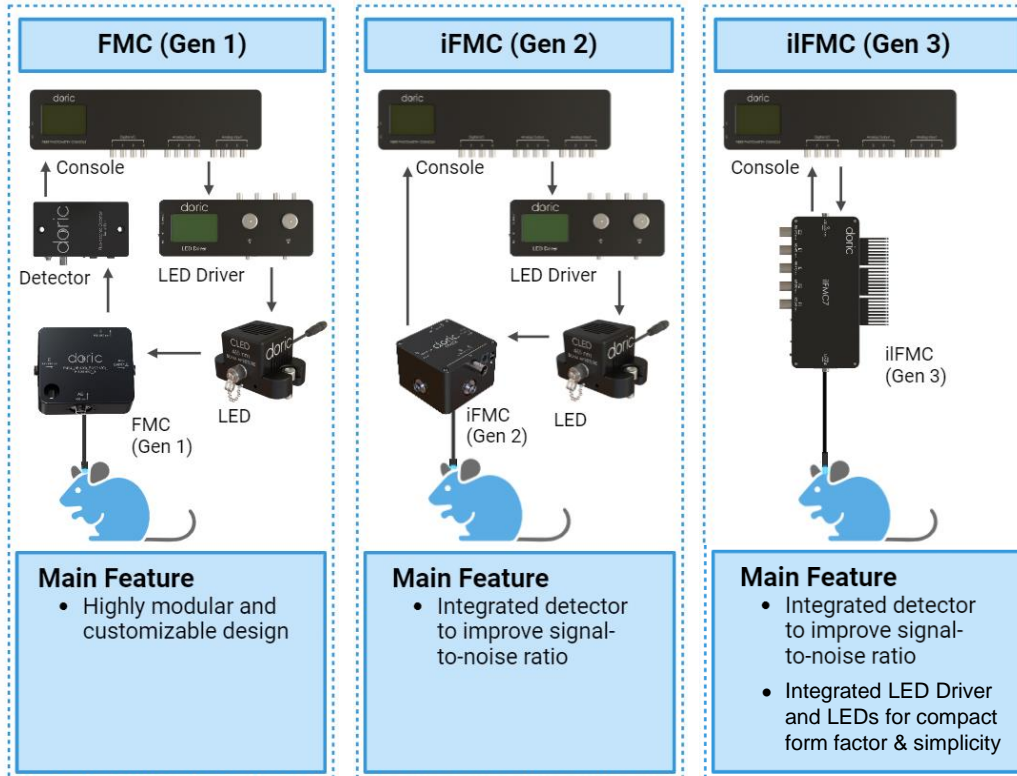
Photodetector

Basic Photometry Systems – gen.3

Ideal for head-fixed or freely-moving (with rotary joint) animal experiments (1 or 2 sites).



Basic Fiber Photometry Systems



Options:

- Choice of isosbestic points (405, 415, 425 and 440 nm)
- Green & Red photometry
- Red-shifted optogenetics (638 nm) in the same site

Basic Photometry Systems – rotary joints



FRJ_1x1_PT
(passive)



FRJ_2x2_PT
(passive; rats)



AFRJ_2x2_PT
(motorized; mice)

Advantage:

- **Reduce cable tension & disruption** to animal for more robust behavior measures
- 2x2 prevents optic cables from tangling
- Useful for **long photometry** recordings (> hours – days)
- Use with any Basic system

Basic Photometry Systems – rotary joints



FRJ_1x1_PT
(passive)



FRJ_2x2_PT
(passive; rats)



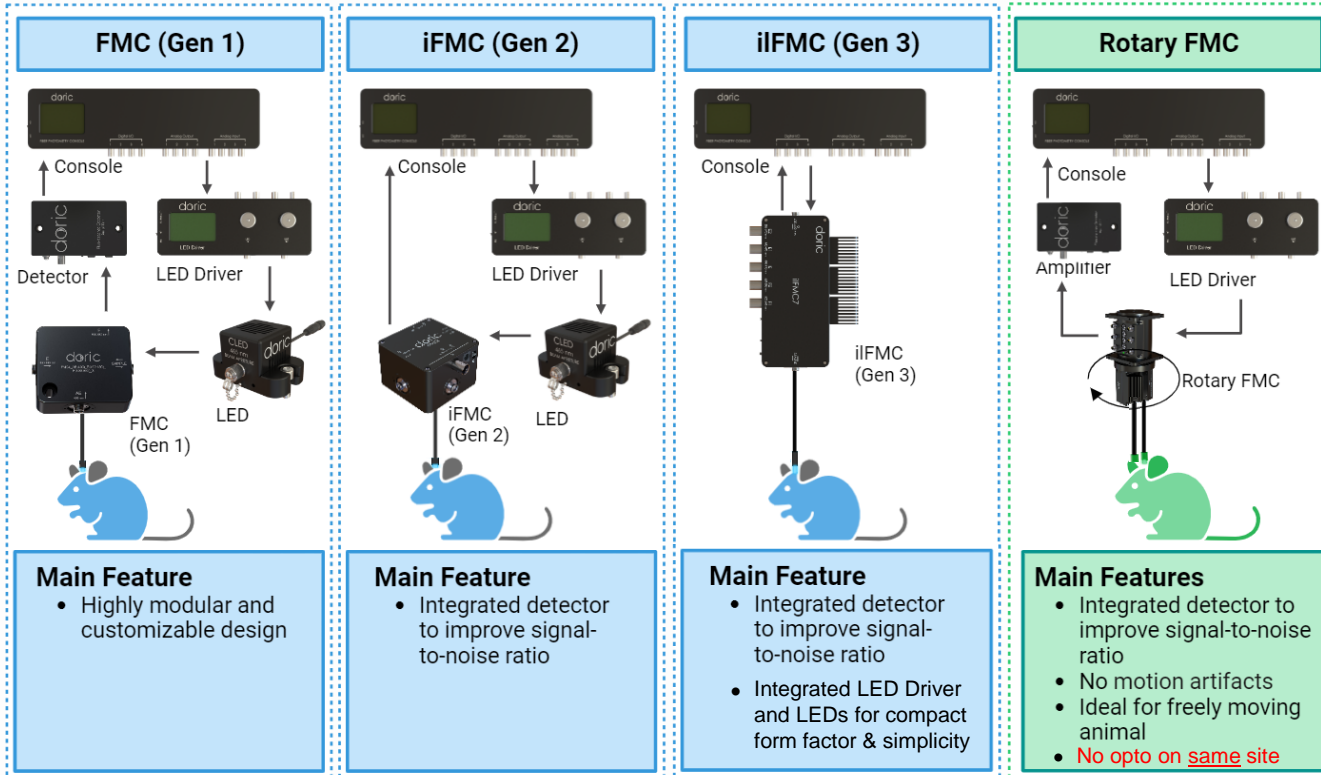
AFRJ_2x2_PT
(motorized; mice)

Limitation:

Rotation of the joints leads to small fluorescent variations in the signal.

While this added variation is much **smaller than the signal of interest** (under 3% of peak-to-peak signal) and can **be removed post-processing**, interest in abolishing this variation led us to develop:

Basic Fiber Photometry Systems



Rotary Fiber Photometry System

Ideal for single, freely-moving animal experiments (1 or 2 sites).

Advantage:

2 x 1- or 2-color photometry

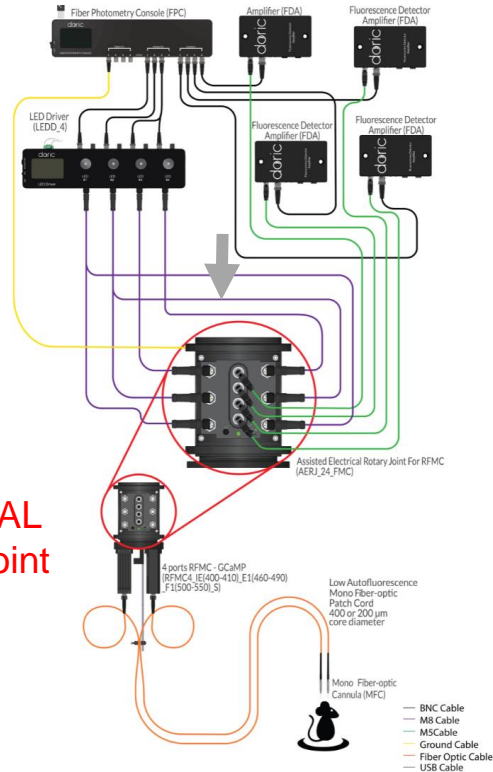
Integrated *detector* provides significant **signal-to-noise ratio** improvement

Integrated *LEDs*, *mini cube*, and *detector* on the rotary joint itself to **abolish rotational variation**

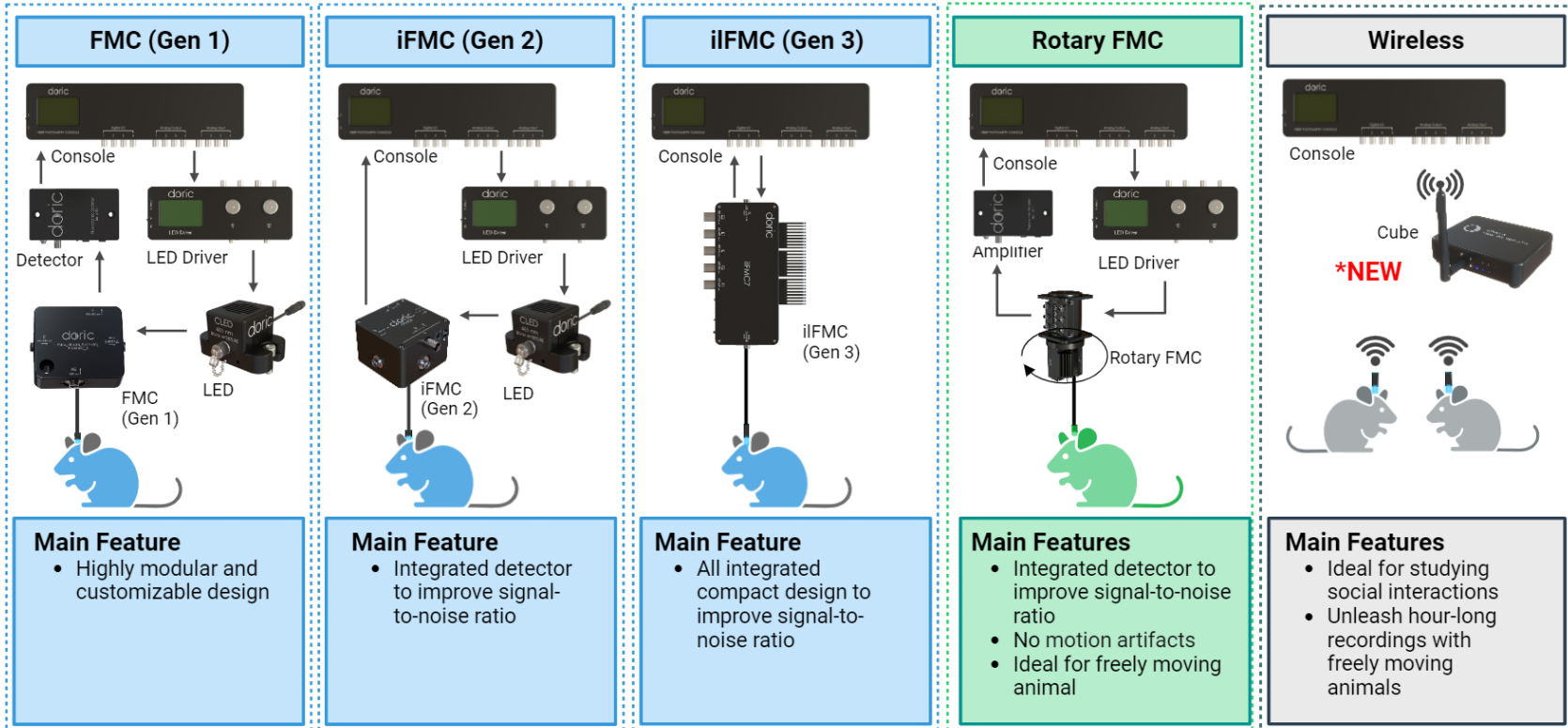
Central channel can be used for either:

- 3rd (independent) **optogenetic site**
- **Fluid delivery**

ONE ANIMAL
per rotary joint

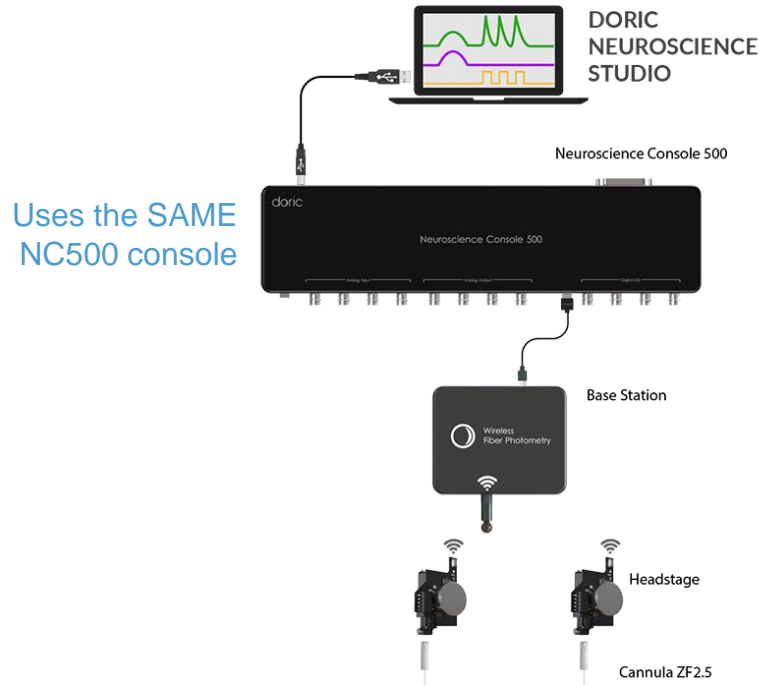


Basic Fiber Photometry Systems



Wireless Photometry System

Ideal for studying neural population underlying social interactions!

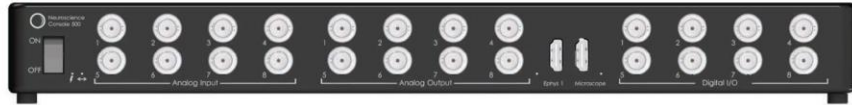


Options:

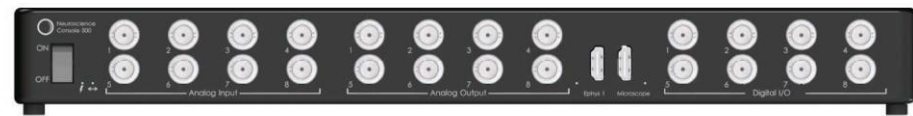
- Single-site
- Choice of isosbestic points (405, 415 nm only)
- Green OR Red photometry
- No optogenetics

The NC500 supports many more animals / sites in parallel

8 x [Green Only]



4 x [Green & Red]



Basic systems



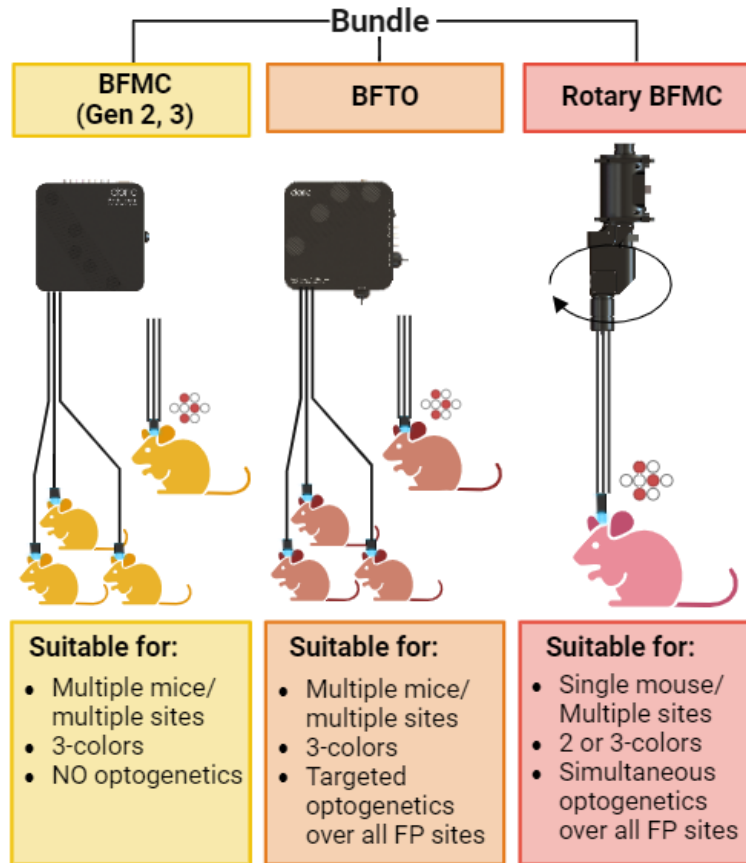
Photodetector

VS

Bundle systems

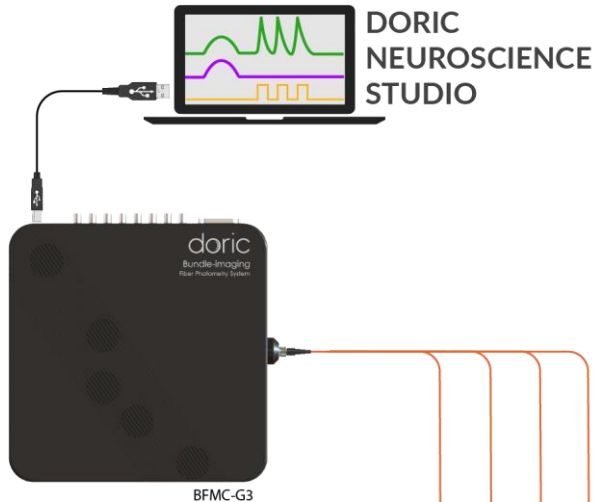


Imaging System



Bundle Fiber Photometry Systems – Gen.3

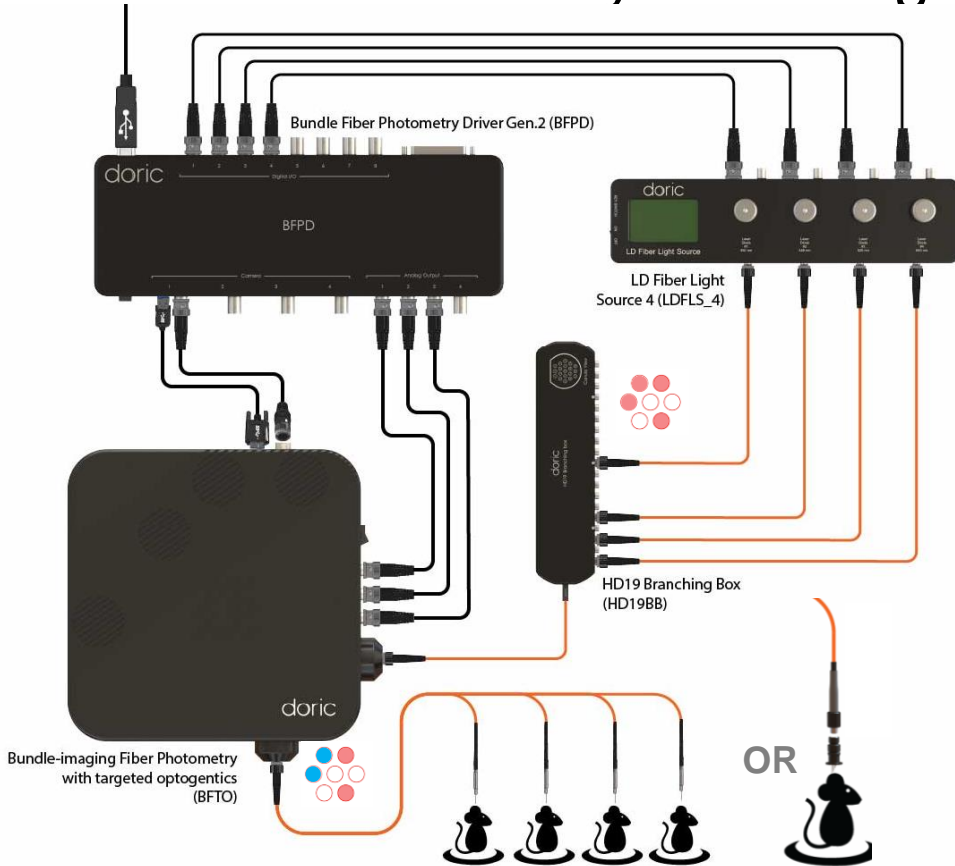
Ideal for high-throughput photometry experiments (3+ sites).



Advantage:

- Integrates the console, *LED Driver*, *LEDs*, and optical components for a **plug-and-play design**
- Use the **same** LEDs and detectors for **all** photometry sites, which **decreases cost per site**
- Compatible with *High-density cannula* for **multi-site** photometry
- **Interchangeably** compatible with both ***bundle*** and ***branching*** patch cords
- Increase data collection **efficiency**
- **NOT COMPATIBLE WITH OPTOGENETICS**

Bundle Photometry with Targeted Optogenetics (BFTOS)



Advantages:

Use the **same** LEDs and detectors for **all** photometry sites, which **decreases cost per site**

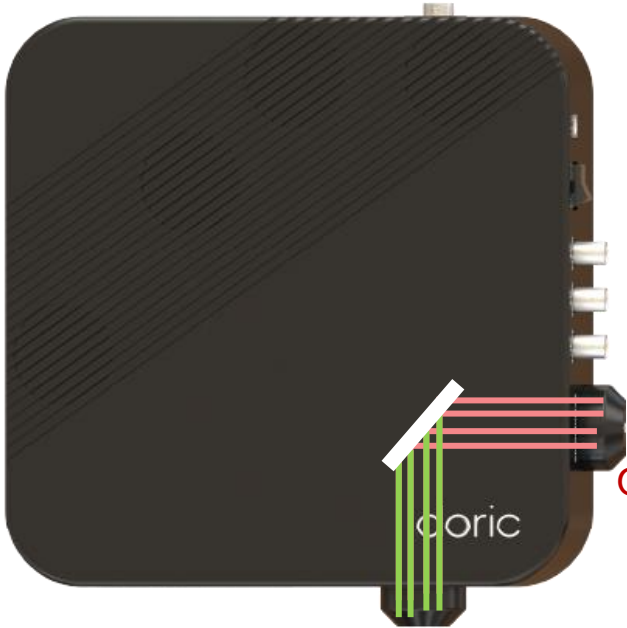
Compatible with *High-density cannula* for **multi-site** photometry (HD7, 9 or 19)

Interchangeably compatible with both **Bundle** and **Fan out** patch cords

Targeted optogenetics on all sites

Best experiment **flexibility**

Bundle Photometry with Targeted Optogenetics (BFTOS)

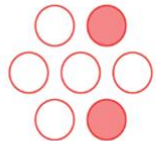


Optogenetic Port



Over the same fiber collecting photometry

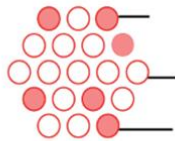
Independent, **site-specific** optogenetics over each photometry sites



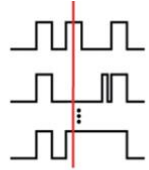
7 sites
400 μm fibers



9 sites
400 μm fibers

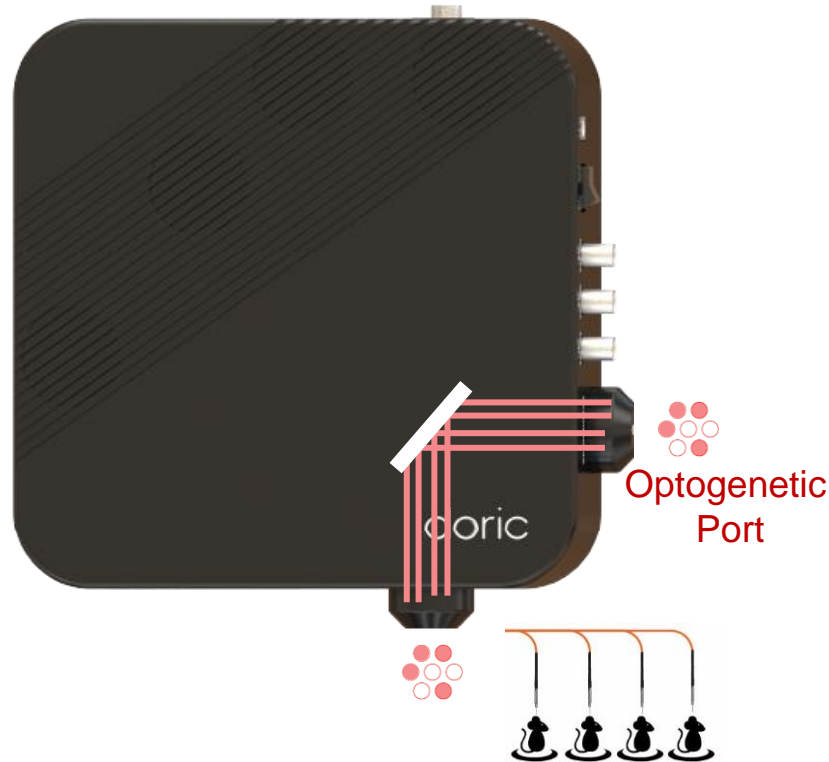


19 sites
200 μm fibers

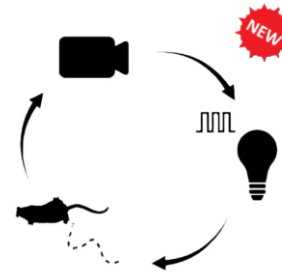
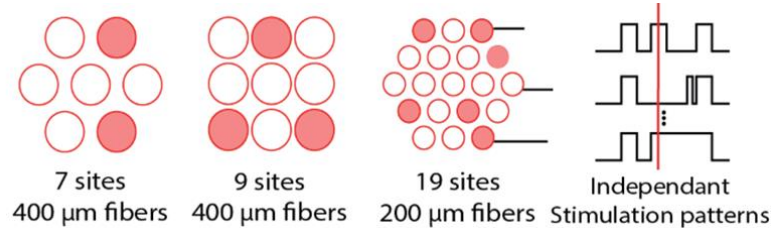


Independent Stimulation patterns

Bundle Photometry with Targeted Optogenetics (BFTOS)

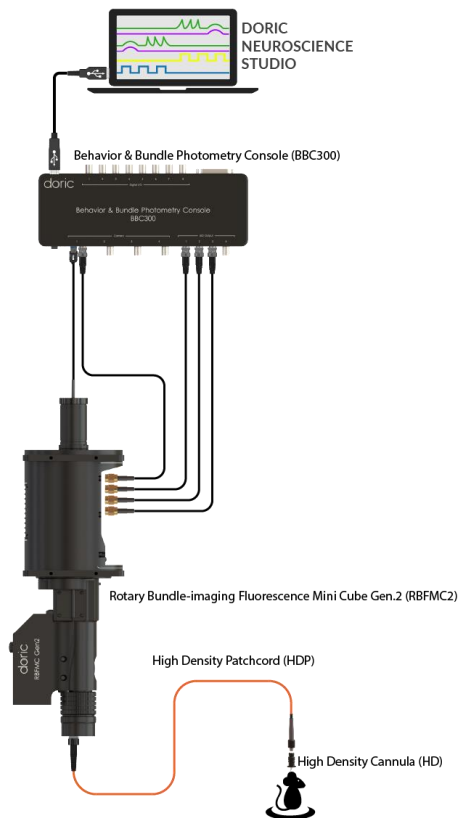


Ideal for high-throughput experiments (or 3+ sites) with close-loop optogenetics.



Combine with CamLoop for real-time animal tracking with close-loop optogenetics

Rotary Bundle Photometry System – Gen.2



Advantage:

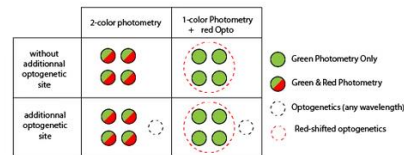
Use the **same** LEDs and detectors for all photometry sites, which **decreases cost per site**

Compatible with *High-density cannula* for **multi-site** photometry

Integrated *detector* on the rotary joint itself to **abolish rotational variation**

Two configurations:

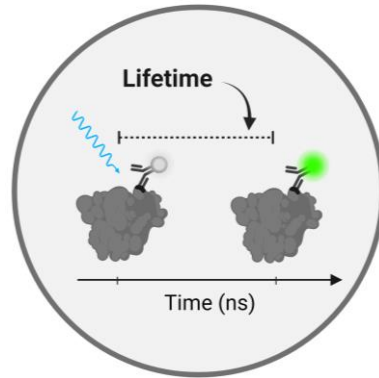
- 2-color photometry
- 1-color photometry + red **optogenetics** on all sites



Additional optogenetic site over non-photometry sites

HDMI port for electrophysiological recordings

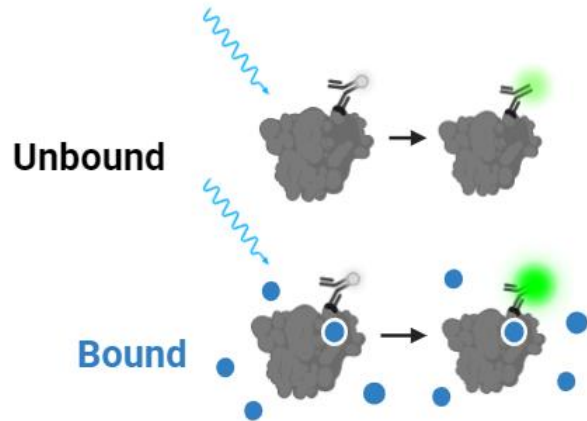
Lifetime Photometry



High Temporal Resolution
Photodetector

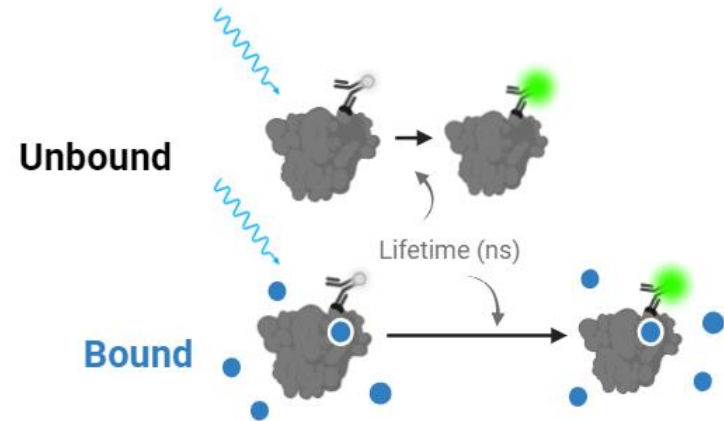
What type of **biosensor** are you using?

Intensity Photometry



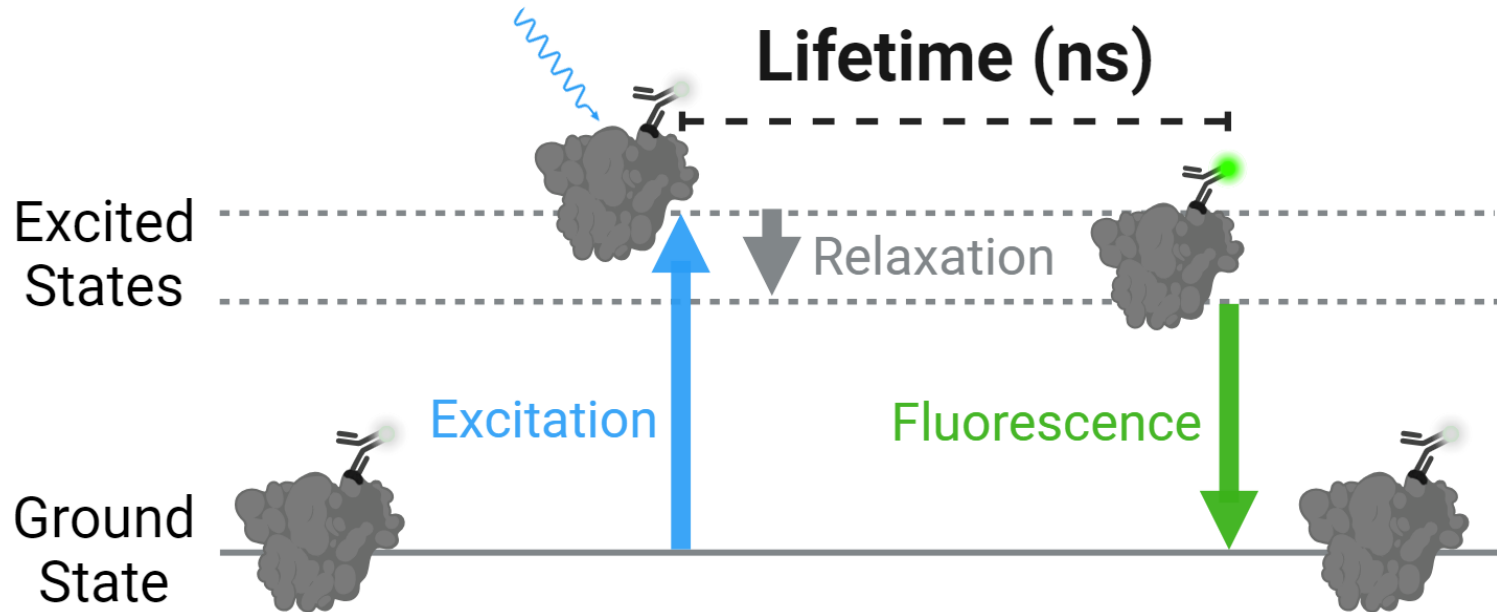
GCaMP, jrGECO, dLight, GRAB...

Lifetime Photometry NEW!

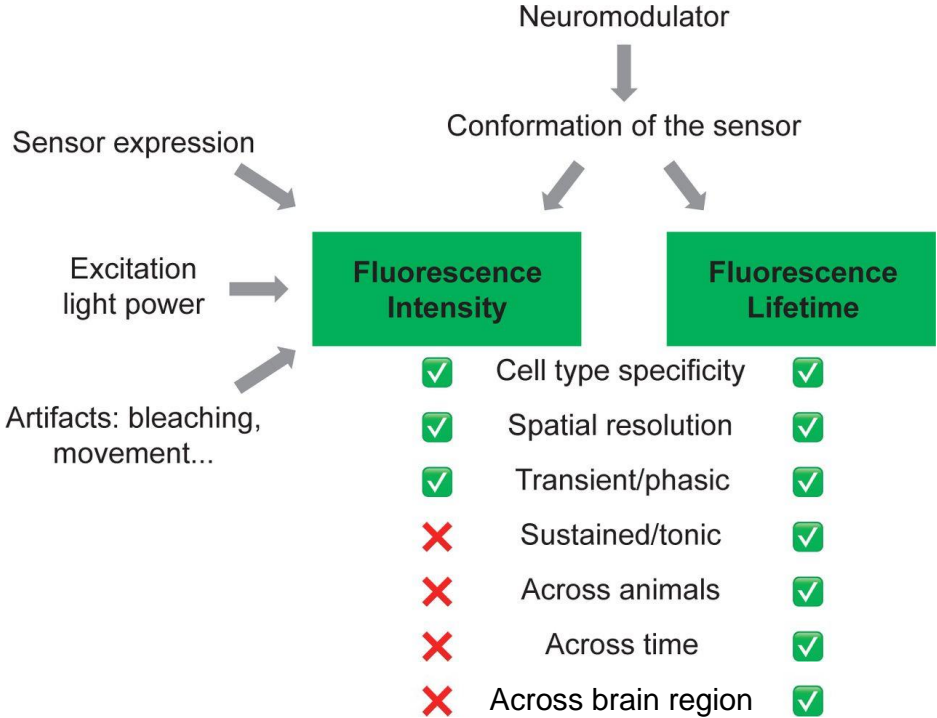


Tq-Ca-FLITS, GRAB-Ach3.0 , FLIM-AKAR...

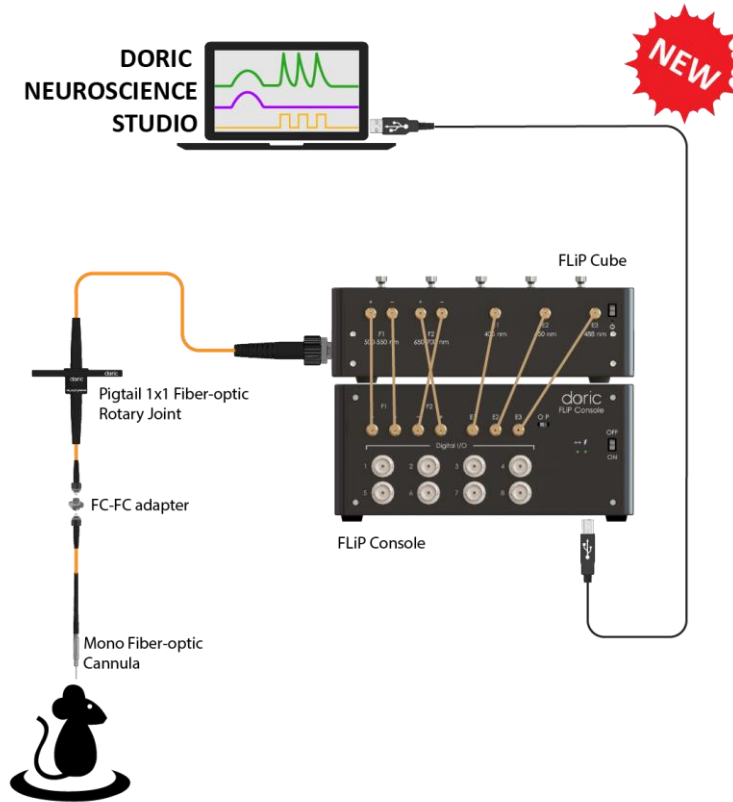
Lifetime Photometry requires **special biosensors** and a completely different type of photodetector



Many advantages of measuring lifetime over intensity:



FluoPulse™ first *in vivo* commercially system



How to choose between *Doric* Photometry Systems:

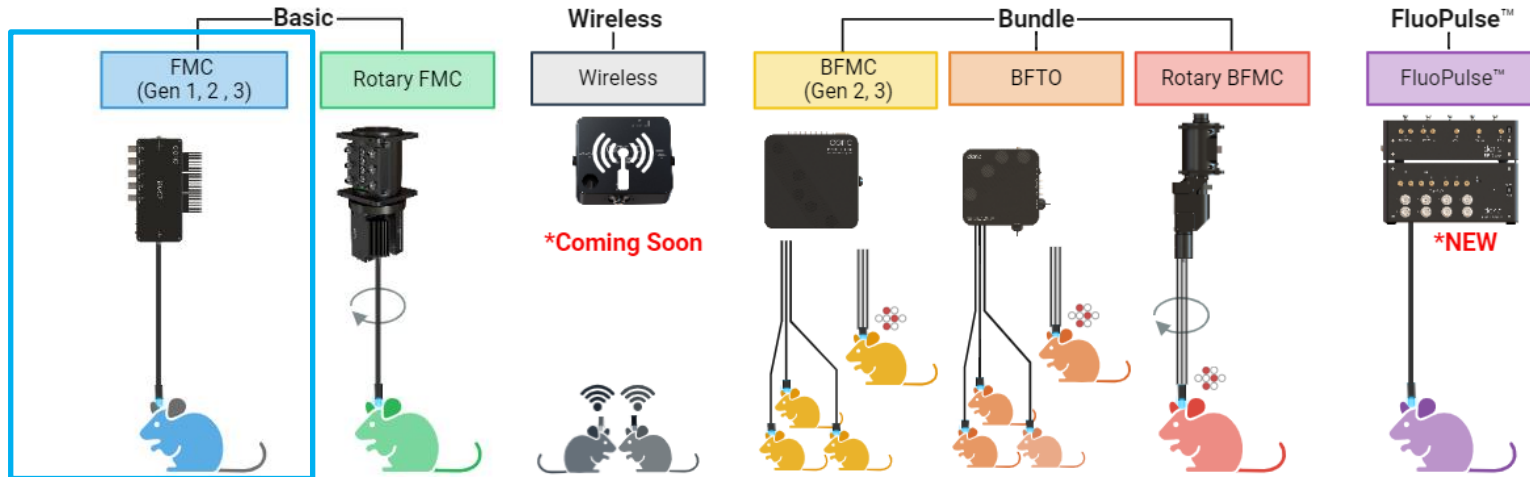
- What type of **biosensor** are you using?
- What is maximum **number of sites** or **maximum number of animals**?
- Are you combining **optogenetics**? Different site? Same site? Targeted?
- Do your experiments require **long-term measures** in **freely-moving** animals?
- Are you studying **social behaviors**? Are recorded animals interacting in the **same cage**?
- Are you doing any **close-loop optogenetics**?
- Consider the flexibility of the system

How to choose between *Doric* Photometry systems?

Intensity

Lifetime

Best option for a **small number** of animals / sites
- **Short duration** freely moving or **Head-fixed** animals



1-2 sites / animal

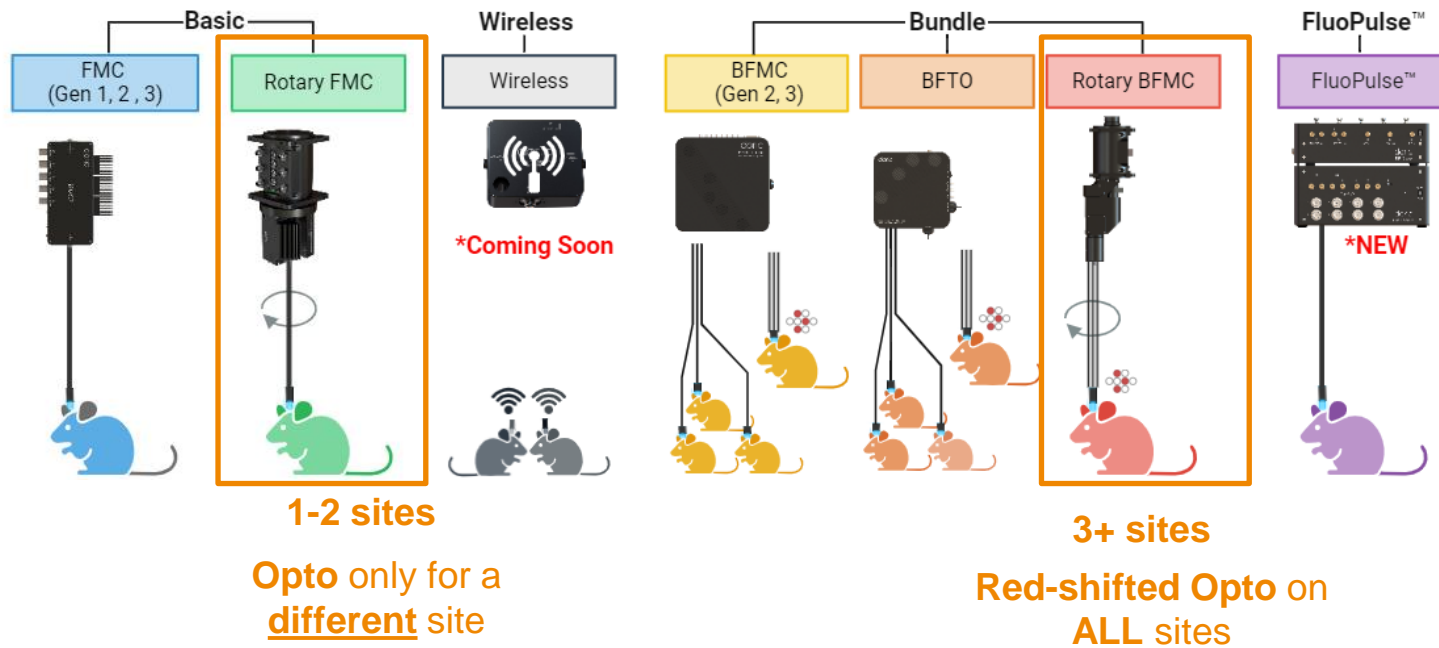
Opto (red-shifted)
at same site

How to choose between *Doric* Photometry systems?

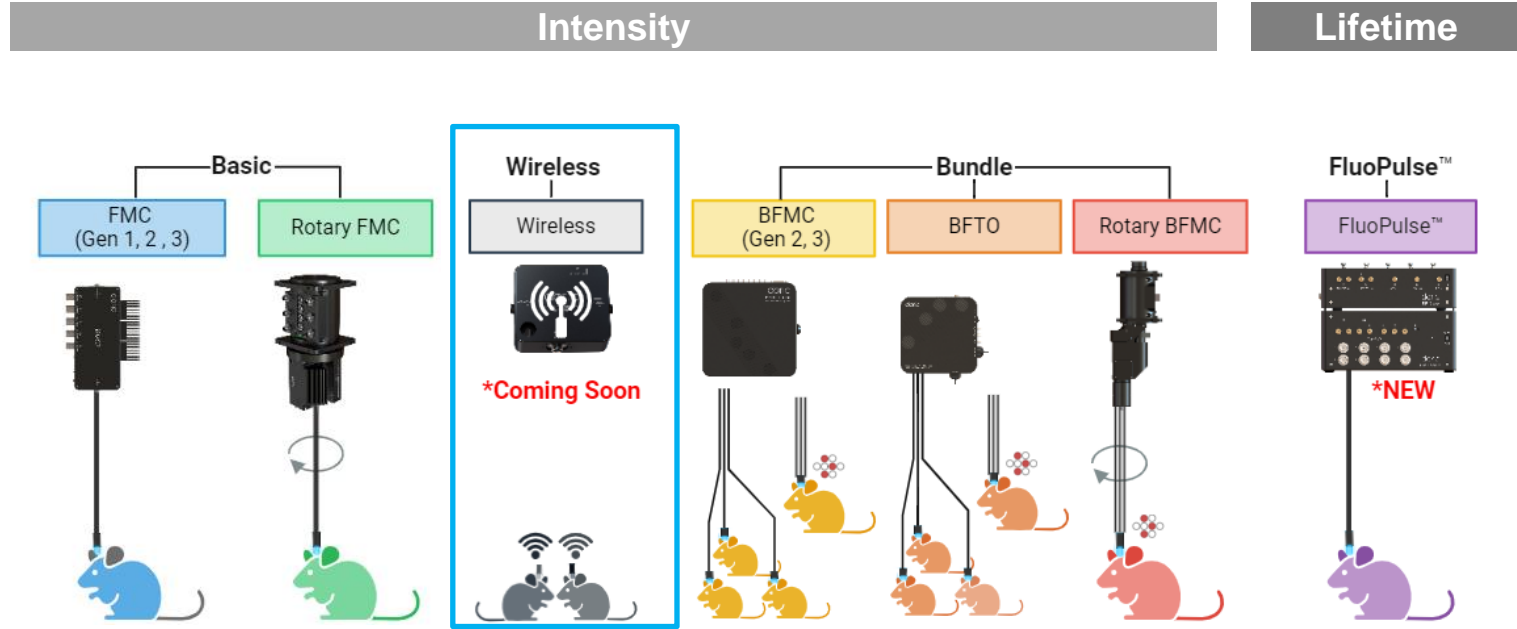
Intensity

Lifetime

Best option for a **single, freely moving** animal (limited opto):
- Long experiments (hours / days)

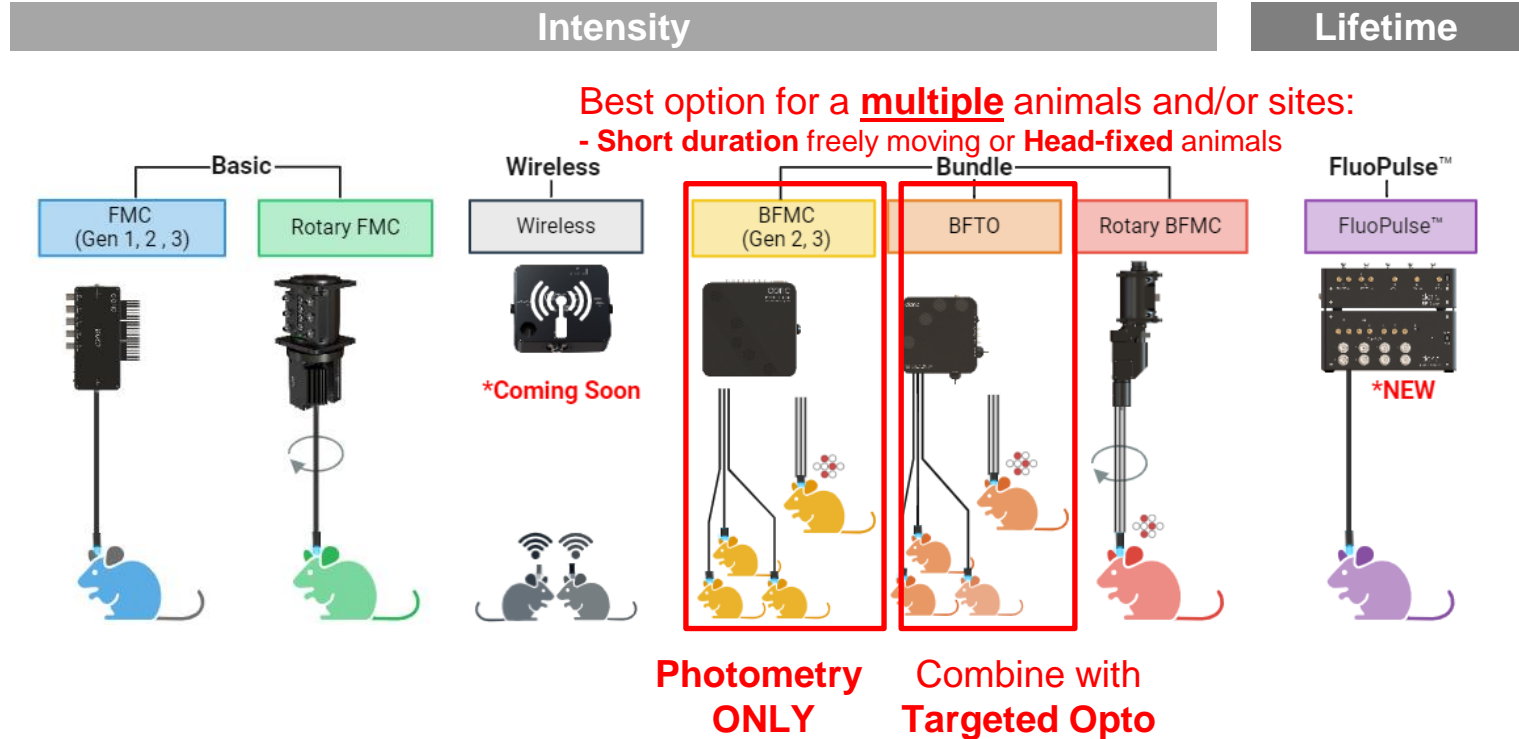


How to choose between *Doric* Photometry systems?



Recording from 2+ animals in the same cage.
Especially for Social Behavior

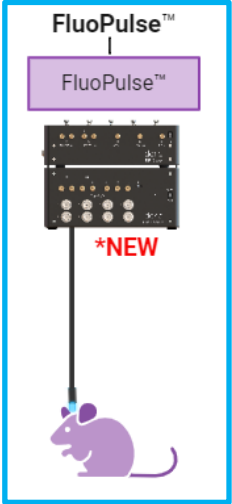
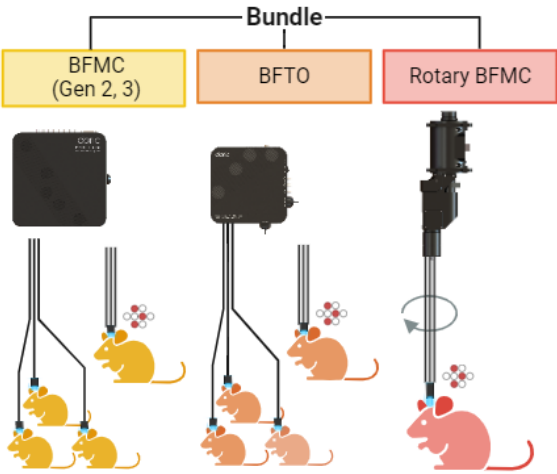
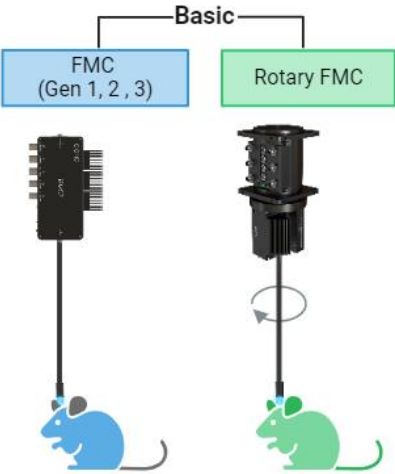
How to choose between *Doric* Photometry systems?



How to choose between *Doric* Photometry systems?

Intensity

Lifetime



Lifetime measurement
Robust to biosensor expression level
No motion artifacts

Basic

FMC
(Gen 1, 2, 3)



Suitable for:

- Single mouse / 1-2 sites
- 3-colors
- Optogenetics on the same photometry site

Rotary FMC



Suitable for:

- Single mouse / 1-2 sites
- 3-colors
- Optogenetics on a different site

Wireless



***NEW**

Suitable for:

- Multiple mice / single site
- 2-colors
- NO optogenetics

Bundle

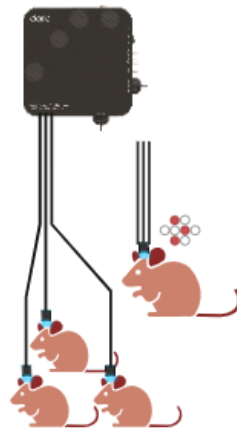
BFMC
(Gen 2, 3)



Suitable for:

- Multiple mice / multiple sites
- 3-colors
- NO optogenetics

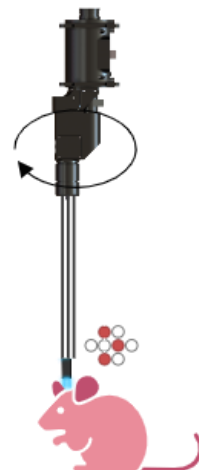
BFTO



Suitable for:

- Multiple mice / multiple sites
- 3-colors
- Targeted optogenetics over all FP sites

Rotary BFMC



Suitable for:

- Single mouse / Multiple sites
- 2 or 3-colors
- Simultaneous optogenetics over all FP sites

Lifetime

FluoPulse™



***NEW**

Suitable for:

- Single mouse / single site
- 1-color
- NOT compatible with Optogenetics

QUESTIONS?

Contact sales@doriclenses.com