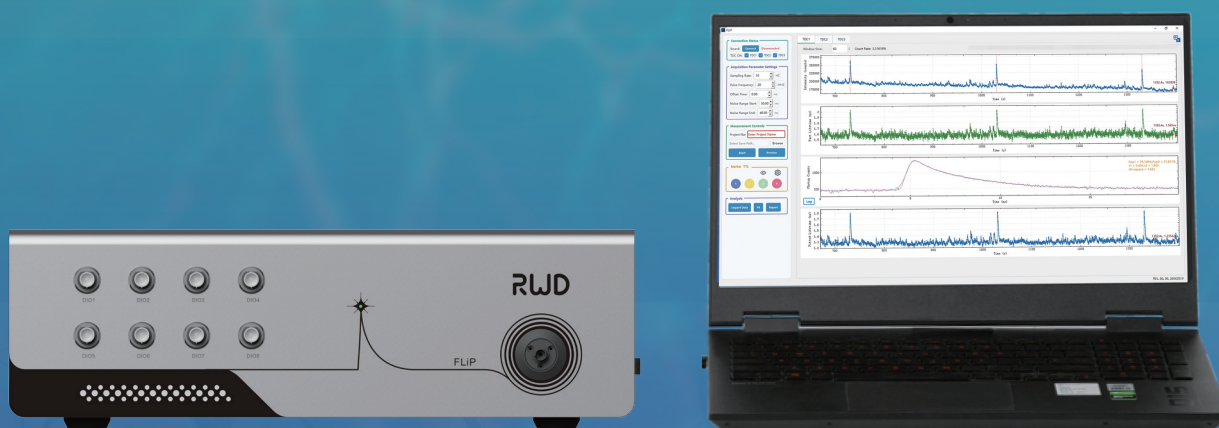


Fluorescence Lifetime Photometry System



Product Introduction

The Fluorescence Lifetime Fiber Photometry System connects to animals via optical fiber, enabling the detection of changes in the lifetime of fluorescent proteins in the brains of freely moving animals. Fluorescence lifetime refers to the duration that a fluorescent protein molecule remains in the excited state after being activated by light. It is not affected by non-experimental factors such as protein expression levels, and can change when binding to target substances, thus featuring excellent data consistency and anti-interference ability. This product uses a picosecond pulsed laser to excite fluorescent proteins of specific wavelengths and collects fluorescence lifetime signals through optical fiber, thereby realizing the detection of neural activity in freely moving animals and the quantitative study of the concentration of target substances such as neurotransmitters.

Application Scenarios

- ② **Circuit Analysis:** Dynamically monitor fluorescence lifetime signals to analyze neural circuits in animals with free behaviors (e.g., the neural mechanisms of learning and memory encoding and social behavior).
- ② **Pathological Research:** Achieve long-term stable signal monitoring for chronic disease models (e.g., anxiety disorder, Alzheimer's disease).
- ② **Quantitative Analysis:** Realize the quantitative study of substances such as neurotransmitters (e.g., dopamine, acetylcholine) based on the lifetime changes of fluorescent probes.
- ② **Molecular Biochemical Research:** Study the conformational changes of protein molecules by utilizing the characteristic properties of fluorescence lifetime.

Product Advantages



Strong Anti-Interference Ability

Unaffected by animal movement, significantly enhancing signal-to-noise ratio and stability.



Cross-Sample Comparison

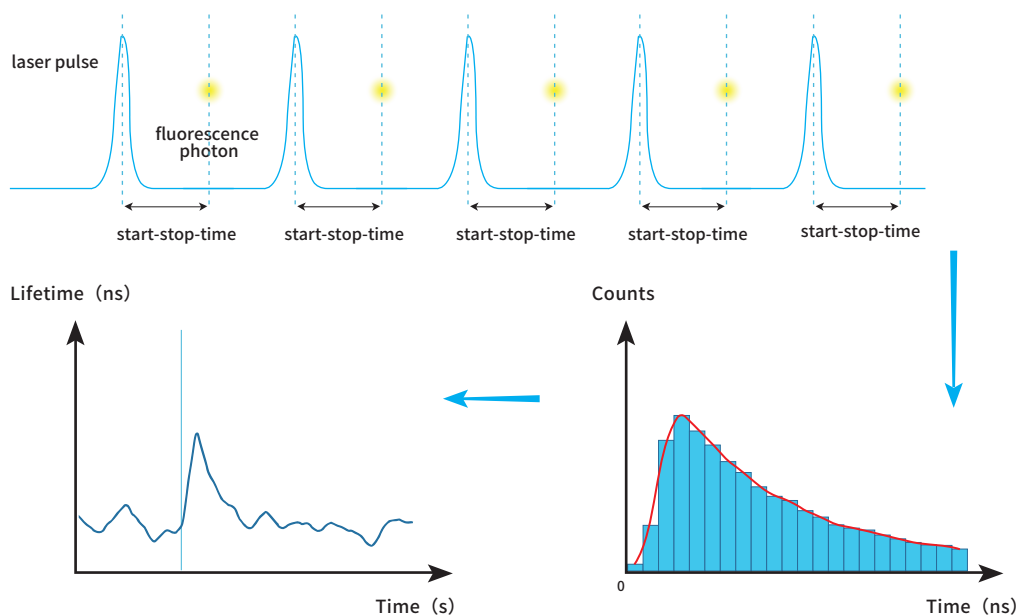
Unaffected by excitation light intensity and probe expression concentration, allowing direct comparison of data from different animals and avoiding interference from individual differences.



Long-Term Stability

Less affected by photobleaching, enabling the acquisition of high-quality and reliable data, which is suitable for chronic disease models and long-term tracking studies of behaviors.

Product Principle



Technical Parameters

Product Model	R880 (Single-color) R888 (Tri-color)	
Product Features	Excitation wavelengths: 488 nm, 515 nm, 560 nm, 640 nm, and 670 nm; custom excitation wavelengths are available upon request.	
	Capable of detecting both fluorescence intensity and fluorescence lifetime signals simultaneously	
	Enables dynamic real-time waveform display	
Technical Parameters	Pulse Frequency	1~80 MHz adjustable
	Fluorescence Lifetime Detection Range	1~10 ns
	Time Channel Width	≤50 ps
	Sampling Rate	1~50 Hz
	Digital Signal Interface	8 digital I/O ports

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