



产品特点 / Features

- ◇ 线偏振态、圆偏振态和椭圆偏振态之间的相互转换
Conversion between linear, circular and elliptical polarization states.
- ◇ 电动旋转桨，最小步进尺寸为 0.12° 。
Electrically driven rotating paddles with a minimum step size of 0.12° .
- ◇ 提供两桨或三桨版本，缠绕盘外径 18 mm。
Available in two- or three-paddle versions, spool outer diameter 18 mm.
- ◇ 通过 EPPC 软件驱动
Driven via EPPC software
- ◇ 兼容带 $\varnothing 900\ \mu\text{m}$ 护套的单模光纤
Compatible with single-mode fiber with $\varnothing 900\ \mu\text{m}$ jacket
- ◇ 结构紧凑
Compact structure

应用领域 / Applications

- ◇ 光纤通信系统
Fiber optic communication systems
- ◇ 光纤传感与测量
Fiber optic sensing and measurement
- ◇ 干涉仪、陀螺仪等精密传感设备
Interferometers and gyroscopes
- ◇ 光学测试与仪器校准
Optical testing and instrument calibration
- ◇ 偏振相关损耗等光学器件性能
Polarization-dependent loss

峻烽科技的电动光纤偏振控制器是基于桨结构的偏振控制器，利用光纤内产生的应力双折射，动态控制光的输出偏振态。控制器结构紧凑，且集成步进电机，易于集成到更大、更复杂的系统中。每个桨可以旋转 160° 以上，最小步进尺寸为 0.12° ，能够覆盖邦加球上的任意偏振态。控制器不带光纤，可以配合带 $\varnothing 900\ \mu\text{m}$ 护套的单模光纤或光纤跳线使用。

OPEAK's electric fiber polarization controller is based on a paddle-type structure that utilizes stress-induced birefringence generated within the optical fiber to dynamically control the output polarization state of light. The controller features a compact design with an integrated stepper motor, making it easy to integrate into larger and more complex systems. Each paddle can rotate over 160 degrees with a minimum step size of 0.12 degrees, enabling coverage of any polarization state on the Poincaré sphere. The controller is supplied without optical fiber and can be used with single-mode fibers or fiber patch cables featuring a $\varnothing 900\ \mu\text{m}$ jacket.

电动偏振控制器具有两桨和三桨配置的版本，每个桨可以容纳最多四个 18 mm 直径的光纤缠绕盘。弯曲光纤产生应力双折射；从而在光纤中产生两个主轴，一个垂直于缠绕盘平面(慢轴)，另一个位于缠绕盘平面(快轴)。因此，将光纤缠绕在光纤缠绕盘上，相当于形成独立的波片改变偏振态，而旋转桨则通过相对于透射偏振方向调节光纤的快轴产生偏振变化。

The electric polarization controller is available in two-paddle and three-paddle configurations, with each paddle capable of accommodating up to four fiber winding disks with a diameter of 18 mm. Bending the optical fiber produces stress-induced birefringence, thereby creating two principal axes in the fiber: one perpendicular to the plane of the winding disk (slow axis) and the other lying in the plane of the winding disk (fast axis). Therefore, winding the optical fiber onto the fiber winding disks is equivalent to forming independent waveplates that alter the polarization state, while rotating the paddles produces polarization changes by adjusting the fast axis of the fiber relative to the direction of transmitted polarization.



性能指标 / Specifications

性能参数 / Parameters	技术指标 / Specifications	
	EPPC2	EPPC3
结构材料(控制器机身) / Construction Material (Controller Body)	聚酰胺或铝合金 / Polyamide (PA 12) or Aluminum Alloy	
结构材料(基座) / Construction Material (Base)	铝合金 / Aluminum Alloy	
桨叶数量 / Number of paddles	2	3
绕环直径 (Ø900 µm 被覆光纤) / Loop Diameter (Ø900 µm Jacketed Fiber)	18 mm	
桨叶旋转范围 / Paddle Rotation	0 ~ 180°	
兼容光纤 / Compatible Fiber	Ø900 µm 被覆单模光纤及跳线 / Ø900 µm Jacket Single Mode Fibers and Patch Cables	
最小光纤长度 / Minimum Fiber Length	75 cm (每桨叶 1 环 / 1 loop per paddle)	95 cm (每桨叶 1 环 / 1 loop per paddle)
	110 cm (每桨叶 4 环 / 4 loop per paddle)	155 cm (每桨叶 4 环 / 4 loop per paddle)
最小步进角度 / Minimum Step Size	0.1125°	
最大旋转速度 / Maximum Rotation Speed	390° /sec	
最大旋转速度 / Maximum Rotation Speed	4 档可调节 / Four gears available	
每桨叶最大绕环数 / Max Number of Loops per Paddle	4	
双向重复精度 / Bidirectional Repeatability	2°	
工作温度范围 / Operating Temperature Range ²	-20°C ~ +60°C	
电机类型 / Motor Type	步进电机 / Step Motor	
电源适配器 / Power Supply Adaptor	AC 100-240 V / 1 A to DC 24 V / 1.5 A	
CPU 连接接口 / CPU Connection	Micro USB Type B	
设备尺寸(L×W×H) / Dimensions L x W x H	92×108×68 mm	140×108×68 mm
工作空间需求(L×W×H) / Footprint (for full paddle rotation) L x W x H ³	95×108×69 mm	143×108×69 mm

注释 / Notes:

- 1) 所有角度参数均指旋转角度。 / All angular parameters refer to mechanical rotation angles.
- 2) 温度参数适用于设备工作环境。 / Temperature parameters apply to operating environment.
- 3) 尺寸参数包含操作所需安全余量。 / Dimension parameters include safety margins for operation.