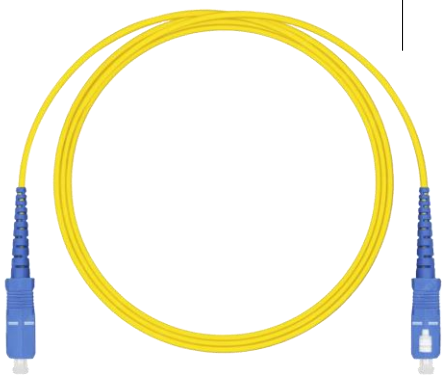
OPEAK®

# 单偏振光纤跳线
# Polarizing Optic Fiber Patch Cord

PZ-PC



## 产品特点 / Features

- ✧ 在线起偏且保持单偏振态光纤传输
  Polarizes light transmitted through fiber
- ✧ 高光纤双折射可产生高偏振消光比
  High birefringence produces high polarization extinction ratios
- ✧ 抑制 PMD 引起的光脉冲传输失真
  Mitigation of optical pulse transmission distortion caused by PMD
- ✧ 约 120 nm 起偏窗口
  ~120 nm broad and stable polarizing window

## 应用领域 / Applications

- ✧ 光脉冲信号高保真传输（量子通讯、飞秒激光）
  High-fidelity transmission of optical pulse signals in quantum communication and femtosecond lasers.
- ✧ 光纤电流互感器（起偏器和检偏器）
  Fiber-optic current transformers (polarizer or analyzer)

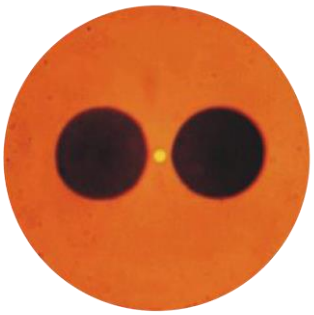


Fig.1 熊猫型单偏光纤 / Panda style PZ fiber

峻烽科技的偏振（PZ）光纤跳线是一种特种光纤跳线，其中仅允许一种偏振态传播。具有任何其他偏振方向的光将经历显著的光学损耗，因此不会通过光纤传播。为了创造这种效果，PZ 光纤采用熊猫结构来产生极大的双折射。这种双折射确保了只有具有正确偏振方向的光才能被引导通过光纤，而所有其他偏振方向都会经历高损耗。

OPEAK' Polarizing (PZ) fibers are specialty optical fibers in which one and only one polarization state is allowed to propagate. Light with any other polarization direction will experience significant optical loss and thus is not propagated through the fiber. To create this effect, our PZ fiber utilizes panda geometry to create an extreme birefringence. This birefringence ensures that only light with the proper polarization direction is guided through the fiber, whereas all other polarization directions experience high loss.

必须注意，PZ 光纤与保偏 (PM) 光纤不同。虽然保偏光纤在偏振方向与双折射轴对齐时可以保持线性偏振态，但它们也能够传播任何偏振方向。与保偏光纤不同，PZ 光纤不存在偏振串扰，这使它们成为偏振敏感应用的理想选择。

It is important to note that PZ fibers are not the same as Polarization-Maintaining (PM) fibers. While PM fibers maintain the linear polarization state when the polarization direction is aligned with the birefringence axis, they are also capable of propagating any polarization direction. Unlike PM fibers, PZ fibers suffer no polarization cross-talk, which makes them ideal for polarization-sensitive applications.

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## 性能指标 / Specifications

| 性能参数 / Parameters | 技术指标 / Specifications | | | |
|---|---|---|---|---|
| | SPF1053 | SPF1064 | SPF1310 | SPF1550 |
| 工作波长 / Wavelength (nm) | 1053 | 1064 | 1310 | 1550 |
| 纤芯直径 / Core diameter ( μ m) | 2.5±0.5 | 2.5±0.5 | 3.0±0.5 | 3.5±0.5 |
| 包层直径 / Cladding diameter ( μ m) | 125.0±1.0 | 125.0±1.0 | 125.0±1.0 | 125.0±1.0 |
| 涂覆层直径 / Coating diameter ( μ m) | 245.0±5.0 | 245.0±5.0 | 245.0±5.0 | 245.0±5.0 |
| 数值孔径 / Numerical aperture | 0.16±0.015 | 0.16±0.015 | 0.16±0.015 | 0.16±0.015 |
| 消光比 / Polarization extinction ratio (dB) @ Φ89 mm 环圈直径与 5 m 光纤长度 / @ Φ89 mm spooling diameter and 5 m length | ≥30 | ≥30 | ≥30 | ≥30 |
| 衰减系数 / Attenuation (dB/m) | ≤0.01 | ≤0.01 | ≤0.01 | ≤0.01 |
| 光谱带宽 / Bandwidth (nm) @ Φ89 mm 环圈直径与 5 m 光纤长度 / @ Φ89 mm spooling diameter and 5 m length | ≥120 | ≥120 | ≥120 | ≥120 |
| 接头类型 / Connector | FC / PC, FC / APC or others | | | |
| 套管类型 / Jacket | Ø3 mm 黄色 PVC 套管或不锈钢套管或其它 / Ø3 mm Yellow PVC furcation or stainless tubing or others | | | |

## 使用方法 / Spool method

PZ 跳线的部署（盘绕）方式对其性能至关重要。PZ 光纤具有非常宽的偏振窗口，该窗口的宽度和中心波长取决于光纤的部署方式。在接近设计波长的标称使用情况下，PZ 光纤在任何部署下都会产生偏振。然而，对于其他使用情况，用户应确保部署方式能使偏振窗口发生偏移，从而使窗口与光源重叠。此方法最适用于激光器等窄线宽光源。对于宽带光源，需要将 PZ 光纤适当地盘绕，以使偏振窗口的宽度和中心波长能够与光源重叠。在 PZ 光纤的输入端使用消偏器是有利的，因为它能确保光的偏振均匀，避免所有类型的偏振器都可能出现的功率波动。

It is important to note that the deployment of the PZ fiber is key to its performance. Our PZ fiber has a very wide polarizing window, the width and center wavelength of which depends on how the fiber is deployed (see the Graphs Tab). In nominal usage of the fiber around its design wavelength, the PZ fiber will polarize for any deployment. For other usage, however, the user should ensure that the deployment shifts the polarization window such that the window overlaps the source. This method works best with a narrow linewidth source such as a laser. For broadband sources, the PZ fiber needs to be coiled appropriately such that the width and center wavelength of the polarization window can overlap the source. It is advantageous to use a depolarizer at the input of the PZ fiber because it ensures the light is evenly polarized, avoiding power variations that can occur with all types of polarizers.