

3-Paddle Fiber Polarization Controller



Description

FIRSOL 3-Paddle Fiber Polarization Controller is designed to adjust the state of polarization (SOP) of light propagating through single mode fiber. By coiling the fiber around three independently rotatable paddles, controlled bend-induced birefringence is introduced into the fiber, allowing each paddle to function as an adjustable fractional wave plate. The fast axis of the induced birefringence lies in the plane of the fiber loop, and rotating the paddles changes the orientation of the effective wave plates, enabling flexible transformation of an arbitrary input polarization state.

The controller is available with Ø27 mm or Ø56 mm loop diameters to accommodate different fiber types, bend-loss requirements, and operating conditions. Empty versions are available for users who wish to install their own Ø900 µm jacketed single mode fiber or compatible FC/PC- or FC/APC-terminated fiber patch cables. Preloaded fiber configurations can also be provided upon request.

Features

- Convert Between Linear, Circular, and Elliptical Polarization States
- Operates over Full Fiber Bandwidth
- High Stability and Reliability

Applications

- Fiber Laser
- Fiber Optic Sensing
- Fiber Optic Communication

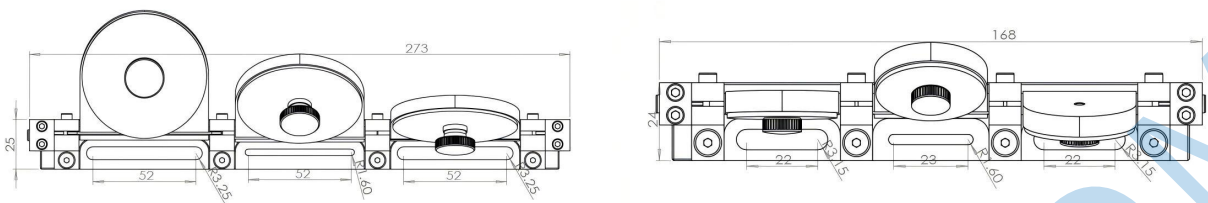
Specifications @56mm Loop Diameter

Parameter	Unit	Value					
Fiber Type	-	None	460-HP	630-HP	780-HP	1060-XP	SMF-28e
Operating Wavelength Range	nm	N/A	450-600	600-770	780-970	980-1600	1260-1650
Design Wavelength	nm	N/A	488	633	780	1060	1550
Mode Field Diameter	μm	N/A	3.5±0.5 @515nm	4.0±0.5 @630nm	5.0±0.5 @850nm	6.2±0.5 @1060nm	9.7±0.5 @1550nm
NA (Numerical Aperture)	-	N/A	0.13	0.13	0.13	0.14	0.14
Loop Configuration	-	N/A	3-2-3	4-3-4	2-4-2	2-4-2	3-6-3
Total Length	m	N/A	4				5
Cable Diameter	μm	N/A	900				
Bend Loss	dB	N/A	≤0.1				
Loop Diameter	mm	56					
Product Dimensions	mm	L273 x W25					

Specifications @27mm Loop Diameter

Parameter	Unit	Value					
Fiber Type	-	None	460-HP	630-HP	780-HP	1060-XP	SMF-28e
Operating Wavelength Range	nm	N/A	450-600	600-770	780-970	980-1600	1260-1650
Design Wavelength	nm	N/A	488	633	780	1060	1550
Mode Field Diameter	μm	N/A	3.5±0.5 @515nm	4.0±0.5 @630nm	5.0±0.5 @850nm	6.2±0.5 @1060nm	9.7±0.5 @1550nm
NA (Numerical Aperture)	-	N/A	0.13	0.13	0.13	0.14	0.14
Loop Configuration	-	N/A	2-4-2	2-4-2	1-2-1	3-2-3	4-3-4
Total Length	m	N/A	3				
Cable Diameter	μm	N/A	900				
Bend Loss	dB	N/A	≤0.1				
Loop Diameter	mm	27					
Product Dimensions	mm	L168 x W24					

Product Dimensions



Ordering Information

☐ nm	☐
Fiber Type	Connector
None	None
460-HP	FC/PC
630-HP	FC/APC
780-HP	
1060-XP	
SMF-28e	
Custom	