Polarization Controller – Piezoelectric

DATASHEET

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The Piezoelectric Polarization Controller (PIPC) utilizes three or four piezoelectric fiber squeezing plates arranged at a 45-degree angle apart to control fiber birefringence phase retardation. It features ultra-low insertion loss, all fiber type accommodation, high power handling, and a large phase change capability. We further offer driver with a convenient 0-5V control inputs. The device is designed for customers to incorporate sensors and auto-control firmware, enabling endless polarization control while maintaining a constant output polarization without the need for resetting. The polarization controller is engineered to meet the operational requirements of fast response and continuous operation, providing an ultimate solution for precise polarization selection.

Features

- Large Phase Change
- High Reliability
- Low Insertion Loss
- Compact Size
- High Optical Power Handling

Applications

- Polarisation Scrambler
- Polarisation Management
- Polarisation Mode dispersion compensation
- Instrumentation

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	400		2650	nm
Insertion Loss [1]	0.1	0.5	0.8	dB
Polarization Mode Dispersion			0.05	ps
Return Loss	65			dB
Response Time Rise/Fall	30			μs
Operating Optical Power		0.5	1	W
Operation Frequency	DC		100	kHz
Polarization Rotation [2]	0		4	π
Control Voltage [2]	0	35	80	V
Operating Temperature		-30 ~ 60		°C
Storage Temperature		-40 ~ 85		°C

Notes:

[1]. Excluding connectors. Connectors ad 0.3dB.

[2]. @1550nm

Rev 03/04/25

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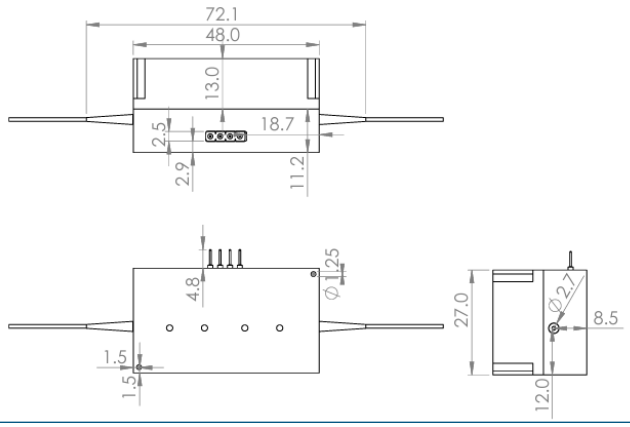
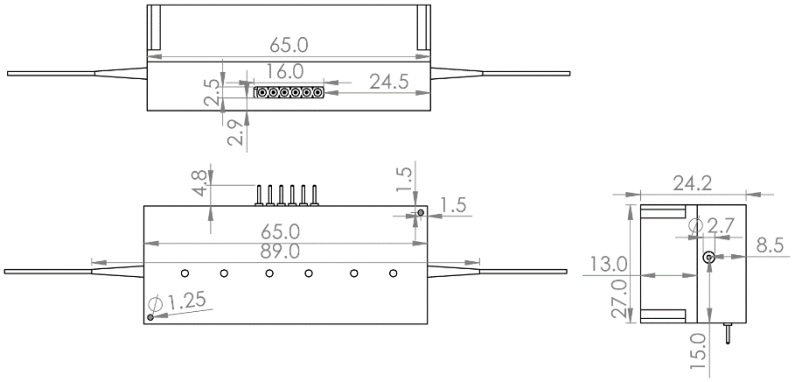
Mechanical Dimensions (mm)

2 Plates

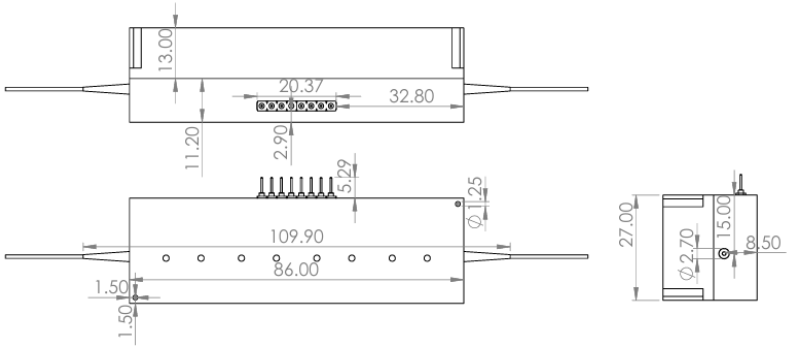


Pin #	Plate/Connection
1	NC
2	Ch 2
3	Ch 1
4	Ground

3 Plates

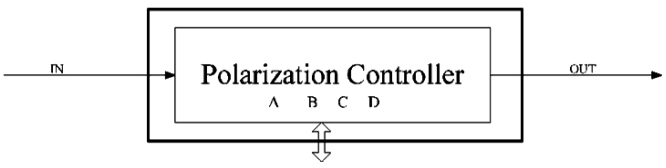


4 Plates



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Electrical Driver Pin Definition (4 plates A, B, C, D)



Pin #	Plate/Connection	Pin #	Plate/Connection
1	A-	5	B+
2	B-	6	C+
3	C-	7	D+ (NC For 3 Plates)
4	A+	8	D- (NC For 3 Plates)

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Ordering Information

	1 1	☐	☐	☐	☐☐	☐	☐	☐
Prefix	**Type**	**Wavelength**	**# Plates**	**Driver**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**
PIPC-		2000 nm = 2 1550 nm = 5 1310nm = 3 1060nm = 1 980nm = 9 850nm = 8 430nm = 4 530nm = A 630nm = 6 780nm = 7 Special = 0	2 = 2 3 = 3 4 = 4	Non = 1 Yes = 2 Special = 0	*Select from below table*	Bare fiber = 1 0.9mm loose tube = 3 Special = 0	0.25m = 1 0.5m = 2 1.0 m = 3 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 LC/PC = L Special = 0

Fiber Type Selection Table:

01	**SMF-28**	34	**PM1550**	71	**MM 50/125µm**
02	**SMF-28e**	35	**PM1950**	72	**MM 62.5µm**
03	**Corning XB**	36	**PM1310**	73	**105/125µm**
04	**SM450**	37	**PM400**	74	**FG105LCA**
05	**SM1950**	38	**PM480**	75	**FG50LGA**
06	**SM600**	39	**PM630**	76	**STP 50/125**
07	**780HP**	40	**PM850**	77	**IRZS23**
08	**SM800**	41	**PM980**	78	**IRFS32**
09	**SM980**	42	**PM780**	79	
10	**Hi1060**	43		80	
11	**SM400**	44	**PM405**	81	**UV180nm**
12		45	**PM460**		
13		46			

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Driver PCB

The driver contains four independent amplifiers that convert an input signal of 0-5V to 0-40V with a frequency bandwidth of DC-500KHz. A wall pluggable 12V DC power supply is included. The analog inputs are through SMA connectors. A metal electrostatic protection enclosure is an option for laboratory use to prevent electrostatic damage from hand touching.

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