

MOTORIZED POLARIZATION CONTROLLER MPC-1



Controlling polarization is essential within the fiber-optics industry – integrating this function with computer controlled capability enhances measurement speed, accuracy, and overall productivity.

FiberControl's Motorized Polarization Controller (MPC-1) provides stable and rapid control of the state-of-polarization of laser sources without altering the time-averaged power. Utilizing the patented all fiber Lefèvre loop design, this time-tested approach has proven to provide excellent control with ultra-low power variations (PDL). The flexibility inherent within this design allows for a wide range of applications from component testing to PMD related activities. The continuous length of fiber enables high power and ultra-low insertion loss. This design offers a wide range of AutoScan rates and high incremental angular resolution. Supply voltages range from 85 VAC to 264 VAC (47 Hz to 63 Hz).

FEATURES:

- Single-fiber design
- Ultra-low insertion loss, PDL, and back-reflection
- Convenient save/recall settings
- Multi-rate polarization scrambling
- AutoScan operation with a wide dynamic range of rotational speed
- GPIB IEEE 488.2 & RS-232 and BTM standard
- Labview 6.0 driver provided. May be used with C, C++, VB, or any other development language featuring GPIB support

APPLICATIONS:

- Component level PDL measurements
- Sub-system PDL testing
- General purpose in-line control of the SOP
- Low to medium-speed polarization scrambler
- Polarization pattern generator
- Maximize or minimize signal intensity with feedback from optical power meters (or OSA)
- Component within PMD emulator
- Component within PMD compensator
- Polarization stabilizer



FiberControl
Lightwave Polarization Solutions

P.O. Box 198
Holmdel, NJ 07733
U.S.A.

1-888-91-FIBER toll free
732 332-1860 telephone
732 332-1861 facsimile

info@fibercontrol.com email
www.fibercontrol.com web

SPECIFICATIONS (Optical, Line Power, Physical):

Optical Specifications	
Insertion-Loss (typical) ¹	< 1.00 dB
Extinction Ratio (typical) ²	> 40 dB
Coverage of Poincaré Sphere	100 %
Polarization Dependent Loss ²	< 0.002 dB
Wavelength Operating Range	1300 nm to 1600 nm, or 980 nm region
Connector Types	FC, SC, or Bare Fiber
Return Loss (Connector polish)	> - 50 dB (0°) > - 60 dB (8°, fusion splice)
Max. Signal Power ³	+30 dBm
Max SOP Transit Time	2880 °/sec
Rotational Resolution ⁴	0.15 °/step
Angular Accuracy (averaged over 360°) ⁵	± .00024°
Angular Repeatability (1s) ⁵	± .014°
Rotation Stability (Drift) Over Time	Below Measurement Limit (0.0069°)
Rotational Speed	1 – 2880 °/sec @ 33 °/sec
Rotation Speed Dynamic Range	2880
Settling Time	0.007 sec – 0.015 sec
Number of AutoScan Rate Settings	254
Number of Save/Recall Settings	6

¹ 1550 nm with connectors

² 1550 nm with FC/PC connectors, completely polarized light

³ Below SRS limit (SBS limit determined by the spectral broadening of user's source)

⁴ 1/8 stepping of 1.2 °/step stepper motor

⁵ Experimentally determined over representative sample of early production units, not guaranteed/non-warranted specification

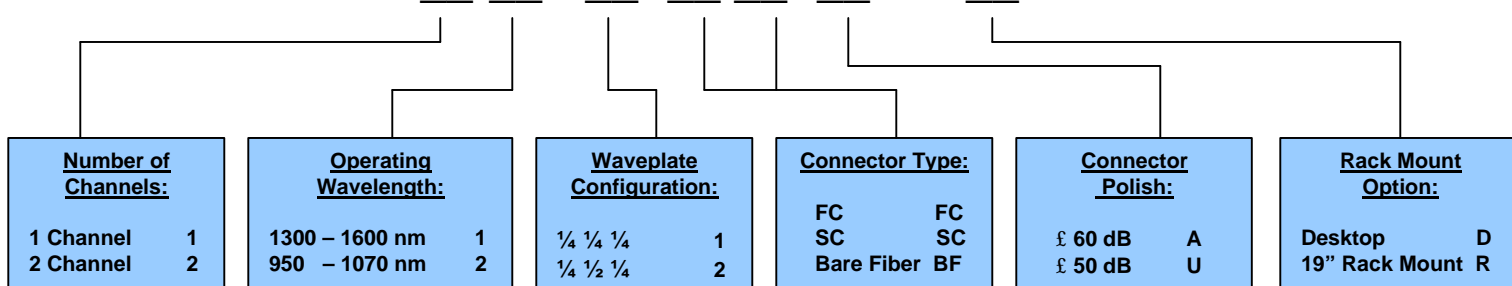
Instrumentation Control	
Parallel Interface	Standard GPIB (IEEE 488.2)
Serial Interfaces	Standard EIA-RS232
Response Time [†]	< 5 msec
Software Compatibility w/ GUI interface	LabView 6.0, C, C++, or any GPIB-compatible language
SOP AutoScan (pseudo-random)	User algorithms entered at front panel or via GUI
Waveplate Actuation	3-Phase stepper, 1.2° full-step res. Micro-stepping excitation controller.
System Controller	Embedded Microcontroller, 20 MHz
Operating System	Windows9x, 2000 Pro, Win NT 4.0

[†] - w/ IEEE 488.2 GPIB, RS232, Binary Transparent

Line Power / Temperature	
Electrical Input Voltage	85-264 ± 10% VAC
Line Frequency	47-63 Hz
Power Dissipation	24W
Power Receptacle	IEC 320
Operating Temperature	- 10 °C to + 35 °C

Physical	
Dimensions MPC1-1 (H x D x W)	8.9 x 40 x 23.5 cm 3½ x 15 ¾ x 9 ¼ in.
Weight	3.23 kg (7.12 lbs.)

MPC1 - - - - - PC-



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