Integrated PolaRITE™III with Miniature Piezo Driver Card

PCD-M02

This module integrates a General Photonics all-fiber dynamic polarization controller with miniature piezo driver card, so that the SOP of the signal can be directly controlled either by a 0-5V analog control signal or a 12-bit TTL digital control signal. Because there is an on-board HV DC/DC converter, no external high voltage power supply is required. The card can be configured to accept either a ±12 volt power supply or an external 160-volt power supply. As a polarization controller, the PCD-M02 can convert any input polarization state to any desired output polarization state. As a scrambler, it can randomize the output polarization state. This module offers the low insertion loss, low back reflection, and low activation loss needed for test and measurement applications, combined with the compact size needed for system integration or handheld devices.

Making Light Work Lighter
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Specifications[1]

Operating Wavelength	1260-1650nm or 980-1310nm standard Others available
Insertion Loss[2]	< 0.05 dB (without connectors) < 0.6 dB (with connectors)
Return Loss	>65 dB
Activation Loss	0.01 dB (P grade), 0.05 dB (A grade)
Polarization Mode Dispersion	0.05 ps
Polarization Dependent Loss	0.05 dB
Optical Power Handling	1000 mW
Polarization Control Range	0-4π each channel (Optical head V_π per channel ≤35V)
Number of Channels	3 or 4
Power Supply	+12VDC/1.2A, −12VDC/0.1A (standard) or +12VDC/1.2A, −12VDC/ 0.1A, +160V/100 mA (ext)
External Analog Input	10 pin
Analog Control Voltage	0-5V
Input Impedance (Analog)	≥20 kΩ
Analog Input Gain	30V/V ±1 %
External Digital Input	20 pin
Digital Control	TTL, 12-bit data, 4-bit control
Output Voltage Range	0-140V
Max. Output Current	20 mA / channel all channels (continuous) 60 mA single channel (continuous) 60 mA per channel (peak)
Output Impedance	50 Ω
140V Output Rise/Fall Time	<30 μs (MPD-001, no load), <400μs (PCD-M02)
15V Output Rise/Fall Time	10 μs (MPD-001, no load), 65μs (PCD-M02)
Noise[3]	<40 mV (RMS)
Operating Temperature	0° to 40° C
Storage Temperature	−20° to 60°C
Board Dimensions	3.94" (L) × 3.94"(W) × 0.69" (H)

1. Optical specifications are referenced without connectors.
2. For SMF-29 compatible fibers. Other fibers may have higher loss, especially with connectors.
3. The noise is measured with the output set to 140V and an output capacitance of 0.18μF (capacitance of piezoelectric actuator used in PolaRITE II/III). It may decrease with higher output capacitance and increase with no output capacitance.

Applications:

- Polarization control
- Polarization scrambling
- PDL measurement
- PMD compensation/emulation
- Fiber sensor

Features:

- Minimal insertion loss
- Low activation loss
- Fast response
- Digital and analog control
- Compact

Ordering Information:

PCD – M02 – XX – X– XXX

# Channels:
3X = 3 Channel
4X = 4 Channel

Operation Wavelength:
1=480 nm
2=633 nm
3=780 nm
4=820 nm
6=980-1310nm
7=1260-1650nm

Connector Type:
FC/PC, FC/APC or
NC = no connectors
Others specify

GP-DS-PCD-M02-11
8/25/15