Acrobat™ Polarization Controller

High-speed Polarization Control in a Compact Package

Boston Applied Technologies' Polarization Controller converts any input state of polarization to any selectable output state of polarization by the application of voltage to independently controlled retardation plates. The device uses OptoCeramic® electro-optic materials to enable high-speed, solid-state polarization conversions in a compact package. Options include printed circuit board mounted voltage drivers as well as complete packaged system for easy lab bench operation.

Features

- High speed
- Low loss
- Compact
- Solid state
- Meets or exceeds Telcordia GR1221 and GR1209 specifications

Applications

- Polarization mode dispersion compensation
- Polarization scrambler
- Polarization multiplexing
- Polarization generator
- Polarization management

BATI
Boston Applied Technologies, Incorporated

Polarization Controllers

PCM400: Optical module (four plates)

PCM410: Polarization control kit. PCM400 and a voltage driver packaged for laboratory use, including a 110VAC to 5V power supply, BNC connectors for voltage input, and FC/PC connectors.

PCM420: PCM400 and a voltage driver which converts a 0-4V input signal to the drive voltage.

Key Optical Specifications

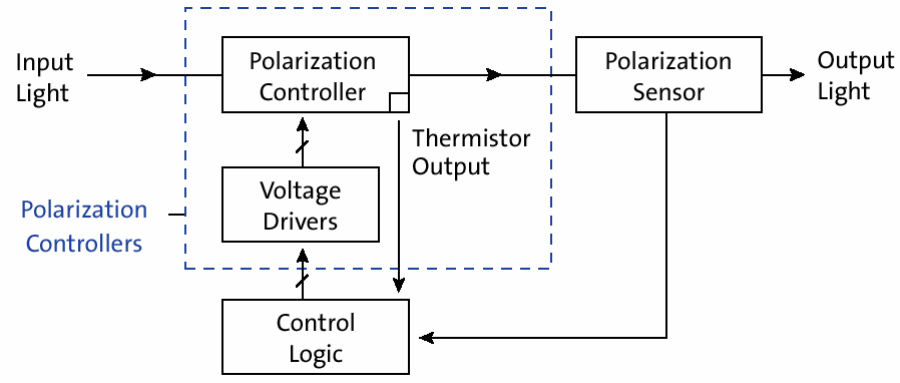
Attributes[1,2]	**Performance**
Wavelength Range[3]	1530-1565 nm, 1570-1610 nm
Insertion Loss[2]	1 dB max, ≤ 0.8 dB typical
Speed[4]	≤ 30 µs
Input Power[5]	≥ 1000 mW
Polarization Mode Dispersion	≤ 0.05 ps
Polarization Dependent Loss	≤ 0.1 dB
Return Loss	≥ 55 dB
Activation Loss	0.1 dB
Power Consumption[6]	600 mW typical
Operating Temperature Range	0°C to 70°C
Storage Temperature Range	-40°C to 85°C
Dimensions (approximate)	22.3 x 11 x 7.8 mm (0.88 x 0.43 x 0.31 inches)

Notes:

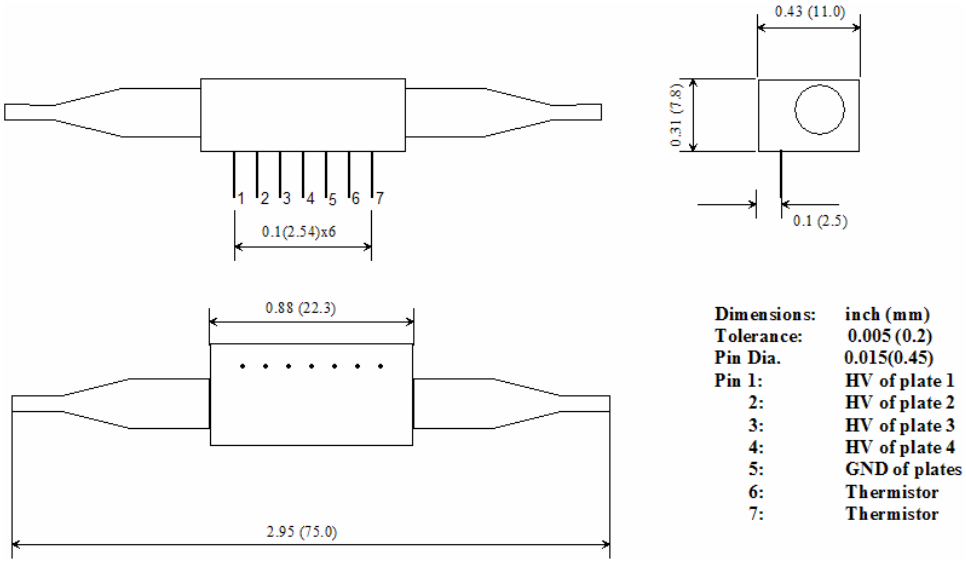
1. Unless otherwise specified, all measurements are at 25°C and 1550 nm.
2. For all wavelengths with zero volts drive.
3. 1310nm and other wavelength also available.
4. The optical response time of a single plate to a change of zero to V(π).
5. Up to 2.7W input power was tested on BATI's devices.
6. Includes voltage drivers used in the PCM420.

System Diagram

BATI's Polarization Controllers are designed to be used in a closed-loop environment utilizing the output from a sensor for feedback. The feedback provides input to the control logic to ensure that the desired polarization state is achieved and maintained.



Mechanical Footprint



Notes:

1. Thermistor is 10KΩ @ 25°C with ± 0.2°C precision.
2. All dimensions are in inches (measurements inside parentheses are in millimeters), and have a tolerance of 0.005 inches (0.2 mm)
3. Pin diameter is 0.018 (0.46).

PCM400 Cross-section View

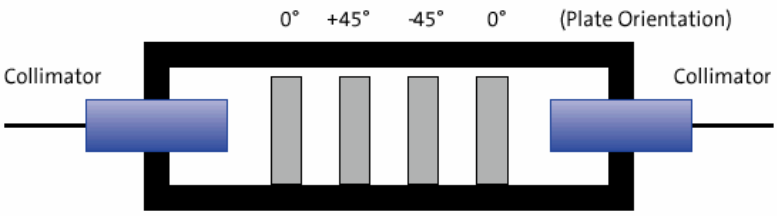


Plate number and orientation can be customer defined.

For More Information

For More information about Boston Applied Technologies' leadership in polarization controller technology and other optical networking modules and components, visit our website at www.bostonati.com.

To obtain additional technical information or to place an order for this product, please contact us:

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