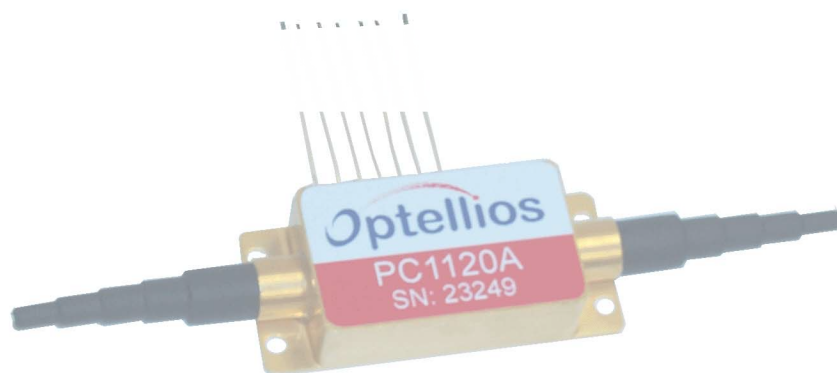




## ***Polarization Synthesizer PC1120A***



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## ***The Product***

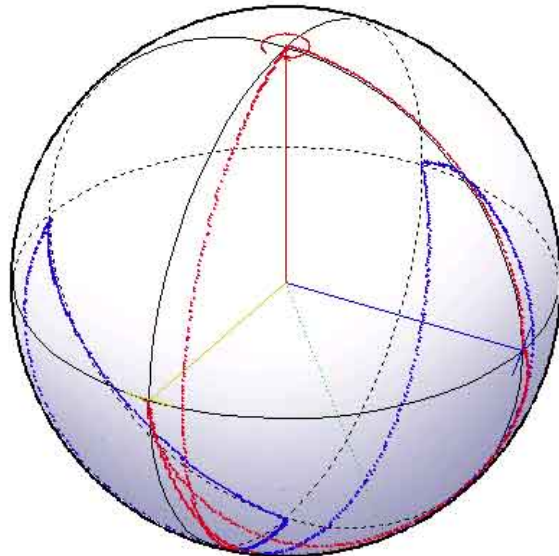
Optellios' PC1120A Polarization Synthesizer is a deterministic polarization controller that can accurately generate any desired polarization state without using feedback. The output polarization is defined relative to the internal linear polarizer. PC1120A provides exceptional accuracy at any wavelength across the entire telecom (S+C+L) band.

PC1120A is based on Optellios' patent pending technology, which enables high performance with no moving parts and ultra-low power consumption. The device has no intrinsic drifts or hysteresis in its performance.

Each unit is supplied with a calibration, incorporated into an easy-to-use software that calculates the operating voltages. Two control voltages define the output polarization, while two more signals can be used to adjust the input polarization for optimal power throughput. The calibration calculator is also available as a dynamic link library for integration into the user software.

Polarization synthesizer is ideal for applications that require deterministic, accurate, and reproducible generation of multiple polarization states, including 4-state measurements of PDL, PMD, Jones matrix, birefringence, state of polarization, and other polarization-related properties. The synthesizer can be used as a discrete SOP switch or as a continuous SOP rotator.

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*Switching among six polarization states using PC1120 Polarization Synthesizer*

## ***Features***

- Deterministic polarization control
- Open-loop operation
- No moving parts
- Hysteresis-free performance
- Operation over S+C+L band
- Low insertion loss
- Low activation loss
- Low control voltage
- Ultra-low power consumption
- Small size and footprint
- Rugged design

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## Preliminary Specifications

Parameter	Value	Comment
Polarization Accuracy	< 2°	Poncare Sphere degrees
Settling Time	< 100 ms	Typical
Insertion Loss	< 1.8 dB	Excluding connector or fusion splice loss
Return Loss	> 50 dB	
Activation Loss	< 0.1 dB	
Optical Power Handling	> 23 dB	Tested under 26 dBm optical power for 30 min.
Dimensions	44x19x10 mm	Excluding strain relief boots
Operating Temp.	0 to 65°C	
Storage Temp.	-40 to +85°C	

## Control Signals

No d.c. bias voltage should be applied to the control signal inputs of the device at any time.

Parameter	Value
Signal Channel Count	2 + 2
Signal Waveform	Square wave
Frequency	1 kHz
Amplitude	0 - 5 Vrms
Resolution	2 mV (12 bits)
Maximum Amplitude	10 Vrms
Thermistor Bias	4 - 8 Vdc
Thermistor Output	0 - 1 Vdc
Thermistor Slope	10 mV/°C

## Ordering Info

Order using the part number information below:

PM = PM to PM

SM = SM to SM

SP = SM to PM

Center Wavelength (nm)

1550 = 1550 nm

1310 = 1310 nm

# PC1120XX-XX-XXXX

FC = FC/PC

FA = FC/APC

SC = SC/PC

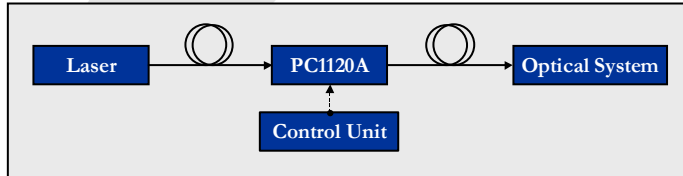
SA = SC/APC

NN = No Connector

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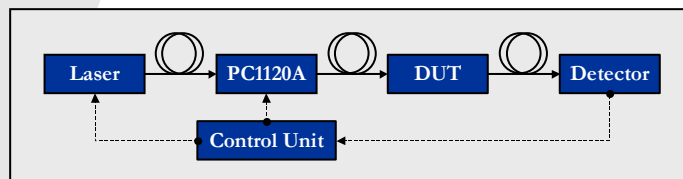
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## Applications



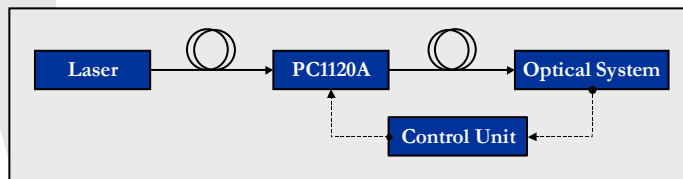
### ***Deterministic Polarization Switch, Rotator, Scrambler***

PC1120A Polarization Synthesizer can be used to stimulate the Optical System of Interest with a predefined discrete or continuous sequence of polarization states.



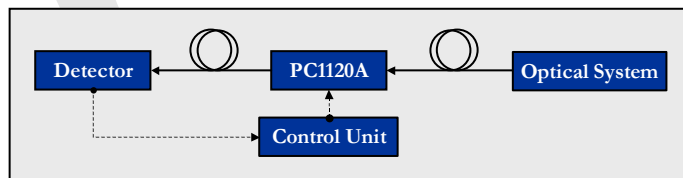
### ***4-State Measurements of Polarization-Related Properties***

PC1120A can be used as a 4-state generator for measuring PDL, PMD, and other polarization-related characteristics of systems and components by Muller method.



### ***Launch SOP Optimization***

Polarization Synthesizer can be used to quickly and efficiently optimize the polarization state for launch into a System of Interest.

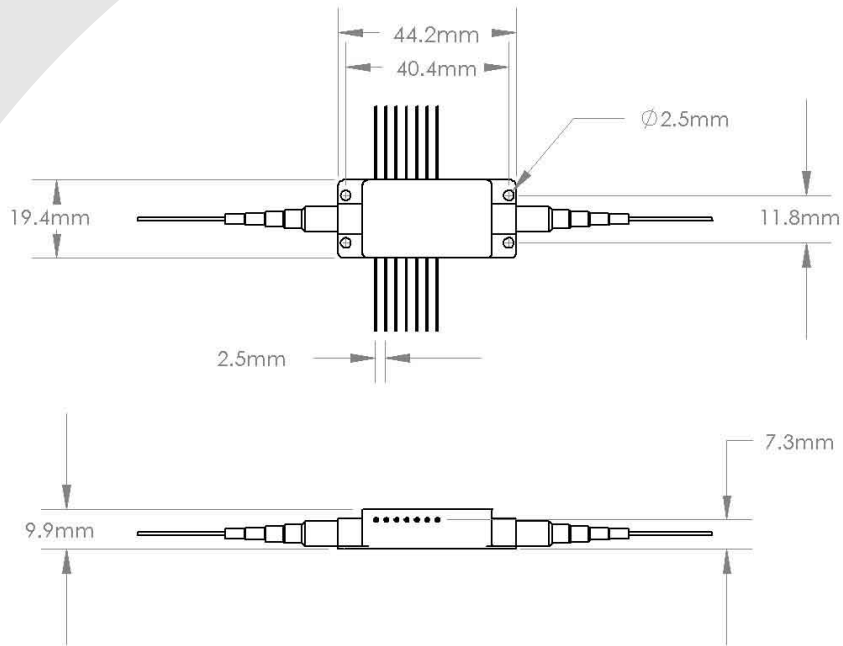


### ***Polarization State Monitoring***

In the reverse geometry, PC1120A can be used for SOP measurements. This may be an inexpensive alternative to commercial polarimeters for various sensing applications.



**Mechanical Design**



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