

**ADVANTEST**

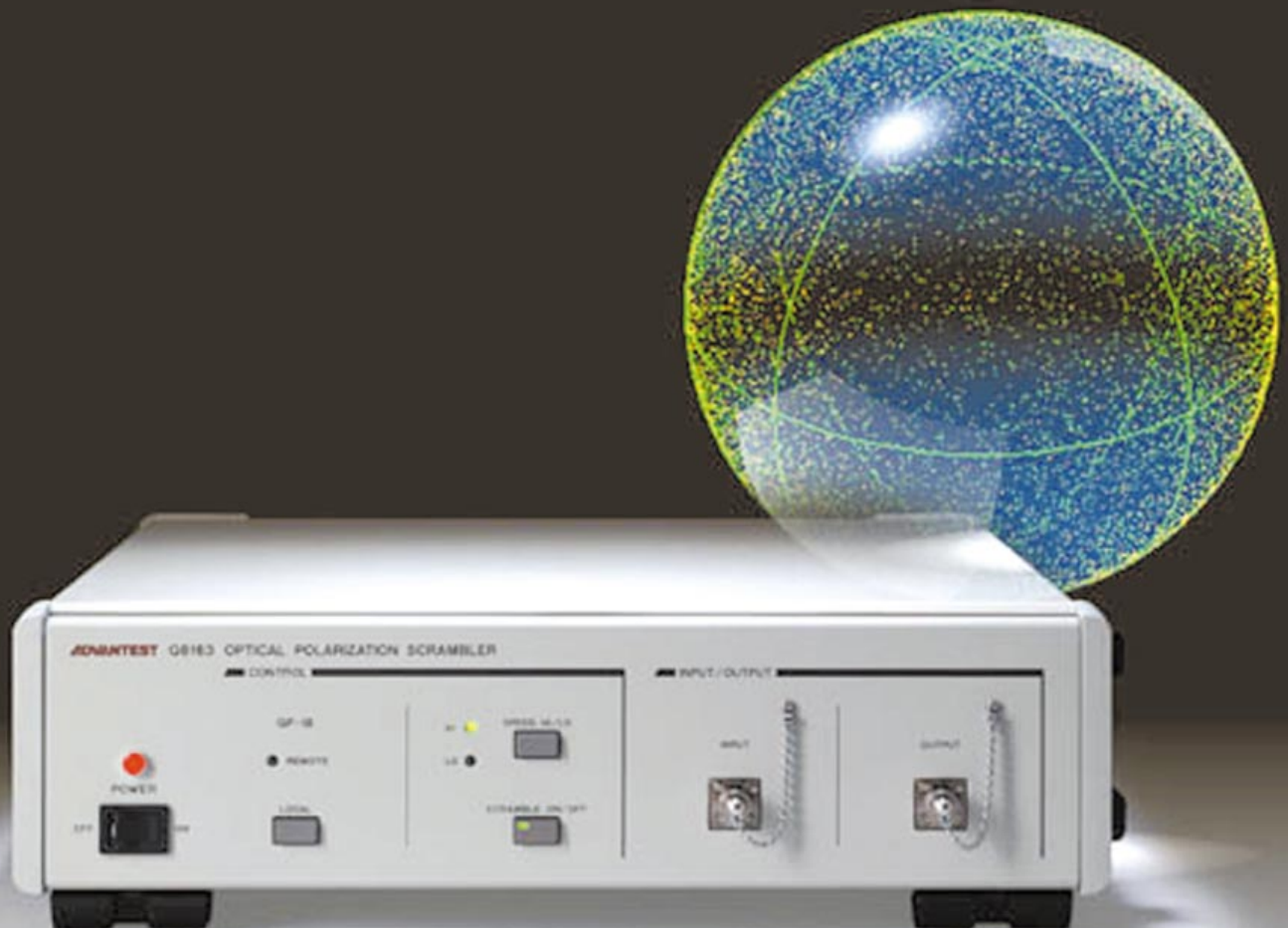
**Q8163**  
**Optical Polarization Scrambler**

For Measurement of Polarization Dependent Loss (PDL)

- High-speed polarization variable:  
500 rotations of the Poincaré sphere per second or more
- Low fluctuation of insertion loss:  $\pm 0.005$  dB or less
- Low insertion loss: 3 dB or less



Q8163



ADVANTEST's original polarization-variance method.

By adopting the high-speed optical-fiber polarization scramble unit, the Q8163 achieves:

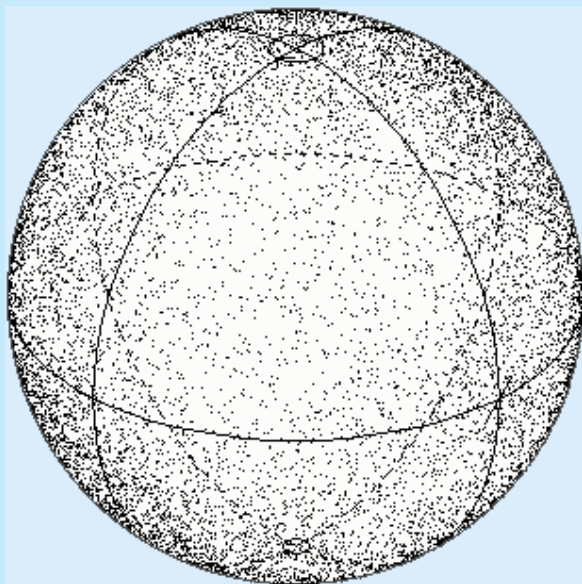
- High-speed polarization variance
- Low fluctuation of insertion loss
- Low insertion loss
- High reliability

Fast and ensured measurement of polarization dependent loss (PDL) can be made by using it with the Q8221 series optical power meter, which offers low polarization dependency, high speed measurements, and a LD light source.

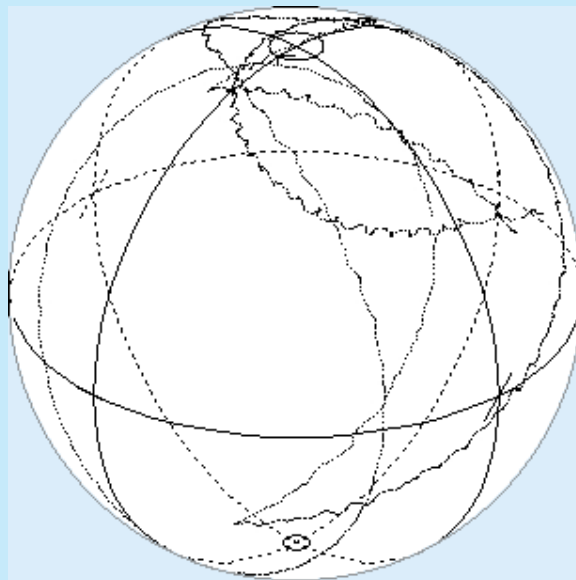


Quickly generates every state of polarization

Q8163



Conventional polarization controller



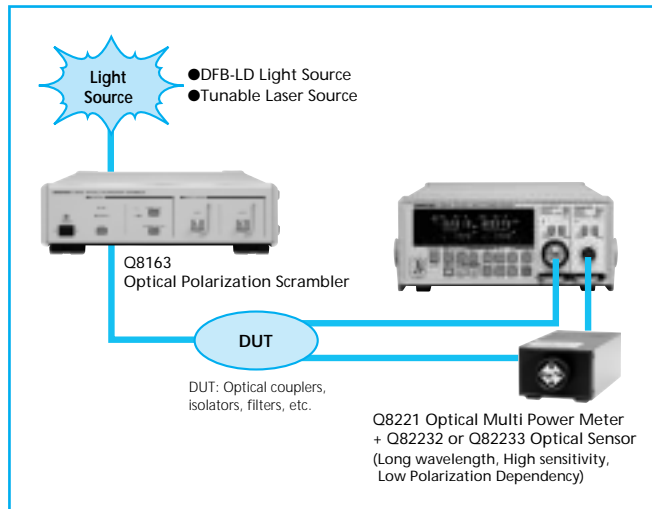
Measurement time: 2 seconds

With conventional methods, the polarization control paddle or wavelength plate was rotated manually or by the motor. Therefore, the polarization states could not be changed quickly. However, with the Q8163, every polarization state

can be produced within a short time. The illustration of the Poincaré sphere above shows that the Q8163 produces every polarization state within a short time by drawing traces for numerous points on the sphere.

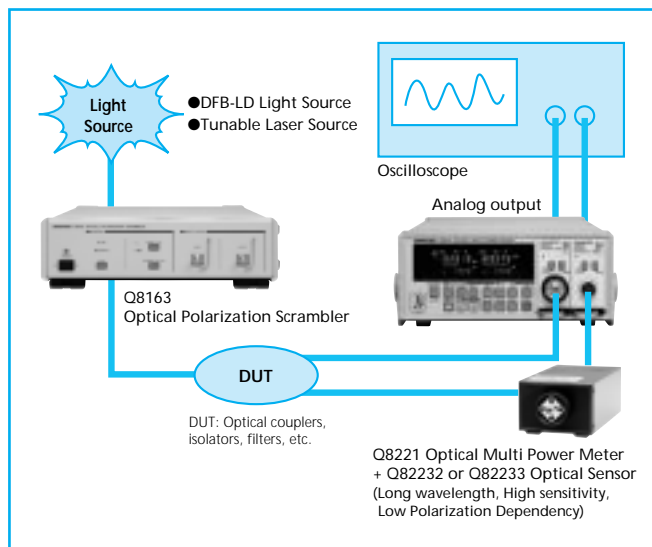
## Measurement of Polarization-Dependent Loss (PDL)

PDL can be accurately measured, as the system actually measures every state of polarization. With the system configuration shown above, precise measurement is possible in 1 second at PDL=0.2 dB. When used with a tunable laser source, high speed wavelength dependent PDL measurements are possible.



## Adjustment of Polarization Dependent Loss (PDL)

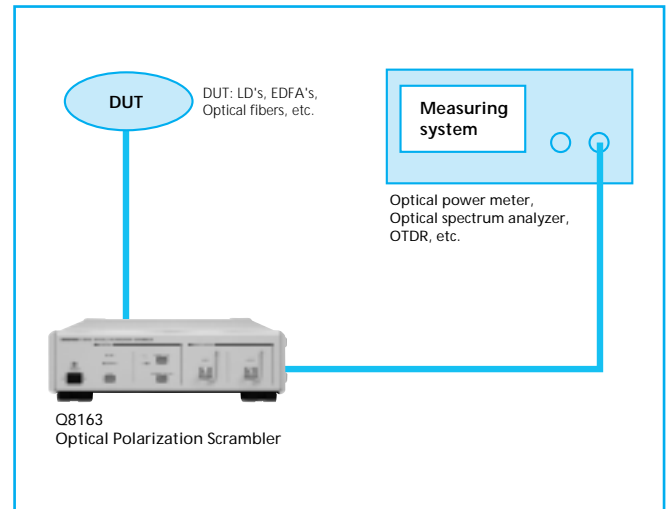
Fluctuation of PDL can be monitored in real time by monitoring analog output with an oscilloscope. Thus, adjustment on manufacturing lines can be made easily.



Please be sure to read the manual of product thoroughly before using the products. Specifications may change without notification.

## Solution for Polarization Dependence of Measuring Systems

In case there is problem with residual polarization dependence in the measuring system, measurement accuracy can be increased by using a Q8163 connected before the measuring instrument.



## Specifications

Wavelength range:	1.29 to 1.58 $\mu\text{m}$
Insertion loss:	3 dB or less
Insertion-loss fluctuation:	$\pm 0.005$ dB or less
Return loss:	43 dB or more (47 dB typical)
Polarization-variance speed (two modes available):	500 rotations of the Poincaré sphere per second or more (high speed) 10 rotations of the Poincaré sphere per second or more (low speed)
Input/output connector:	FC-SPC
External control:	GPIO equipped as standard
Operating environment:	Temperature; 10 to 40°C Relative Humidity; 85% or less (no condensation)
Storage environment:	Temperature; -20 to 60°C Relative Humidity; 90% or less (no condensation)
Power supply:	90 to 250 V AC, 48 to 66 Hz, 72 VA or less
Dimensions:	Approx. 88 (H) X 330 (W) X 450 (D) mm
Mass:	Max. 10 kg

## Accessories

A08162	SC-type input/output connector-adaptor
A08163	ST-type input/output connector-adaptor
A02245	Rack Mount Set EIA

## Option 13

### Output Option using Optical Fiber with Connector

Option 13 is a light output option using optical fiber (2m, dispersion shift fiber) with FC-SPC connector, which makes fusion splice to a device to be measured possible.



\*Please order this option at the same time as the purchase of Q8163 main unit.

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