

High-Speed OPM Optical Power Meter



When the optical power changes at a high speed, it is a great challenge for the power meter to accurately and quickly capture the power value. The traditional optical power meter cannot meet the demand for high-speed and accurate measurement. Therefore, the high-speed optical power meter came into being. Traditional optical power meters take a lot of time in power value integration and gain shift switching in order to measure the accuracy of numerical values and the requirements of large dynamic range, so they cannot output effective optical power values quickly and accurately. Therefore, it cannot meet the application requirements of high-speed automated test systems and high-speed monitoring systems.

Dimension Technology's high-speed optical power meter ensure high-speed power output and meet the needs of large dynamic range at high speed in principle design and component selection. It has batch acquisition working mode and trigger acquisition mode, and can provide high-speed continuous acquisition of up to 10KHz, large dynamic range (+10dBm~-70dBm), and a storage depth of 10 million measurement data (Each channel). Cooperating with tunable light source products, it provides a high-efficiency and high-performance test solution for the rapid scanning of optical passive devices (DWDM, AWG, WSS and so on).

For user convenience and maximum flexibility, the Dimension OPM modules feature a wide range of interchangeable detector adapter interfaces (supporting various connector types; details provided in the attached table) and allow for bare fiber measurement with a fiber holder. The product comes standard with an FC detector adapter and also offers an external probe extension cable for remote head applications.



Platform + Modular Design

All OPM Optical Power Meter functional modules are compatible with the ALPHA and OMEGA universal optical test platforms. Through programmable control, they can work in synergy with other functional test modules to achieve a one-stop automated test solution.



High-Speed Series

The High-Speed OPM series modules incorporate a high-speed sampling circuit. In high-speed mode, they can achieve a maximum optical power data acquisition rate of 200 kHz. Configured with a storage depth of 10 million measurement data points per channel, and when paired with Dimension's stable light source series products, they provide an efficient and cost-effective test solution for rapid scanning of passive devices.

Main Features

- Continuous acquisition frequency up to 10KHz (full power range)
- Support automatic gain shift acquisition measurement in high-speed mode
- Each channel has a storage depth of up to 10 million
- Support continuous trigger acquisition mode
- Support single trigger batch acquisition mode
- Support fixed gain compensation setting
- User-configurable analog output port
- Support optical power detection range in high-speed mode: +10dBm~-70dBm
- Support any wavelength setting within the wavelength range of 850nm~1650nm
- Single module can provide 1, 2 or 4 channel optical power detection

Applications

- Optical passive devices (DWDM, AWG, WSS ...) wavelength rapid scanning test
- Optical active device/passive device PDL high-speed scanning test
- Fast capture of optical signals in the field of optical fiber sensing
- Fast optical coupling automated test system
- Optical chip rapid test system
- Automated high-speed test system
- Optical network optical signal monitoring system
- Research laboratory

Key Specifications

Product Model	OPM6XXXXA
Number of Channels	1/2/4
Detector Type	InGaAs
Detector Size	2mm
Wavelength Range	850nm~1650nm
Power Detection Range	+10dBm~-70dBm (Typ.)
Maximum Safe Power	+13dBm
Linearity ^[1]	±0.05dB (+5dBm~-50dBm)
Polarization Dependent Response ^[2]	±0.01dB (0dBm~-50dBm) (Typ.)
Uncertainty ^[3]	± (5%+100pW)
Power Resolution	0.001dB
Wavelength Resolution	0.1nm
Sampling Rate	200Khz(MAX)
Storage Depth	10 million per channel
Storage Support	Yes
Analog Output	Yes
Fiber Type	SM/MM

Interface Options List

NO	Code	Name	Purpose	Sketch
1	204810002	OPM FC Interface	Optical power detection interface, adapts to FC connectors	
2	204810003	OPM SC Interface	Optical power detection interface, adapts to SC connectors	
3	204810004	OPM LC Interface	Optical power detection interface, adapts to LC connectors	
4	204810007	OPM 2.5 Universal Interface	Optical power detection interface, adapts to FC, SC, ST connectors and 2.5 mm ferrules	
5	204810006	OPM 1.25 Universal Interface	Optical power detection interface, adapts to LC, Duplex LC, SN connectors and 1.25 mm ferrules	
6	204810014	OPM Integrating Sphere	Provides wide numerical aperture, can be used with Duplex LC, MPO interfaces	
7	204810015	OPM MPO Interface	Optical power detection interface, adapts to MPO 12, MPO 16 connectors	
8	204810016	OPM Duplex LC Interface	Optical power detection interface, adapts to LCC, Duplex LC connectors; measures both LC ports simultaneously, no switching required	
9	204810017	OPM Bare Fiber Interface	Optical power detection interface, for bare fiber power testing	

Remark

- [1] Not contain noise and drift, CW model, 1000 to 1600 nm.
- [2] The temperature is $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$, using a non-angle FC connector, 1550nm wavelength, the power is constant.
- [3] The temperature is $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$, using a non-angle FC connector, 1000 to 1640 nm wavelength, When the wavelength is less than 1000 nm, the uncertainty of 1% is increased, and when the wavelength exceeds 1640 nm, the uncertainty is increased by 6%.
- [4] The test fiber type was standard SM 9/125 fiber and MM 62.5/125 fiber.

Main Features

OPM					
	OPM Mode	Channel Quantity	Detector type	Detector size	Expanded option
	6 High-speed 200kHz series	1 1CH 2 2CH 4 4CH	1 InGaAs detector	2 2mm	A MAX power (+10dBm) X Specified by Customer

Eg. OPM6412A High speed 200kHz OPM, 4CH, 2mm InGaAs detector, MAX power+10dBm.