High-speed Optical Power Meter

AlphaController

100G

400G

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).

Key Features

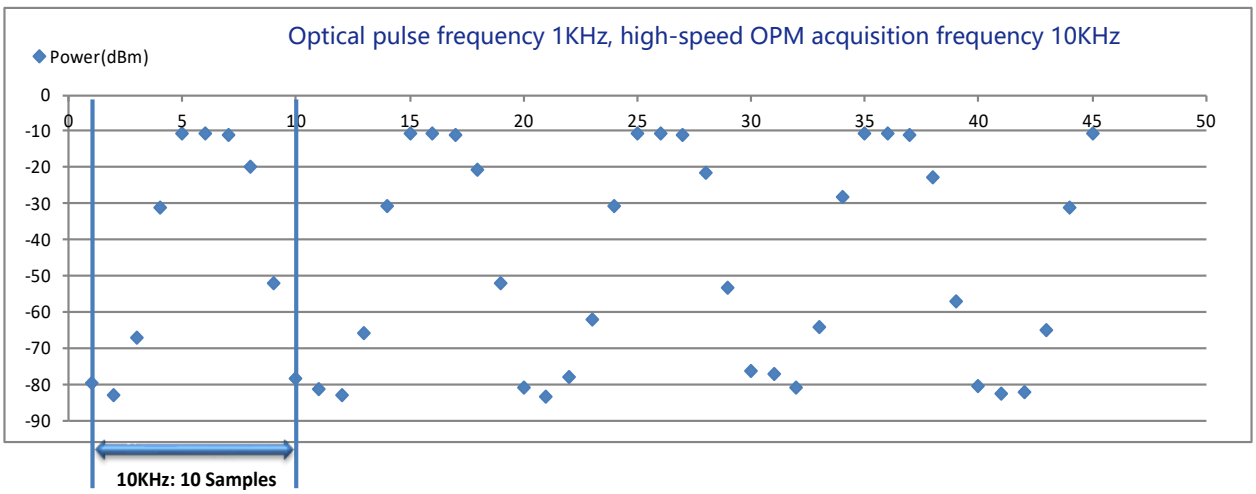
- Continuous acquisition frequency up to 10KHz (full power range)
- Support automatic gain shift acquisition measurement in high-speed mode
- Each channel has a storage depth of up to 10 million
- Support continuous trigger acquisition mode
- Support single trigger batch acquisition mode
- Support fixed 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

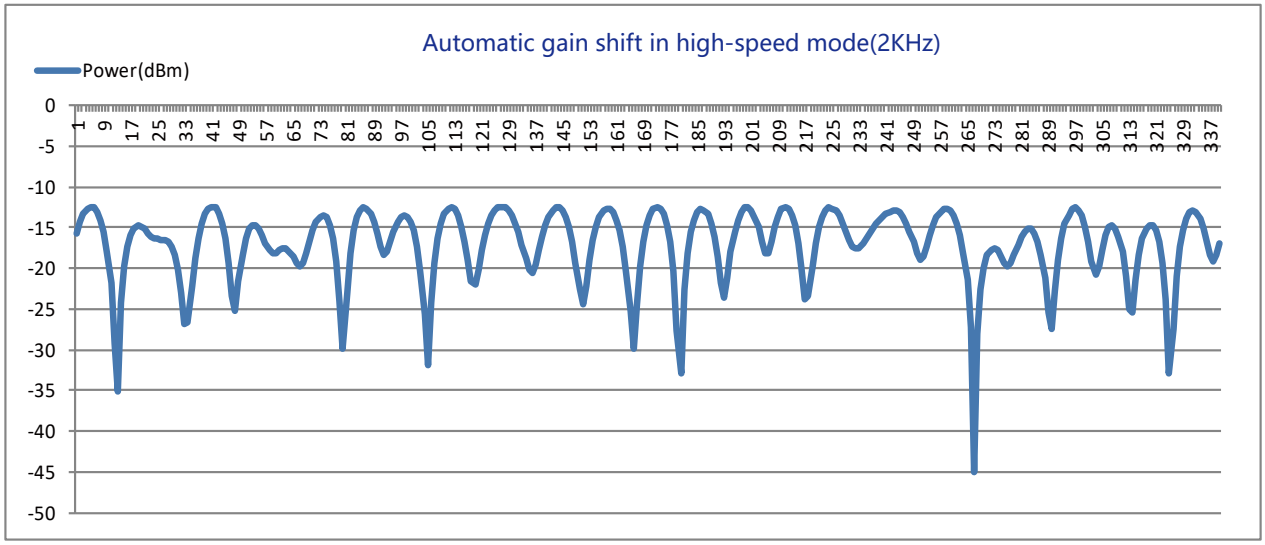
Continuous acquisition frequency up to 10KHz (full power range)

The high-speed optical power meter can quickly acquisition and measure the transient fluctuation and noise of the optical signal, restore the fluctuation details of the signal, and characterize the continuous change of the optical signal.



Support automatic gain shift acquisition measurement in high-speed mode

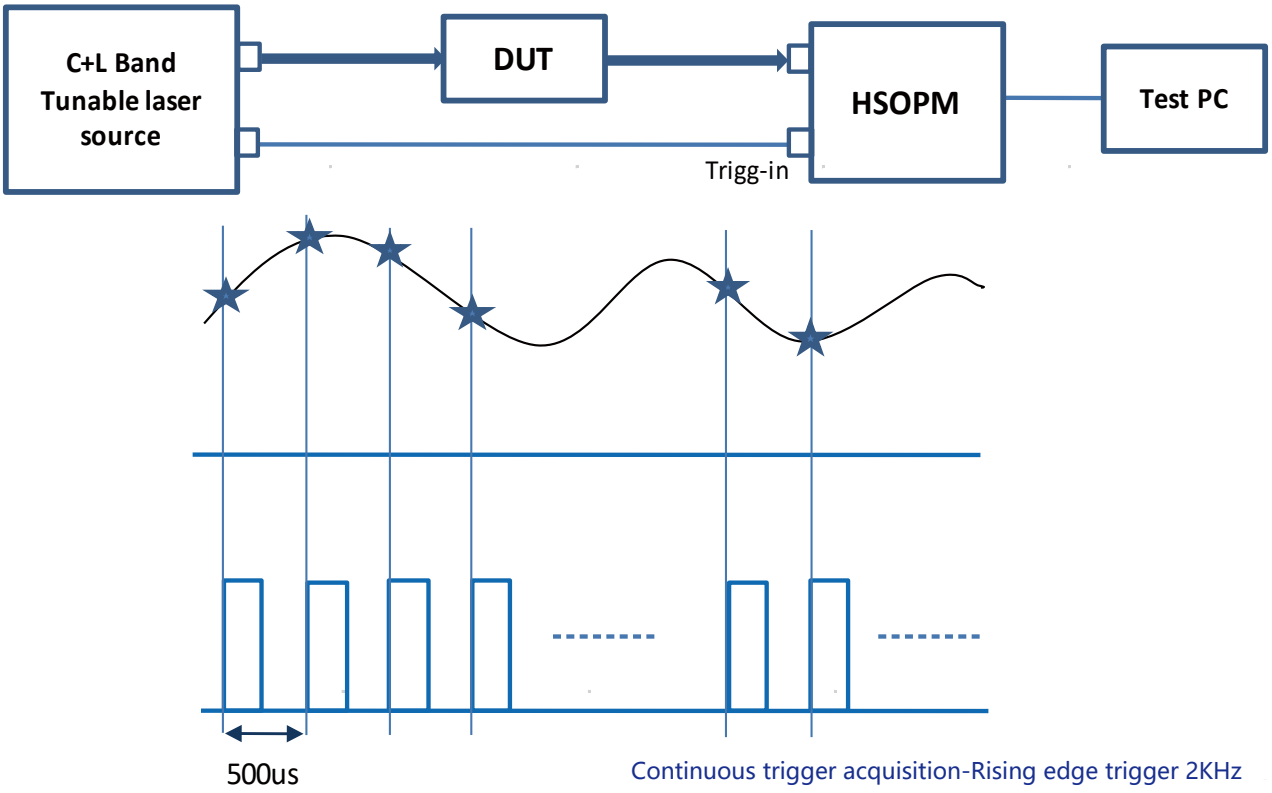
Provides fast automatic gain shift acquisition in high-speed mode, which is very important for accurate acquisition and measurement of power changes in large dynamic range scenarios.



Each channel has a storage depth of up to 10 million

Support continuous trigger acquisition mode

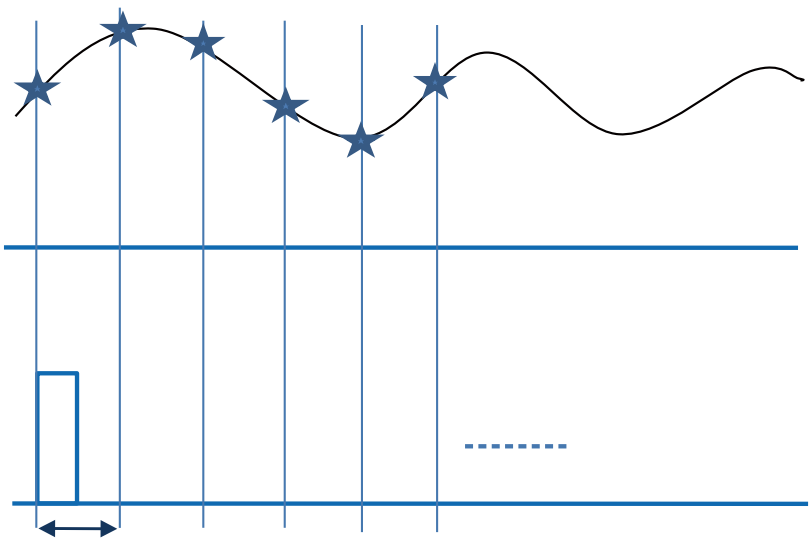
User configurable trigger input port (trigg-in), users can connect an external trigger signal (eg.tunable light source) to the power meter trigger-in port according to their own test requirements to achieve continuous trigger acquisition, synchronous trigger, acquisition data.



Continuous trigger acquisition-Rising edge trigger 2KHz

Support single trigger batch acquisition mode

Users can connect the external trigger signal to the trigger-in port of the power meter according to their own test requirements to achieve single trigger batch acquisition function.

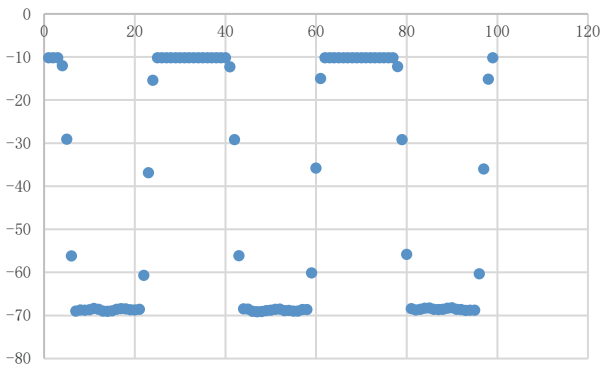


Single trigger batch acquisition --Rising edge trigger 2KHz

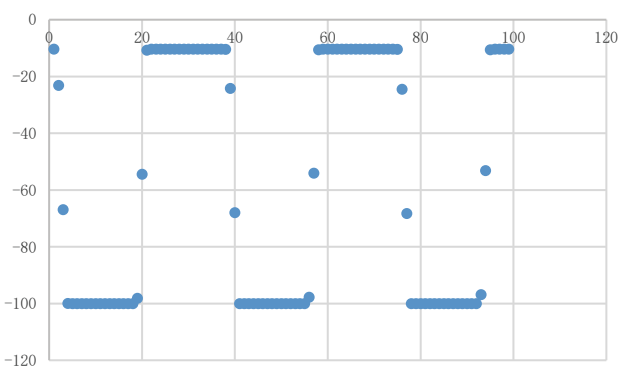
Support fixed gain compensation setting

The fixed gain compensation setting can achieve high-speed acquisition faster, and the response time for large dynamic range data acquisition is shorter. It is easier to capture the transient changes of the signal.

Automatic gain shift acquisition(2KHz)



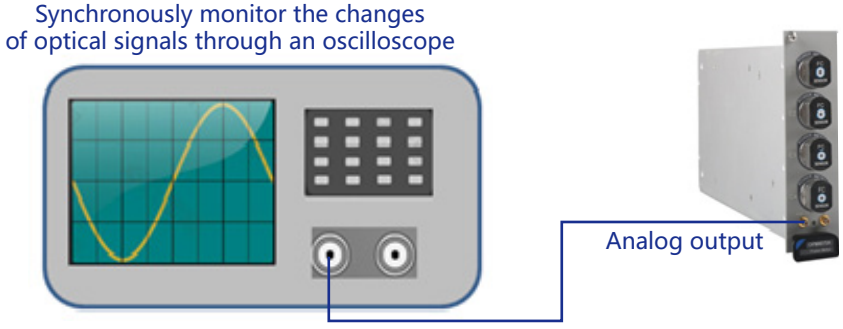
Fixed gain compensationshift acquisition(2KHz)



The fixed gain compensation setting has a shorter response time for large dynamic range data acquisition

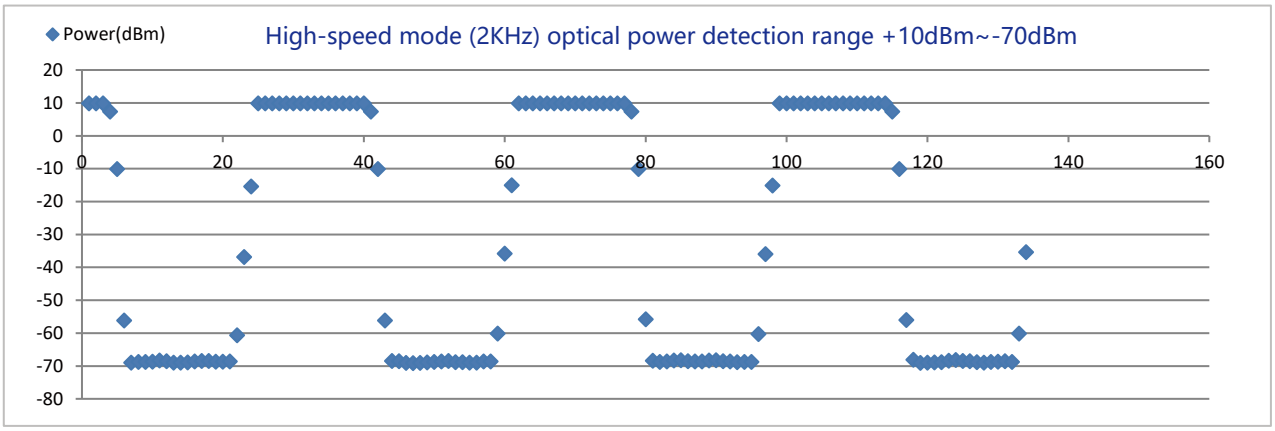
User-configurable analog output port

Users can use the analog output port to connect with an oscilloscope to realize synchronous observation of the acquisition signal.



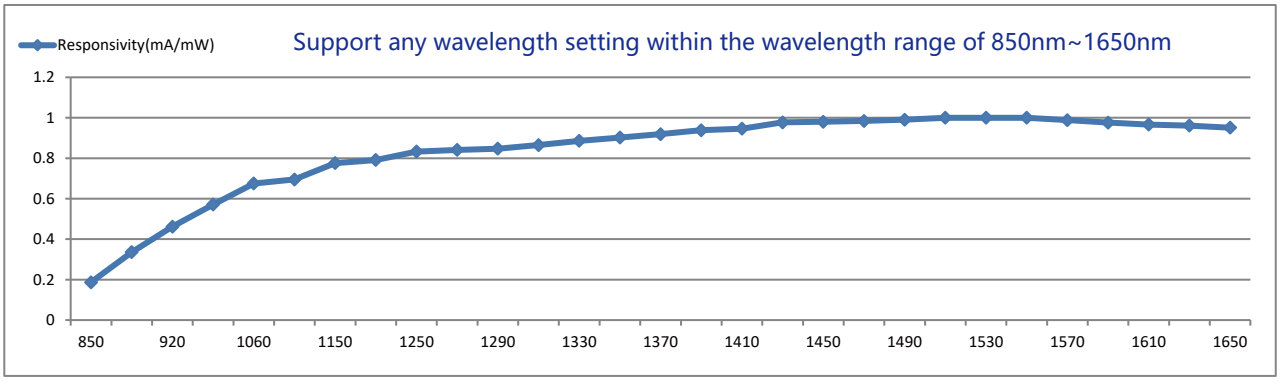
Support optical power detection range in high-speed mode: +10dBm~-70dBm

Users can use the analog output port to connect with an oscilloscope to realize synchronous observation of the acquisition signal.



Support any wavelength setting within the wavelength range of 850nm~1650nm

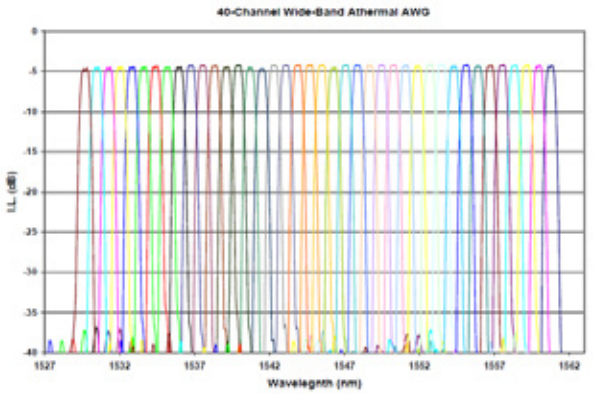
In order to ensure the accuracy of power measurement at any wavelength in the range of 850nm to 1650nm, Dimension Technology has accurately calibrated light sources of different wavelengths. Therefore, our power meter supports users to set any wavelength and ensures the accuracy of power.



Typical application

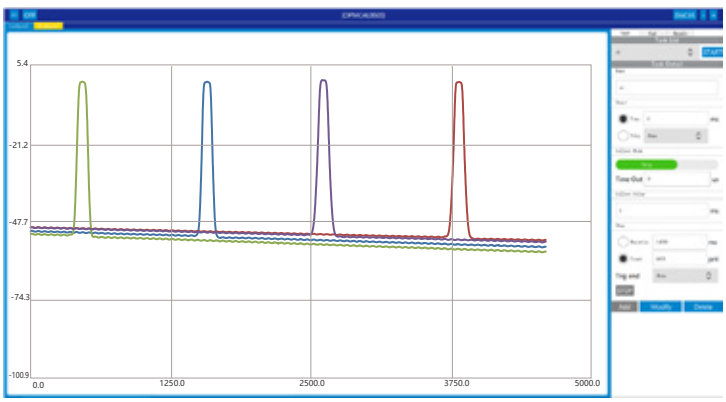
Combined with a tunable light source, the main application of high-speed optical power meters in the wavelength scanning test of optical passive devices.

In the fast scanning test of passive components (DWDM, AWG, WSS, etc.), spectral isolation is a key feature for testing multiple wavelength multiplexing devices. It will determine the crosstalk of signals at different wavelengths, evaluate and measure the insertion loss and the inhibition of other wavelengths is an important indicator of isolation or routing wavelengths to other port.



Support optical power detection range in high-speed mode: +10dBm~-70dBm

The universal optical test platform OMEGA is equipped with Ethernet interface, RS232 interface and USB communication interface. Users can easily realize secondary software development through the universal communication protocol instruction set. At the same time, we also provide exclusive DEMO software to facilitate customer evaluation and showing.



For user convenience and maximum flexibility, Dimension provides a wealth of interchangeable detector adapters (Applicable to various fiber connector types), as well as an fiber clamps that allow the bare fiber power measurement. The product comes with FC adapters in the form of a standard accessory, and also provides an external detector extension cable for remote head user selection.

Specifications[4]

Model	OPM2XXXA
Number of detectors	1/2/4
Detector type	InGaAs
Detector size	2mm
Wavelength range	850nm~1650nm
Power range	+10dBm~-75dBm(Tpy.)
Maximum safe power	+13dBm
Linearity[1]	±0.05dB（+5dBm~-50dBm）
Polarization-dependent responsivity[2]	±0.01dB（0dBm~-50dBm） (Tpy.)
Uncertainty[3]	±（5%+500pW）
Display accuracy	0.001dB
Wavelength resolution	0.1nm
Sampling rate	10Khz(MAX)
Return loss	>55 dB
Buffer size	10 million/CH
Trigger input	Support
Analog output	Support
Fiber type	SM/MM

General Specifications

Control interface	Network,USB,Touch screen and Button
Result output	mW/dB/dBm options
Recalibration period	two years
Warming up time	20 minutes (if the storage temperature is different from the service temperature, the preheating time is 60 minutes)
Working temperature	10℃~40℃
Storage temperature	-40℃~70℃
Input power	90~260V AC
Size	Module：285mmX133mmX35mm

Remark

[1] Not contain noise and drift, CW model, 1000 to 1600 nm.

[2] The temperature is 23 °C ± 1 °C, using a non-angle FC connector, 1550nm wavelength, the power is constant.

[3] The temperature is 23 °C ± 1 °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.

Ordering Information

OPM [ ] [ ] [ ] [ ] [ ]

OPM Mode	
1	General-purpose series
2	High-speed series
3	High-power series
4	High-sensitivity series
5	External detector series

Channel Quantity	
1	1CH
2	2CH
4	4CH

Detector type	
1	InGaAs detector
2	Si detector

Detector size	
2	2mm
3	3mm

Expanded option	
A	MAX power (+10dBm)
B	MAX power (+26dBm)
C	MAX power (+36dBm)
X	Specified by Customer

eg. OPM2212A High speed OPM, 2CH, 2mm InGaAs detector, MAX power +10dBm

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