OSW Optical Switch

To meet diverse requirements in optical communication networks, Dimension Optical Switches come in two configurations: OMEGA Series Modular and XHASIS Series Rack-Mount. The feature is high repeatability, low insertion loss, high density, cost-effectiveness and easy deployment. In addition, with customizable designs, these switches can be flexibly adapted to fiber and optical component testing systems, as well as large-scale optical network routing and automated operation scenarios.

Main Adavantages

- High repeatability, service life over 10 million times.
- Low insertion loss, low polarization-dependent loss, and good channel consistency.
- Short switching time, less than 30ms.
- Matrix optical switch, free reconfiguration.
- Programmable, supports multiple control modes including time, button and program.
- The OMEGA Series Modular can integrate multiple functional modules into one, which can quickly realize one-stop testing of optical devices and other products.
- XHASIS Series Rack-Mount optical switches have high density, small size, easy deployment and low cost.

Main Application

- Optical loop protection and switching
- Fiber optical network remote monitoring
- Optical device testing and research
- Automated testing

Main Categories

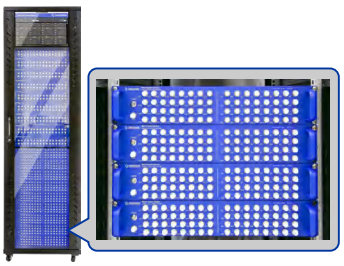
OMEGA series modular

- 1 x N optical switch module
- 2 x N optical switch module
- Matrix optical switch module

XHASIS Series Rack-Mount

- High Channel Matrix Optical Switch
- High-density rack-mount optical switch

OMEGA Series Modular vs XHASIS Series Rack-Mount

Feature	OMEGA Series Modular	XHASIS Series Rack-Mount
Appearance		
Structural design	Platform + Module	Rack-Mount, compact structure, small size, powerful functions.
Scalability	The platform is compatible with a variety of functional test modules including optical switches, and supports adding or reducing modules on demand to meet the needs of diverse scenarios.	Suitable for rapid deployment of large-scale integrated test stations.
Customization	Any channel can be customized according to customer needs.	Any channel can be customized according to customer needs to meet complex networking requirements in scenarios such as 4G fronthaul and data center inter connection.
Maintenance efficiency	Modular structure and hot-swappable function enable fast replacement of faulty modules, avoiding machine downtime and significantly shortening system maintenance time.	Each rack-mounted optical switch is independently maintained
Cost Efficiency	The modular solution only requires replacing modules instead of the platform	The long-term cost-effectiveness is outstanding, and it is an ideal solution for saving space and improving efficiency in 5G base stations and fiber optic network deployment.

High repeatability

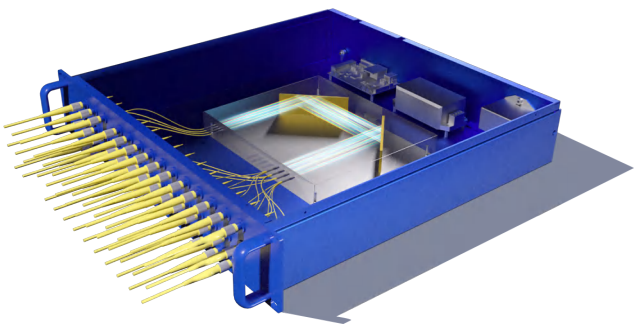
- **High switching times:** The switching times of OSW optical switches can reach 10 million times, and MEMS optical switches can reach 1 billion times.
- **High repeatability:** The repeatability of insertion loss after 100 random switching is less than 0.02dB, providing users with a highly reliable optical path.

Low insertion loss, low polarization dependence, good channel consistency, short switching time

- **Low insertion loss:** The insertion loss of each channel of OSW is less than 1.0dB.
- **Low polarization dependence:** polarization dependence loss is less than 0.05dB.
- **Short switching time:** switching time is less than 30ms.

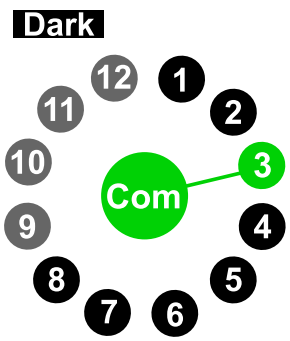
Matrix optical switch, which can realize M x N optical path routing

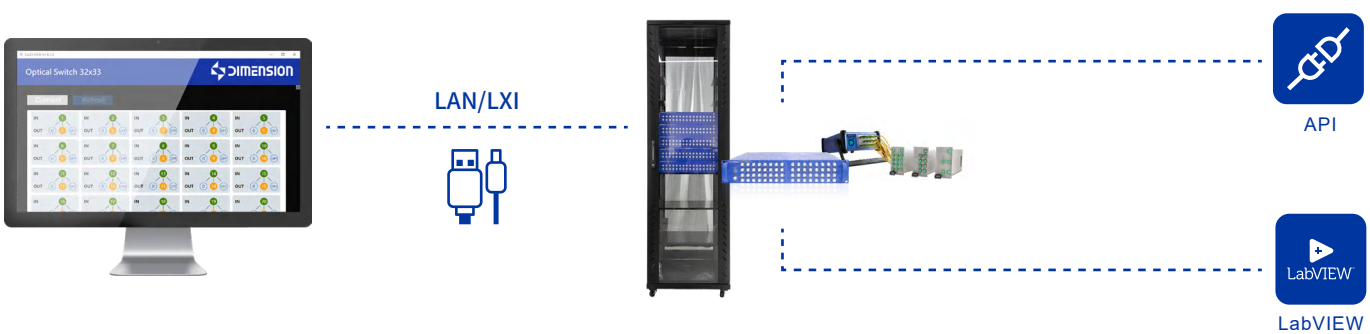
- Matrix optical switches have high density and can realize M x N optical path routing.
- MEMS optical switches are based on micro-electromechanical system technology. Its core principle is to realize dynamic switching of optical paths through precise control of micron-level movable micro-mirror arrays, which can realize arbitrary switching from M to N channels.



Programmable, supports multiple control methods

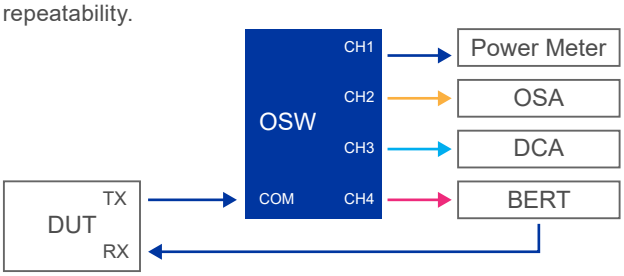
- **Multiple communication methods:** OMEGA v1.0 and XHASIS Rack-Mount optical switches provide TCP/IP or USB connection methods. OMEGA v2.0 has been further optimized to support LXI communication.
- **Visual testing:** Equipped with visualization software to facilitate users to use and build a testing platform.
- **Automated testing:** The optical switch can be triggered by external TRIG signals, waiting for the set time, or by touch screens, physical buttons, etc. It provides API interfaces and encapsulates control instructions of LabVIEW statements, etc., to help users quickly embed the test system.



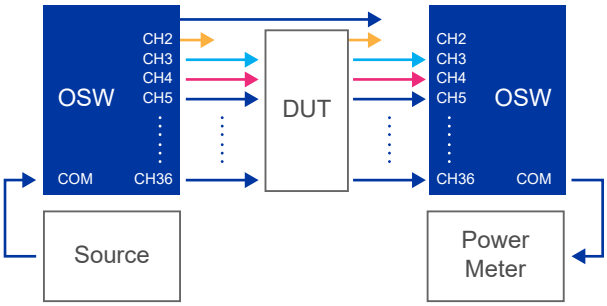


Main Application Scenarios

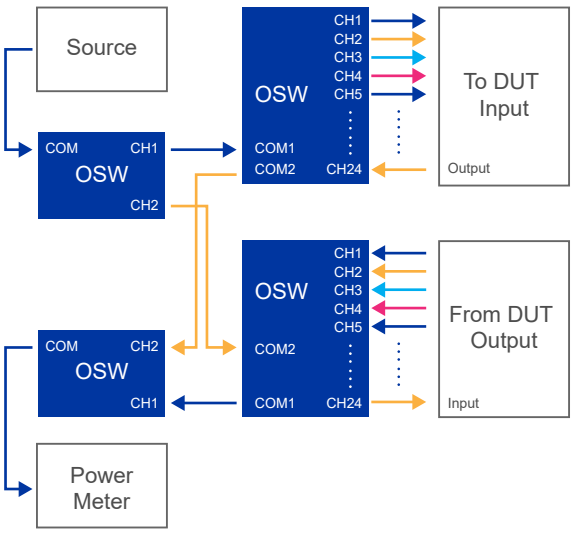
- Optical switches enable selection of different test instruments, thus eliminating deviations caused by poor connection repeatability.



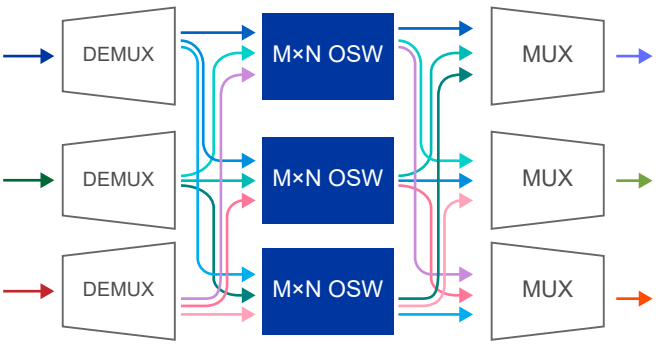
- Through the combination of optical switches, automatic testing of multi-channel products can be achieved.



- Through the combination of multi-level optical switch matrix, bidirectional automatic testing of multi-channel products can be realized.



- Through the combination of M x N optical switches, MUX and DEMUX of data transmission are realized.



Specifications

Parameter	Mechanical Optical Switch	MEMS Optical Switch
Wavelength range	SM：1260~1650nm MM：850~1300nm	SM：1260~1650nm MM：850~1300nm
Test wavelength[1]	SM:1310nm/1550nm MM:850/1300nm	
Insertion loss	Max: 1.2dB	Max:1.3dB
Return loss	>50dB(SM/APC); >30dB(MM/PC)	
Channel Crosstalk[2]	SM>70dB, MM>55dB	SM>50dB, MM>30dB
Repeatability[3]	<±0.02dB	<±0.02dB
Switching times	$\geq 10^7$ times	$\geq 10^9$ times
Switching time	10ms*(n-m)+5ms from port m to n, n>m 10ms*(n-m)+30ms from port n to m, n>m	min 5ms max 10ms
Input voltage	AC90~260V/50HZ	
Operating temperature	10°C~40°C	
Storage temperature	-40°C~70°C	
size[4]	OMEGA Series Modular: Chassis: 359mm×274mm×115mm Single slot module: 285mmX133mmX35mm Dual slot module: 285mmX133mmX71mm; XHASIS Series Rack-Mount: 2U or 3U	

Remark:

[1] The insertion loss introduced by the connector is not included. The insertion loss is related to the number of optical switch ports. The test sample for the indicators shown in the above table is a 1*16 channel optical switch.

[2] Repeatability test conditions are 23°C ± 3°C, MEMS optical switch is tested 100 times, using FC/APC connector.

[3] OMEGA Series Modular are available in single slot, double slot and multi-slot types according to the number of optical switch ports. The width of the multi-slot module is the sum of the width of the single slot. XHASIS Series Rack-Mount optical switches are available in 2U, 3U and other sizes depending on the number of optical switch ports.

[4] The switching life of mechanical optical switches is greater than 10 times, and the switching life of MEMS is greater than 10 times.

Ordering Information

- OMEGA Series Modular

OSW □ □ □ □ □ — □ □

Fiber Type	
1	SM 9/125
5	MM 50/125

Number of Input	
1	1CH
2	2CH
4	4CH
.....	.....
32	32CH

Number of Output	
01	1CH
02	2CH
04	4CH
.....	.....
99	Customized

Mechanism	
A	Mechanical
B	MEMS

Connector Type	
FA	FC/APC
FP	FC/PC
SA	SC/APC
SP	SC/PC
LA	LC/APC
LP	LC/PC
X	Customized

Example:

Model: OSW1104B MEMS 1X4 Single Mode FC/APC Connector Optical Switch

- XHASIS Series Rack-Mount

OSW — X — □ — □ □ — □ □ — □ — □ □

Fiber Type	
1	SM 9/125
2	PMF 9/125
5	MM 50/125

Number of Input	
01	1CH
02	2CH
04	4CH
.....	.....
32	32CH

Number of Output	
01	1CH
02	2CH
04	4CH
.....	.....
99	Customized

Mechanism	
A	Mechanical
B	MEMS

Connector Type	
FA	FC/APC
FP	FC/PC
SA	SC/APC
SP	SC/PC
LA	LC/APC
LP	LC/PC
X	Customized

Example:

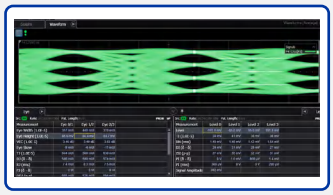
Model: OSW-X-1-02-04-B-FA Rack Mount MEMS 2×4 Single Mode FC/APC Optical Switch

Related Products

1.6T/800G MPO Optical Module Testing Solution

CR600

112G Clock Recovery



Eye Diagram Analyzer

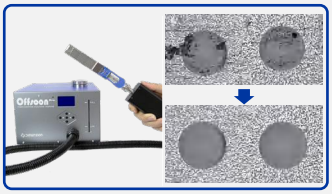
BERT800

Bit Error Rate Tester

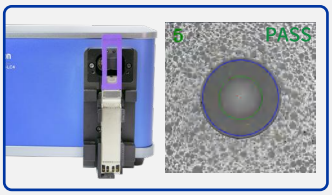
1.6T/800G MPO Optical Port Module

Optical Port
Cleaning and Inspection

Offsoon Pro



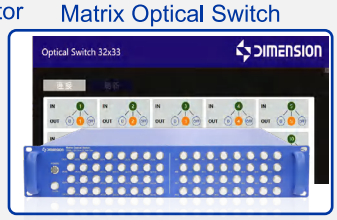
Smartchek 200M8



OPM

16 Channel Programmable Attenuator

Matrix Optical Switch



Dimension Technology Co.,Ltd
Tel: +86 755-26480850
Email: sales@dimension-tech.com
Website: www.dimension-tech.com