

MEMS 16X16 OPTICAL SWITCHING SYSTEM

OSS Model, Single Mode Fiber, Network Grade



DiCon's **Optical Switching System (OSS)** is an all-optical non-blocking cross-connect switch. This rack-mount device is designed with DiCon's proprietary 3D MEMS mirror technology and delivers industry-leading optical performance. The unit works without any position sensor or feedback loop, and the optical signals can pass through the equipment without any observable dithering artifacts. The **OSS** can switch repeatedly with great accuracy and maintain long-term connectivity with superior stability even when there is no optical signal in the fiber.

The chassis is compact, taking minimal rack space. It is also lightweight and can be picked up easily for installation. The **OSS** comes with multiple control interfaces so authorized administrators can automate network management and set user permissions in a Software Defined Network (SDN). This product can be ordered in standard simplex or duplex configurations, and customized port arrangements are available upon request. Optical power monitors and attenuators can be added to each path as options.

Key Features

- Market Leading Performance with Recognized Reliability
- Low Loss with High Stability & No Dithering Artifacts
- Compact, Lightweight, Easy to Transport
- Switches Fast & Consumes Low Power
- Operates Bi-Directionally & Works with Dark Fibers
- Supports Software Defined Networks

Applications

- Optical Network Management
- Quantum Communications
- Data Center Interconnect
- AI (Artificial Intelligence) Networks
- LLM (Large Language Models) Machine Training
- Cyber Security & Monitoring
- Network Test Automation

ORDERING INFORMATION

OSS - N - - 9 - - - - -

Grade

N Network

Configuration

S16x16 Simplex 16x16

SMxN Simplex (M, N≤16)

D16 Duplex 16 Ports

D# Duplex (#≤16)

Function

S Matrix Switch Only

SA VOA Only

MS M Side Power Monitor

MSA M Side Power Monitor & VOA

SN N Side Power Monitor

SAN N Side Power Monitor & VOA

MSN Both Sides Power Monitor

MSAN Both Sides Power Monitor & VOA

D Matrix Switch Only

DA VOA Only

DP Power Monitor (B Ports / Outputs)

DAP Power Monitor & VOA (B Ports / Outputs)

Fiber Type

9 9/125 μ m SMF

*Other fiber options available upon request

Test Wavelength

O 1310 nm

C 1550 nm

L 1590 nm

*Use "/" to add multiple wavelengths. E.g., O/C or O/C/L

Chassis Type

1U 1U

2U 2U

3U 3U

*Please consult DiCon **See "Mechanical Specifications"

Power

A1 AC 100-240V Single

D1 DC -48V Single

A2 AC 100-240V Redundant

D2 DC -48V Redundant

Bulkhead Connector Type

LC LC/UPC

LC/APC LC/APC

RLC LC/UPC on Removable Panel

RLC/APC LC/APC on Removable Panel

HLC High Density LC/UPC

HLC/APC High Density LC/APC

M8F MTP-8 Female APC

M8M MTP-8 Male APC

M12F MTP-12 Female APC

M12M MTP-12 Male APC

M24F MTP-24 Female APC

M24M MTP-24 Male APC

*Other connector types are available upon request

Connector Location

F Front

R Rear

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OPTICAL SPECIFICATIONS¹

| | |
|---|--|
| Operating Wavelength | 1260 to 1675 nm |
| Insertion Loss ² | < 1.0 dB |
| Insertion Loss (with 1 OPM) ² | < 1.3 dB |
| Insertion Loss (with 2 OPM) ² | < 1.6 dB |
| Loss Repeatability ³ | +/- 0.03 dB |
| Connection Stability ^{4,5} | +/- 0.03 dB |
| PDL ⁵ | < 0.1 dB |
| PDL with OPM ⁵ | < 0.3 dB |
| WDL ^{5,6} | < 0.3 dB |
| Crosstalk ⁵ | < -60 dB |
| Data Latency ⁵ | < 20 ns |
| Back Reflection | < -50 dB |
| Optical Transition Time ^{5,7} | < 25 ms |
| Switch Lifetime | > 1 Billion Cycles |
| Input Power Range | Dark to +27 dBm |
| OPM Dynamic Range | -50 to +22 dBm |
| OPM Relative Accuracy | +/-0.2 dB @ > -30 dBm +/-0.5 dB @ > -50 dBm |
| VOA Accuracy (Closed-Loop) ^{5,8,9} | +/-0.3 dB @ 20 dB Attn +/-0.5 dB @ 30 dB Attn |
| VOA Accuracy (Open-Loop) ^{8,10} | +/-0.5 dB @ 20 dB Attn +/-1.0 dB @ 30 dB Attn |

1. Measured separately for each Test Wavelength at room temperature
2. Measured with 3-jumper method or equivalent. See TIA/EIA 526-7
3. Over 100 cycles
4. 1 Hz sampling rate for 15 min
5. Met by design, not measured
6. Test Wavelength +/-20 nm
7. Optical transition time for all ports switching concurrently, not including command processing overhead
8. 98th percentile of optical connections; defined as the average +2 standard deviations
9. Requires N side Power Monitoring
10. Corresponds to accuracy using Constant Attenuation Mode. Both Constant Power Mode and Relative Attenuation Mode will have better accuracy due to Closed-Loop feedback

ELECTRICAL SPECIFICATIONS

| | |
|-----------------------------|--|
| Power Consumption* | < 20W Steady State < 30W at Startup |
| Power Supply Options | Redundant Power Supply, 100-240 VAC or -48 VDC |
| Network Interface Card | RJ45 Dual Redundant Gigabit Ethernet |
| SDN & Automation Interfaces | REST API, NETCONF, SNMPv3, TL1, Web GUI, RS232, gNMI |

*Power is measured with M and N side Power Monitoring

ENVIRONMENTAL SPECIFICATIONS

| | |
|-----------------------|-----------------------|
| Operating Temperature | 0 to 50°C, < 85% RH |
| Storage Temperature | -40 to 70°C, < 40% RH |

MECHANICAL SPECIFICATIONS

| | |
|----------------|---|
| Chassis Width | 483 mm (19") |
| Chassis Depth* | 435 mm (17") 559 mm (22") 762 mm (30") 889 mm (35") 1016 mm (40") |
| Chassis Height | 1U (with LC) |

*Please consult DiCon

