

MEMS 192X192 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

S192x192 Simplex 192x192
SMxN Simplex (M, N≤192)
D192 Duplex 192 Ports
D# Duplex (#≤192)

Function

| | | |
|---------|-------------|---|
| Simplex | S | Matrix Switch Only |
| | SA | VOA Only |
| | MS | M Side Power Monitor |
| | MSA | M Side Power Monitor & VOA |
| | SN | N Side Power Monitor |
| Duplex | 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 μm 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

4U 4U
6U 6U

**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

| | |
|---|--|
| Test Wavelength | 1260 to 1675 nm |
| Insertion Loss ² | < 1.9 dB |
| Insertion Loss (with 1 OPM) ² | < 2.2 dB |
| Insertion Loss (with 2 OPM) ² | < 2.5 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 | < 15 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} | +/-1.5 dB @ 20 dB Attn +/-1.5 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* | < 55W Steady State < 65W 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 a redundant AC power supply and both M and N side power monitoring. When using a redundant DC power supply, the total power consumption may increase by 5-10 W.

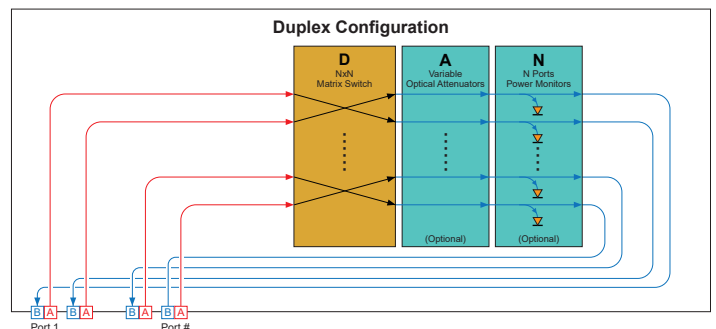
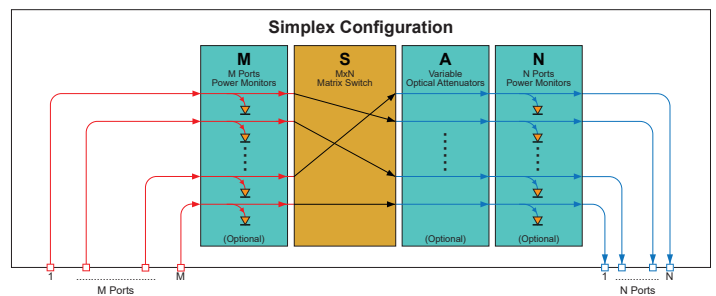
ENVIRONMENTAL SPECIFICATIONS

| | |
|-----------------------|-----------------------|
| 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") |
| Chassis Height | 4U (with HD LC)* |

*Please consult DiCon. Depends on connectors and options.



*Switch and light path operate bi-directionally but power monitors(optical) only measure uni-directionally unless special ordered.

