# OptiX OSN 9800 M Series Datasheet

Huawei OptiX OSN 9800 M Series

# OptiX OSN 9800 M Series

The OptiX OSN 9800 M series are Huawei's next-generation flagship WDM products. They are designed for Optical Networking 2.0 (ON2.0) and feature ultra-large capacity, optical-electrical convergence, and small size. They can foster the rapid development of all services and help carriers achieve the lowest per-bit TCO by consuming minimal basic site resources. They are applicable to integrated bearing scenarios, such as broadband video, mobile backhaul, enterprise private line, and DCI, thereby providing an optimal E2E transmission solution covering backbone, aggregation, and access networks.

**M24**                    **M12**                    **M05**

# Product Highlights

## Small Size and Flexible Deployment

- M24 is 16.5 U, M12 is 7.8 U, and M05 is 4 U

- M24 supports flexible splitting of 11 U slots into 5.5 U slots and on-demand use of both slot types

- Supporting 1Tbit/s per slot, M24 is the industry's smallest single-slot 1T OTN platform

- 5.5 U small boards are compact and energy-efficient. 11 U large boards are interchangeable with U series boards, reducing required spare parts and ultimately protecting investment

## Optical-Electrical Convergence and Ultra-Large Capacity

- With optical-electrical integrated design, the M series provide a 6-in-1 platform (OTN/PKT/VC/OSU/Optical/Ponder), making it applicable to various scenarios

- With the industry's highest Ponder integration, the M series support a maximum of 384 100GE services per cabinet

- The maximum single-fiber capacity can reach 96 Tbit/s, the leading in the industry

- The M series achieve full coverage of 100G–800G programmable line rates, delivering industry-leading transmission performance

- The spectrum of the M series covers extended C-band 96 wavelengths in 4.8 THz and Super C-band 120 wavelengths in 6 THz, supporting Super C+L band evolution

## Future-Oriented and Smooth Evolution

- NCE-T has an innovative architecture design based on management, control, analysis, and planning

- An M24 subrack provides 4.8T/10T cross-connect capacity, supports B2B cascading expansion and evolution for doubling the capacity, and implements flexible inter-subrack service grooming

- The M series provide synchronous Ethernet and IEEE 1588v2 clock transmission to meet the clock precision requirements of 3G, 4G, and 5G, and can evolve to support high-precision clock requirements of future mobile communication technologies

# Product Specifications (M24/M12/M05)

The next-generation M series subracks feature large capacity, optical-electrical integration, and small size. The M series subracks apply to integrated bearing scenarios, such as broadband video, mobile backhaul, enterprise private line, and DCI, and provide an optimal end-to-end transmission solution from the backbone layer, aggregation layer, to access layer.

The specifications are as follows:

| Specifications | | 9800 M24 | 9800 M12 | 9800 M05 |
|---|---|---|---|---|
| Product appearance | |  |  |  |
| Subrack dimensions (mm) | | 747.2 (H) x 442 (W) x 295 (D) | 347.2 (H) x 442 (W) x 295 (D) | 177 (H) x 442 (W) x 295 (D) |
| Suitable cabinet[a] | | • ETSI 300/600 cabinets, such as A63B <br> • 19-inch cabinet | | |
| Max. number of service board slots | | 1:1 cross-connect mode: 12 large slots or 24 small slots <br><br> 1:3 cross-connect mode: 10 large slots or 20 small slots <br><br> **NOTE** <br> The M24 subrack supports slot splitting. One 11 U slot of the M24 subrack can be split into two 5.5 U slots. | 13 | 5 |
| Switching capability | Optical | 1 to 20-degree reconfigurable optical add/drop multiplexer (ROADM) | | |
| | Electrical | • 1:1 cross-connect mode: <br>   − 4.8 Tbit/s OSUflex/ODUk <br>   − 4.8 Tbit/s packet services <br>   − 1.92 Tbit/s VC-4 <br>   − 80 Gbit/s VC-3/VC-12 <br> • 1:3 cross-connect mode: <br>   − 10 Tbit/s OSUflex/ODUk <br>   − 4 Tbit/s packet services <br>   − 1.6 Tbit/s VC-4 <br>   − 80 Gbit/s VC-3/VC-12 | N/A | |
| Max. number of wavelengths | | • Fixed grid: 120 wavelengths@50 GHz grid <br> • Flexible grid: The maximum number of wavelengths is related to the width of the flex channel. | | |
| Wavelength range | | DWDM system: 1524.50 nm to 1572.06 nm (Super C band) | | |

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|---|---|---|---|---|
| | | CWDM system: 1471 nm to 1611 nm (S+C+L band) | | |
| Max. rate per channel | | 800 Gbit/s (OTUC8) | | |
| Service type | | Synchronous digital hierarchy (SDH)/synchronous optical network (SONET), Ethernet, SAN, OTN, Video | | |
| Packet service capacity | | • Support for E-Line/E-LAN (MEF) and VPWS/VPLS (IETF)<br>• Support for MPLS-TP<br>• Number of MPLS tunnels: 64 x 1024<br>• Number of PWs: 64 x 1024<br>• Number of E-Line services: 32 x 1024<br>• Number of E-LAN services: 8 x 1024 | N/A | |
| Line rate | | 1.25 Gbit/s, 2.5 Gbit/s, 10 Gbit/s, 25 Gbit/s, 100 Gbit/s, 200G bit/s, 400G bit/s, 600G bit/s, 800G bit/s | 10 Gbit/s, 100 Gbit/s, 200G bit/s, 400G bit/s, 600G bit/s, 800G bit/s | |
| Supported pluggable optical modules | | eSFP, SFP+, TSFP+, CFP, CSFP, CFP2, QSFP28, SFP28, TSFP28, QSFP+, QSFP-DD | eSFP, SFP+, TSFP+, CFP, CSFP, CFP2, QSFP28, SFP28, QSFP+, QSFP-DD | |
| Topology | | Point-to-point, chain, star, ring, ring-with-chain, tangent ring, intersecting ring, and mesh | | |
| Redundancy and protection | Network level protection (OTN) | Optical line protection, client 1+1 protection, ODUk SNCP, OSUflex SNCP, tributary SNCP, intra-board 1+1 protection, LPT | Optical line protection, client 1+1 protection, intra-board 1+1 protection, LPT, ODUk SNCP, tributary SNCP | |
| | Network level protection (Packet) | ERPS, LAG, PW APS/FPS, Tunnel APS, MC-LAG, MC-PW APS, LPT | N/A | |
| | Network Level Protection (SDH) | SNCP, linear MSP, ring MSP | N/A | |
| | Network level protection (EoS) | LAG, DLAG, LCAS, LPT, STP/RSTP, BPS, PPS | N/A | |
| | Equipment level protection | Power supply redundancy, fan redundancy, cross-connect board redundancy, communication control and clock processing unit redundancy | Power supply redundancy, fan redundancy, communication control unit redundancy, clock processing unit redundancy | |
| Optical power management | | ALS, ALC, IPA, IPA of the Raman system, IPC | | |
| Easy O&M | | Optical Doctor (OD) system, Fiber Doctor (FD) system | | |
| Synchronization | | Synchronous Ethernet, IEEE 1588v2, ITU-T G.8275.1/G.8273.2, high-precision clock synchronization | | |

| Specifications | 9800 M24 | 9800 M12 | 9800 M05 |
|---|---|---|---|
| ASON | <ul><li>Electrical-layer ASON</li><li>Optical-layer ASON</li><li>SDH ASON</li></ul> | Optical-layer ASON | |
| TSDN | <ul><li>Online service provisioning</li><li>Survivability analysis</li><li>BOD</li><li>IP+optical synergy</li></ul> | | |
| Submarine cable features | Supports application of extended C band in submarine cable scenarios. | N/A | N/A |
| Power supply | DC power input<ul><li>Standard working voltage: –48 V DC to –60 V DC</li><li>Working voltage range: –40 V to –72 V</li></ul> | | DC power input<ul><li>Standard working voltage: –48 V to –60 V</li><li>Working voltage range: –40 V to –72 V</li></ul>AC power input<ul><li>Standard working voltage: 100 V AC to 120 V AC, and 200 V AC to 240 V AC</li></ul>High-voltage DC power input<ul><li>Standard working voltage: 240 V HVDC</li></ul> |
| Operation environment | Subrack temperature:<ul><li>Long-term operation: 0°C to 45°C</li><li>Short-term operation[b]: –5°C to +50°C</li></ul>Relative humidity:<ul><li>Long-term operation: 5% to 85%</li><li>Short-term operation[b]: 5% to 90%</li></ul> | Subrack temperature:<ul><li>Long-term operation: 0°C to 45°C</li><li>Short-term operation[b]: –5°C to +55°C</li></ul>Relative humidity:<ul><li>Long-term operation: 5% to 85%</li><li>Short-term operation[b]: 5% to 90%</li></ul> | Subrack temperature:<ul><li>Long-term operation: 0°C to 50°C</li><li>Short-term operation[b]: –5°C to +55°C</li></ul>Relative humidity:<ul><li>Long-term operation: 5% to 85%</li><li>Short-term operation[b]: 5% to 90%</li></ul> |
| Mean Time To Repair (MTTR) | 4 hours | | |
| Mean Time Between Failure (MTBF) | 66.89 years | | |
| Availability | 0.999993174 | | |

a: The ETSI/19-inch standard defines only part of the cabinet dimensions. Therefore, the distance between the cabinet column and door plate varies depending on cabinet manufacturers. For details about the dimensions of different subracks, see the detailed description of each subrack.

b: Short-term operation means that the continuous operating time does not exceed 96 hours and the accumulated time per year does not exceed 15 days.

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