Nokia L2 OAM Smart SFP 2.0
Carrier Ethernet NID in an SFP

The Nokia Layer 2 (L2) operations, administration, and maintenance (OAM) Smart small form-factor pluggable (SFP) 2.0 provides the MEF Carrier Ethernet 2.0 OAM tools for Service Fault and Performance Management, Service Level Assurance and Service Activation Testing in CE networks. It is an enhanced version of the existing Layer 2 OAM Smart SFP Release 1.1 and is part of the larger Nokia portfolio of Smart SFPs for Ethernet demarcation, time division multiplexing (TDM) network migration (TPoP, CSnP, TSnP) and synchronization.

Product overview

Designed in conformance with the SFP 20-pin multi-source agreement (MSA), the L2 OAM Smart SFP uses standard protocols to monitor and troubleshoot a network:

- Physical layer monitoring through remote digital diagnostics (DDM) and IEEE 802.3 link OAM
- Service Assurance using Ethernet service OAM as per IEEE 802.1ag, ITU-T Y.1731 and MEF S-OAM specifications
- Loopback for Service Activation Testing using ITU-T Y.1564 and RFC 2544

The integrated OAM capabilities are complemented with Gigabit Ethernet wire speed throughput and ultra-low latency.

By reducing system and network complexity, the L2 OAM Smart SFP offers lower carbon footprint, brings CAPEX/OPEX savings and also improves the reliability of the last mile.

A software API and SNMP management information bases (MIBs) are available to facilitate the integration of the remote management in existing equipment and management systems. A SNMP management gateway provides a highly scalable platform for configuration and monitoring of all service parameters.

Layer 2 OAM Smart SFPs are available in a wide range of optical and reach applications (same for R2.0 and R1.1): duplex or bidirectional/SFW with reaches up to 80 km.
**Key applications**

- GigE network interface device (NID) for mobile backhaul, business retail/wholesale and cloud Carrier Ethernet applications
- End-to-end service assurance
- Link and Service OAM (CFM and Y.1731)
- Service Activation Test Loopback (Y.1564)

**Key benefits**

- Very compact size
- Available in wide range of optics
- Industrial temperature range
- Low carbon footprint
- Total cost of ownership (TCO) reduction

---

**Technical specifications**

- SFP INF-80741 and DDM SFF-8472 compliant\(^1\)
- Software API and MIBs for remote management
- Remote access to DDM
- Link OAM IEEE 802.3ah
- CFM service OAM IEEE 802.1ag
- ITU-T Y.1731 Frame Loss and Delay Measurement using SL, LM, DM messages, initiator and responder functions
- MEF 17, 30 and 35 S-OAM fault and performance management
- Multiple VLAN-aware up or down MEPs
- Multi-point MDs
- Port and Ethernet Virtual Connection (EVC) loopback for Y.1564 and RFC 2544 service activation test
- Service activation traffic generator: MEF
- Service creation with VLAN tagging and policing\(^2\)
- Bidirectional transparent Synchronous Ethernet (SyncE)
- Link pass through, link loss forwarding
- Low latency and wire speed GigE throughput

---

\(^1\) Exception: Power consumption exceeds MSA limit.

\(^2\) Future release.
Interface specifications

- Compatible with SFP electrical MSA
- LC connector type
- Wide range of optical transceiver options
  - Duplex or bidirectional fiber
  - Various optical reaches, up to 80 km
- Operating temperature range:
  - Industrial: -40°C to 85°C (-40°F to 185°F)