

Cisco NCS 1000 32-Channel Mux/Demux Patch Panel Overview

This chapter provides an overview for Cisco NCS 1000 32-Channel Mux/Demux Patch Panel.

Note In this chapter, "mux/demux panel" refers to the "Cisco NCS 1000 32-Channel Mux/Demux Patch Panel".

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Cisco NCS 1000 32-Channel Mux/Demux Patch Panels Overview

The Cisco NCS 1000 32-Channel Mux/Demux patch panels are a pair of passive Athermal Arrayed Waveguide Grating (AAWG) based modules (PIDs NCS1K-MD-32O-C and NCS1K-MD-32E-C). Each mux/demux panel has 32 channels and works as an add/drop unit for the OLT-C and OLT-R-C line cards. Each mux/demux panel allows the multiplexing and demultiplexing of 32 channels with 150-GHz spacing. 75-GHz frequency shift exists between the ODD and EVEN panels. When both panels are used on the same OLT (OLT-C and OLT-R-C) line cards, the combined capacity becomes 64 channels with 75-GHz spacing. Each mux/demux panel provides a wide optical pass-band support. When used as a standalone, each panel acts as an add/drop unit for 32 channels at 140 GBd.

The NCS1K-MD-32O/E-C panel operates in C-band.

The Cisco NCS 1000 Mux/Demux patch panels are fully passive. The units are powered with a USB 2.0 connection in the NCS 1010 chassis. The panels are capable of monitoring channel power, verifying connection, detecting tone, and reporting the inventory data.

Mux/Demux Patch Panel LEDs

Table 1: Feature History

Feature Name	Release Information	Feature Description
Port Status for Mux/Demux Patch Panel	Cisco IOS XR Release 7.9.1	In the mux/demux panel, the optical ports (COM, CH-0…CH-31) LEDs will now indicate port status in the following three colors: • Red—Presence of traffic-impacting major and critical alarms. • Amber—Presence of minor alarm when performing tone generation or tone detection for connection verification. Tone detection verifies the connection between OLT line cards and the mux/demux panels using a specific probe signal. • Green—Patch panel is operating fine and no alarm is raised.

The Mux/Demux Patch Panel unit has 34 LEDs to indicate the system status and the status of the optical ports.

Three color LEDs (green, amber, and red) are present near each optical port (COM and CH-i) to indicate the port status.

Table 2: Status of the Optical Port LEDs

Port LED	Color	Status
COM, CH-0…CH-31	Red	Indicates major and critical alarms such as RX-LOS-P, which could be traffic-impacting. These alarms are raised when there is a loss of signal (LOS) or when the OTS power reading is below the Fail-Low threshold.
	Amber	Indicates minor alarms that are raised when initiating tone generation and tone detection for connection verification.
	Green	Indicates that the patch panel is operational and has no alarm.
INV	Green	Indicates the active status and attention state of the inventory USB that is connected to the OLT line card.

Port Label Descriptions

Each mux/demux patch panel is equipped with 34-port LC-duplex connectors.

Table 3: Mux/Demux Patch Panels Port Labels

Port Labels	Connector Type	Connector Label	Operating Frequency Range [THz (nm)]	Note
COM-RX COM-TX	LC	**COM** **TX RX**	196.175–191.15 (1528.2–1568.4)	—
MON-RX MON-TX	LC	**MON** **TX RX**	196.175–191.15 (1528.2–1568.4)	Both are output ports. Replica of COM-RX/TX signals ~20dB attenuated.
CH-i TX/RX [i=0–31]	LC	*<ch_number>* *<frequency>* **TX RX**	For more information on ODD and EVEN channels, see Channel Wavelength Allocation, on page 3	—
INV	USB Type A receptacle connector	**INV**	—	USB inventory port

Channel Wavelength Allocation

The following table describes the C-band channel wavelength plan for the odd and even patch panels.

Table 4: C-Band Channel Wavelength Plan

Channel Label	NCS1K-MD-32O-C		NCS1K-MD-32E-C	
	Frequency (THz)	Wavelength (nm)	Frequency (THz)	Wavelength (nm)
0	196.100	1528.77	196.025	1529.36
1	195.950	1529.94	195.875	1530.53
2	195.800	1531.12	195.725	1531.70
3	195.650	1532.29	195.575	1532.88
4	195.500	1533.47	195.425	1534.05
5	195.350	1534.64	195.275	1535.23
6	195.200	1535.82	195.125	1536.41
7	195.050	1537.00	194.975	1537.59

Channel Label	NCS1K-MD-32O-C		NCS1K-MD-32E-C	
	Frequency (THz)	Wavelength (nm)	Frequency (THz)	Wavelength (nm)
8	194.900	1538.19	194.825	1538.78
9	194.750	1539.37	194.675	1539.96
10	194.600	1540.56	194.525	1541.15
11	194.450	1541.75	194.375	1542.34
12	194.300	1542.94	194.225	1543.53
13	194.150	1544.13	194.075	1544.72
14	194.000	1545.32	193.925	1545.92
15	193.850	1546.52	193.775	1547.12
16	193.700	1547.72	193.625	1548.31
17	193.550	1548.91	193.475	1549.52
18	193.400	1550.12	193.325	1550.72
19	193.250	1551.32	193.175	1551.92
20	193.100	1552.52	193.025	1553.13
21	192.950	1553.73	192.875	1554.34
22	192.800	1554.94	192.725	1555.55
23	192.650	1556.15	192.575	1556.76
24	192.500	1557.36	192.425	1557.97
25	192.350	1558.58	192.275	1559.19
26	192.200	1559.79	192.125	1560.40
27	192.050	1561.01	191.975	1561.62
28	191.900	1562.23	191.825	1562.84
29	191.750	1563.45	191.675	1564.07
30	191.600	1564.68	191.525	1565.29
31	191.450	1565.90	191.375	1566.52