FUJITSU

Data Sheet
1FINITY™ L140

8-Degree × 24-Port WSS CDC ROADM Add/Drop Blade

1FINITY L140 at a Glance
- Gridless CDC ROADM add/drop blade
- Supports up to 8 ROADM degrees
- Contentionless low-loss, low-noise WSS
- Up to 600 CDC add/drop channels
- True flex-grid implementation capable of full C-band

Product Overview

The 1FINITY L140 blade provides high-capacity, large-scale options for growing metro/regional ROADM networks. The blade combines the high performance of new-generation Wavelength Selective Switches (WSS) with lower insertion loss, to support large-scale gridless, colorless, directionless, contentionless (CDC) add/drops.

Unlike existing multicast switches (MCS) that pass out-of-band (OOB) interference, these WSS switches provide effective OOB filtering to eliminate interference from other channels. While noise from OOB signals often limits MCS-based add/drops to 12 or 16 ports, the twin 8 × 24 WSS capability of the L140 blade filters out noise from OOB signals to support 24 ports and interconnectivity for up to 8 degrees.

By avoiding the splitters and couplers used in MCS-based add/drops, the WSS-based L140 greatly reduces loss. As a result, the L140 avoids the need for greater amplification and therefore further reduces noise. This is not only critical for higher speed signals, but also to extend reach.

The higher baud rates needed for the higher speed signals on the horizon also require greater channel widths. Unlike existing solutions which may be limited to average channel widths of 50 GHz, the L140 blade can accommodate any flex-grid channel width across all 24 ports, enabling it to expand to baud rates far beyond any available today.

Using second-generation CDC technology and the intelligent software of the L130 blade, each L140 blade supports up to 24 CDC add/drop channels. The L140 blade is controlled by the 1FINITY L130 for simplified management, which enables CDC ROADM nodes to scale effectively and easily. Multiple L140 blades can be deployed in concert to support large hub sites with up to 600 CDC add/drop channels.

1FINITY's modular architecture allows service providers to right-size their networks by starting small and expanding as needed. For example, by adding L140 blades to an existing 4-degree CDC ROADM node based on the L220 add/drop blade typically used for smaller sites, the flexible L140 can increase site capacity up to 144 add/drop channels.

1FINITY CDC ROADM Solution

To stay competitive, operators need the flexibility to start small to reduce CAPEX, while maintaining the flexibility to scale to meet unpredictable growth. They must also leverage new technologies without compromising budget or margins. For operators facing limits to C-band capacity, L-band expansion is a game-changer.

The 1FINITY CDC ROADM solution is ideal for creating flexible ROADM networks with centralized software that supports autonomous control and management, such as the Virtuora® NC Solution. With CDC ROADM technology and flex-grid architecture, the solution provides optimal flexibility at the optical layer.

The 1FINITY CDC ROADM solution comprises four blades.

- 1FINITY L130 32-port CDC ROADM blade
- 1FINITY L140 8-degree × 24 CDC add/drop blade
- 1FINITY L220 4-degree × 28 CDC add/drop blade
- 1FINITY L160 backward Raman amplifier blade

Technical Specifications

Base System

System Configuration	2RU Contentionless WSS blade
Local Management Port (LMP)	1 × RJ-45 (100/1000BASE-T)
Management Port (LCN)	4 × SFP Cages (100/1000BASE-T, 1000BASE-SX/LX10)
Console Port (CONSOLE)	1 × RJ-45 (RS-232C Serial)
Front LEDs	System Status, Alarm, Port, Find ME
Fans	3 (replaceable)
Power Supply	DC -48V

Line Interface

Degrees per Blade	8
Flexible Grid Support	Yes
Tx Wavelength	1528.58–1566.93 nm / 4.8 THz
Rx Wavelength	1528.58–1566.93 nm / 4.8 THz

Performance Monitoring

Service PMs	24-hour, 15-min
Thresholds and TCA	Support

Physical Characteristics

Blade Physical Dimensions (H × W × D)	86.9 × 483 × 450 mm 3.42 × 19 × 17.72"
Rack Compatibility	19" and 23", 2-post and 4-post
Supported in Housing	Yes
Weight	30.6 lbs (13.9 kg) without fans

Operating Environment

Operating Temperature	+5 to +40°C
Short-Term Temperature	-5 to +50°C
Operating Humidity	5% to 85%

Power

Power Supply	Dual-feed, fixed DC power supply
120 V AC	No
-48 V DC	-40 V DC to -57 V DC
Power Consumption	277W (typical)

Regulatory and Compliance

FCC	FCC Part 15, Class A
NEBS	NEBS Level 3
UL/CSA	UL/IEC60950-1, UL/IEC62368-1
CE	CE
RoHS	RoHS
CISPR	CISPR 24 & CISPR 32
ETSI	EN 300-019, EN 300-132, EN 300-753, EN 300-386
WEEE	WEEE
RCM	RCM
CDRH	FDA CDRH

ROADM Capacity and Functions

Configuration	CDC (Colorless, Directionless, Contentionless)
ROADM degrees	Up to 8 Degrees with L130
Topology	Point-to-point, linear, ring, mesh
Maximum Number of Channels and Capacity	24 channels per blade (up to 600 channels in a single node)

LASER SAFETY CLASSIFICATION & CAUTION
Compliant with IEC/EN 60825-1, -2 laser standards

CLASS 1M CAUTION
Invisble laser radiation
Do not view directly with optical instruments
Class 1M laser product

HAZARD LEVEL 1M CAUTION
Hazard level 1M laser radiation
Do not view directly with non-attenuating optical instruments

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