

CWDM Transponder (LR), 1310 Interfaces, Data Rate and Protocol Independent up to OC-48

WSH 500



Key Features

- Client interface supports IEEE LX interface (multimode) or SONET IR Interface (single-mode)
- 3R and 2R operation
- Cost-effective supervisory channel
- Low power consumption, convection cooled
- Protocol and data rate independent interface
- Wide operating range: 125 Mb/s to 2488 Mb/s
- Simple to install and provision

Applications

- CWDM reach extension
- Wavelength services
- Metro optical access overlay
- Point-to-point Gigabit Ethernet services

Compliance

- NEBS Level 3
- GR-253 compliant
- FDA Class 1 laser device
- FCC Class A device
- UL 60950 Third Edition

CWDM Reach Extension

The WSH-50024LX is a four-port plug-and-play Coarse Division Multiplexing (CWDM) optical transponder. The module is used with the WaveReady™ 3000 series platforms to enable CWDM applications such as fiber relief, wavelength services and metro optical CWDM access overlay on existing optical infrastructure. It translates optical signals from a 1310 nm single mode or multimode interface to a long-reach single -mode CWDM interfaces. Eight of these modules can be used in conjunction with an 8-channel mux/demux to support 8 CWDM channels per fiber.

Smart Adaptability

The WSH-50024LX has been designed with the latest multi-rate clock and data recovery (CDR) technology, which enables smart adaptability for bit rate and protocol independent services. Transparent data rate and typical protocols transported include SONET/SDH, Gigabit Ethernet (GE), SAN (Fibre Channel, ESCON, FICON).

The module supports both 2R and 3R operation (reshape, retime and regenerate). In 3R mode, the module locks to standard rates such as SONET OC3/OC12/OC48 and GE. If these rates are not present the module reverts to 2R operation.

Demarcation

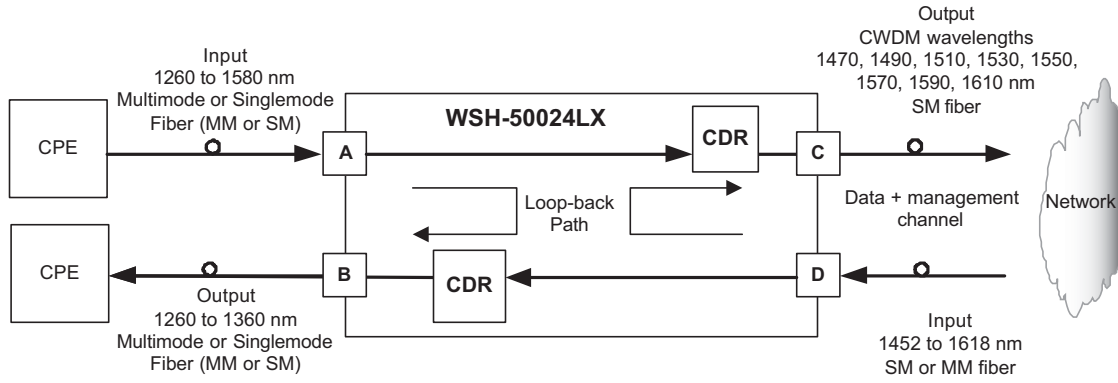
The WSH-50024LX has the capability for loopback testing and service demarcation. These functions facilitate fault location and correction and enable proper service management.

Remote In-Band Management

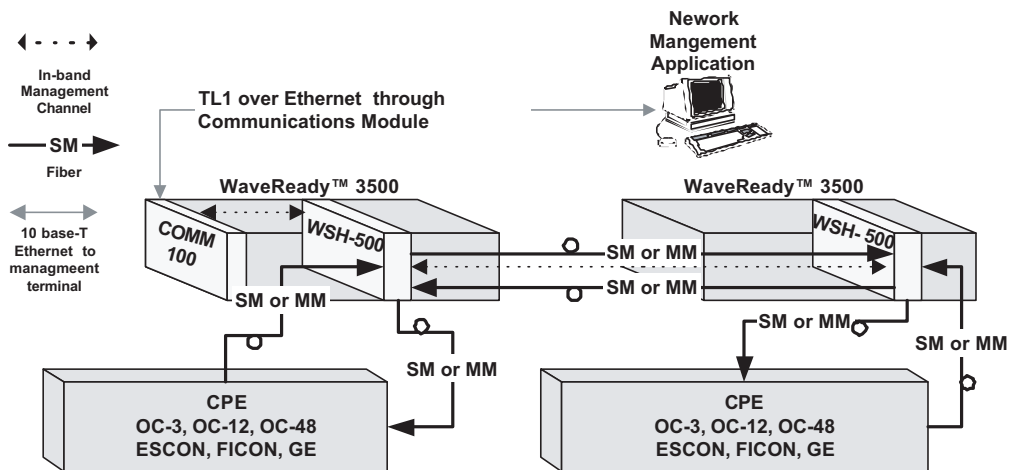
The WSH-50024LX series modules can be managed locally or remotely. The module has a very cost effective supervisory channel, which allows carriers to manage the system and module from the central office. It allows secure remote management per customer and is transparent and protocol independent to the data path.

2

Functional Diagram



WaveReady™ 3000 Series for
 Long-reach Extension Application



3

Optical Specifications

Parameter	Minimum	Typical	Maximum
Transport and Customer Interface Side			
Input and output data rate	125 Mb/s	-	2488 Mb/s
FSK in-band management channel	-	9.2 KHz	-
Transport Side			
Input wavelength, port D	1462 nm	-	1618 nm
Output wavelength, eight CWDM frequencies, port C	1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610 nm		
3R operation (OC-3, OC-12, OC-48, GE data rates)	155, 622, 2488, 1250 Mb/s		
2R operation (all other data rates)	125 Mb/s	-	2488 Mb/s
Input Sensitivity at BER 10 ⁻¹⁰ and OC-48	-28.5 dBm	-	-
Input sensitivity at BER 10 ⁻¹⁰ at 100 Base-F to GE	-30 dBm	-32 dBm	-
Input overload power at BER 10 ⁻¹⁰	-	-	-10 dBm
Wavelength /Temperature coefficient	-	0.1 nm/°C	-
Dispersion penalty (70 km at OC-48 and BER 10 ⁻¹⁰)	-	-	2 dB
Dispersion penalty (100 km at GE and BER 10 ⁻⁹)	-	-	1 dB
Output power level	-1 dBm	1 dBm	3 dBm
Output wavelength stability	-	±7.5 nm	-
Customer Interface Side			
Input wavelength, port A	1260 nm	-	1580 nm
Output wavelength, port B	1260 nm	-	1360 nm
Input sensitivity at BER 10 ⁻¹⁰ at 100 Base-F to GE	-19 dBm	-	-
Input overload power at BER 10 ⁻¹⁰	-	-	-3 dBm
Output power level	-10 dBm	-	-3 dBm

Electrical Specifications¹

Parameter	Minimum	Typical	Maximum
DC supply voltage	-	-48 V	-
Power dissipation	-	4.5 W	6 W
Alarm relay signals	Dry contacts. Relays closed when alarm is active.		

1. All specifications are guaranteed over the life, operating temperatures, wavelength range, and input voltage specified.

Physical Specifications¹

Parameter	Minimum	Typical	Maximum
Size (H x W x L)	-	6.8 x 1.0 x 8.8 inches (17.27 x 2.54 x 22.35 cm)	-
Weight (approximate)	-	1.4 lbs (0.635 kg)	-

1. All specifications are guaranteed over the life, operating temperatures, wavelength range, and input voltage specified.

Environmental Specifications¹

Parameter	Minimum	Typical	Maximum
Operating ambient temperature	-5 °C	-	55 °C
Storage temperature	-40 °C	-	85 °C
Relative humidity (non-condensing)	5 %	-	95 %

1. All specifications are guaranteed over the life, operating temperatures, wavelength range, and input voltage specified.

Interface Specifications

Parameter	Specification
Optical	SC/PC bulkhead, single-mode fiber (SMF) on network side, multimode fiber (MM) on CPE side.
Electrical	96-pin connector (power, alarms, craft/remote interface).
Craft and network management	Requires WaveReady™ Shelf and at least one Communications Module. Menu and TL1 interfaces through RS-232/DB9 connector on front panel of a Communications Module or 10Base-T Ethernet connector on the rear of WaveReady™ Shelf.
Alarms	Relay, dry contact. Major (MAJ), Minor (MIN) Loss of Input (LOS A and LOS D) and Management (MGT). Relay closed when alarm is active.
Front panel	Seven LEDs: Power (CARD); Major Alarm (MAJ); Minor (MIN) Loss of Input (LOS A and LOS D), Management (MGT) and Loopback (LP-BK)

Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

Sample: WSH-50024LX470

WSH-50024LX



Code	Channel Wavelength
470	1470 nm
490	1490 nm
510	1510 nm
530	1530 nm
550	1550 nm
570	1570 nm
590	1590 nm
610	1610 nm

All statements, technical information and recommendations related to the products herein are based upon information believed to be reliable or accurate. However, the accuracy or completeness thereof is not guaranteed, and no responsibility is assumed for any inaccuracies. The user assumes all risks and liability whatsoever in connection with the use of a product or its application. JDSU reserves the right to change at any time without notice the design, specifications, function, fit or form of its products described herein, including withdrawal at any time of a product offered for sale herein. JDSU makes no representations that the products herein are free from any intellectual property claims of others. Please contact JDSU for more information. WaveReady, JDSU and the JDSU logo are trademarks of JDS Uniphase Corporation. Other trademarks are the property of their respective holders. ©2006 JDS Uniphase Corporation. All rights reserved. 10143047 Rev.004 05/06 WSH500.DS.CMS.AE