JDSU WRT-780 (WRT-780DT000B)

Dual Multirate WDM Transponder (125 Mbps – 4.25 Gbps)

Key Features

- **Automatic rate detection (125 Mbps - 4.25 Gbps)**
- **Flexible, pluggable SFP interfaces on both line and client interfaces**
- **Support both CWDM and DWDM line side optics**
- **Diagnostic loopback on all ports**
- **3R Regeneration on all ports**

Applications

- High-density DWDM and CWDM transport networks
- Ethernet over WDM
- Storage area networks (SANs) and Gigabit Ethernet (GigE) reach extension
- Wavelength services and metro optical access overlay

Compliance

- Telcordia GR-253 compliant
- NEBS 3 compliant
- FCC Part 15, Class A device
- UL 60950-1 first edition
- Class 1 laser safety compliant

Flexible WDM Transport Solution

The JDSU WRT-780 is a dual multirate transponder that can support an extended number of services for both coarse wavelength division multiplexing (CWDM) and dense wavelength division multiplexing (DWDM) transport applications. Due to its high flexibility and density, the WRT-780 is the ideal transport solution for access and metro wavelength division multiplexing (WDM) networks.

The module has two independent transponders that can transport traffic running at different rates. The WRT-780 can also be used as a bidirectional four-port regenerator. Its flexible pluggable interfaces support a variety of transceivers on both client and line interfaces (850 nm, 1310 nm, 1550 nm, DWDM, and CWDM).

Automatic Rate Detection

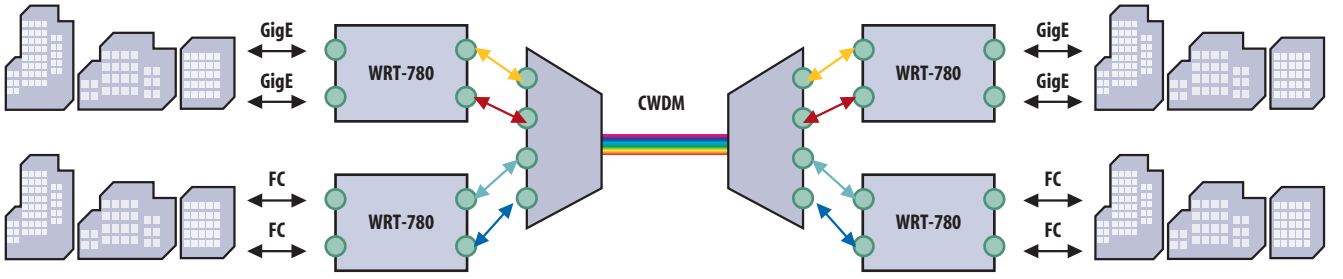
The WRT-780 automatically detects incoming data rates so that no provisioning is required by the end-user. The WRT-780 supports 3R operation (reshape, re-time, and regenerate) at all supported rates between 125 Mbps and 4.25 Gbps.

Simple and Easy to Manage

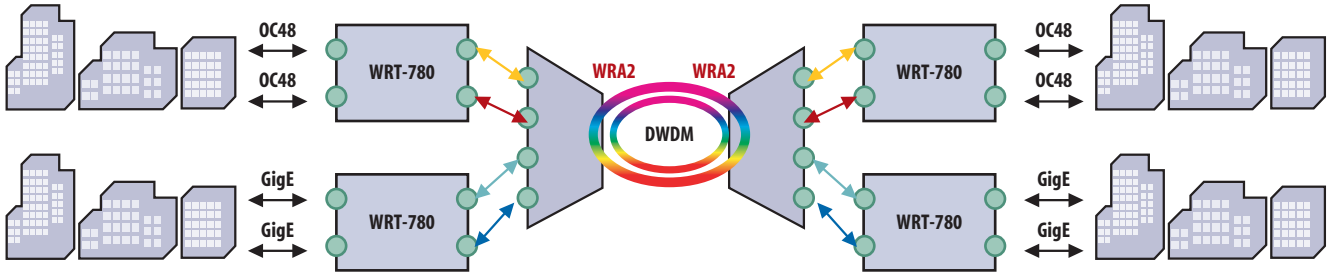
The WRT-780 can be managed using TL-1, simple network management protocol (SNMP), or by using the WaveReady™ Node Manager graphical user interface. The dual-transponder also supports manual data-rate provisioning, diagnostic loopback for testing, optical power monitoring, and other features. These functions facilitate fault location and correction and simplify operations required by service management and service-level agreements.

WRT-780 Dual Multirate WDM Transponder

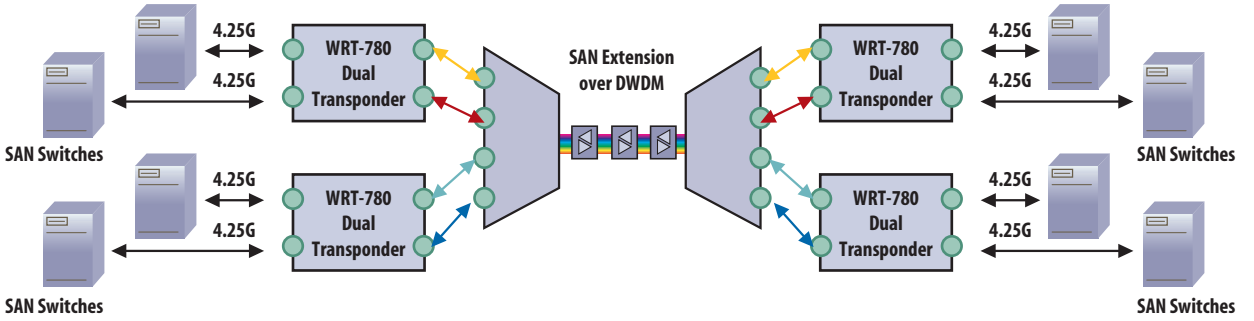
Because of its high density and flexibility, the WRT-780 enables reliable, scalable and cost-effective transport solutions for both CWDM and/or DWDM networks. The easy-to-use WRT-780 transponder combined with the plug-and-play features of the WaveReady platform makes the turn-up of new services easy and keeps equipment management simple.



Where extended reach is required, the WRT-780 can be combined with WaveReady DWDM amplifiers and dispersion compensation modules to provide a dense and compact DWDM transport solution.



With the growing need to have SANs extended over long distances to support enterprise connectivity or disaster and recovery solutions, the WRT-780 can be combined with the WaveReady WDM platform to offer a simple, reliable, and cost-effective SAN transport solution.



The following table lists data rates supported by the WRT-780:

Protocol	Bit Rate (Mbps)
Fast Ethernet	125 dB
SONET OC-3/SDH STM-1	155.52
ESCON	200
Ficon/Fibre Channel 25FC	265.63
Ficon/Fibre Channel FC50	531.25
SONET OC-12/SDH STM-4	622.08
Ficon/Fibre Channel FC100	1062.5
Gigabit Ethernet	1250
HD-SDI SMPTE 292M	1485
Ficon/Fibre Channel FC200	2125
SONET OC-48/SDH STM-16	2488.32
SONET OC-48 FEC (G.709 OTU1)	2666.06
IEEE802.3 10GBaseLX4	3125
Ficon/Fibre Channel FC400	4250

Electrical Specifications[1]

Parameter	Minimum	Typical	Maximum
DC supply voltage	–	-48 V	–
Power dissipation	–	14 W	17 W
Alarm relay signals	Dry contact major and minor alarms. Relay open under normal operation. Relay closed when power is off.		

1. Electrical specifications assume installation in a WaveReady 3500F shelf (DMS-3500FSE03).

Physical Specifications

Parameter	Typical
Size (H x W x L)	6.8 x 1 x 8.8 inches (17.5 x 2.5 x 22.3 cm)
Weight (approximate)	3.1 lbs (1.4 kg)

Environmental Specifications

Parameter	Minimum	Typical	Maximum
Normal operating temperature	0°C	–	40°C
Extended operating temperature	-5°C	–	55°C
Storage temperature	-40°C	–	85°C
Relative humidity (non-condensing)	5%	–	90%

Interface Specifications

Interface	Description
Optical	LC/PC on all ports
Craft	Requires WaveReady 3100 or 3500F series shelf and a WaveReady COM200 communications module. Craft access through RS-232/DB9 connector on front panel of COM200 module.
TL1/SNMP	Requires WaveReady 3500F series shelf and a WaveReady COM200 communications module. TL1/SNMP interfaces via the 10/100Base-T Ethernet/RJ45 connector on the front panel of a COM200.
Front panel	Seven LEDs: **CARD** (power); **MAJ/CRIT** (major/critical alarm); **MIN** (minor alarm); **PORT 1-1** (port status); **PORT 1-2** (port status); **PORT 2-1** (port status); **PORT 2-2** (port status)

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Supported Client SFPs

Description	Part Number	Bit-Rate (Mbps)	Launch Power	Reach	Receiver Sensitivity[2]
SFP Transceiver, Dual speed (100/1000BT) Copper, 100 m	WRT-SFPBT1000SC	125, 1250	N/A	100 m	N/A
SFP Transceiver, Multirate (155-2700 Mbps) with DDM, 1310 nm, 5-10 km	WRT-SFPS24SC1310	155-2667	-9.5 dBm	10 km 5 km	-22 dBm (GigE) -18 dBm (OC-48)
SFP Transceiver, Multirate (155-2700 Mbps) with DDM, 1310 nm, 20-30 km	WRT-SFPS24SCIR1	155-2667	-5 dBm	30 km 20 km	-22 dBm (GigE) -18 dBm (OC-48)
SFP Transceiver, Dual rate (1062, 1250 Mbps) with DDM, 1310 nm, 10 km	WRT-SFPS10SC1310	1062-1250	-9.5 dBm	10 km	-19 dBm
SFP Transceiver, Tri rate (1062, 2125, 4250 Mbps) with DDM, 1310 nm, 20 km	WRT-SFPS42SC1310	1062-4250	-8.4 dBm	20 km 28 km	-20 dBm (1 Gbps) -15.5 dBm (4.25 Gbps)
SFP Transceiver, Tri rate (1062, 1250, 2125 Mbps) with DDM, 850 nm Multimode	WRT-SFPM20SC0850	1062-2125	-9.5 dBm	0.5-500 m[3]	-17 dBm (1 Gbps) -15.0 dBm (2 Gbps)
SFP Transceiver, Tri rate (1062, 2125, 4250 Mbps) SFP with DDM, 850 nm Multimode	WRT-SFPM42SC0850	1062-4250	-9 dBm	0.5-500 m	-20 dBm (1 Gbps) -15 dBm (4.25 Gbps)

2. Values quoted are for worse-case extinction ratio and BER of 1 x 10^{-12}.
3. Depends on the fiber type.

Supported CWDM SFPs

Description	Part Number	Bit-Rate (Mbps)	Launch Power	Reach	Receiver Sensitivity
SFP Transceiver, Multirate (125-2700 Mbps) with DDM, CWDM, 80 km (See CWDM table for wavelength)	WRT-SFPL3C24SC-0YY	125-2667	0 dBm	80 km	-28 dBm
SFP Transceiver, Dual rate (2125, 4250 Mbps) with DDM, CWDM, 30-50 km (See CWDM table for wavelength)	WRT-SFPI3C42SC-0YY[4]	1062-4250	1 dBm	50 km 30 km	-20.5 dBm (2 Gbps) -16.5 dBm (4.25 Gbps)

4. YY indicate the CWDM Channel as per CWDM Channel table.

Supported DWDM SFPs

Description	Part Number	Bit-Rate (Mbps)	Launch Power	Reach[5]	Receiver Sensitivity
SFP Transceiver, Multirate (125-2700 Mbps) with DDM, DWDM, 120 km (See DWDM table for wavelength)	WRT-SFPL3T24SC-0XX	125-2667	0 dBm	120 km	-28 dBm
SFP Transceiver, Tri rate (1062, 2125, 4250 Mbps) with DDM, DWDM, 80-120 km (See DWDM table for wavelength)	WRT-SFPL3T42SC-0XX[6]	1062-4250	2 dBm	120 km 80 km	-28 dBm (OC-48) -23 dBm (4G FC)

5. Reach in this case is specified as per the dispersion reach assuming a worst case of 20 ps/km.
6. XX indicates the DWDM Channel as per the DWDM Channel table.

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CWDM SFPs support the following wavelengths (λ). The channel number is used in the part number suffix YY. For example, a 2.5 Gbps CWDM SFP using wavelength 1590 nm would be WRT-SFPL3C24SC-059.

Channel Number	Wavelength λ (nm)
47	1470
49	1490
51	1510
53	1530
55	1550
57	1570
59	1590
61	1610

DWDM SFPs support the following ITU frequencies and wavelengths (λ). The ITU channel number is used in the part number suffix XX. For example, a 2.5 Gbps DWDM SFP using wavelength 1528.77 nm would be WRT-SFPL3T24SC-061.

ITU Number	Frequency (THz)	Wavelength λ (nm)	ITU Number	Frequency (THz)	Wavelength λ (nm)	ITU Number	Frequency (THz)	Wavelength λ (nm)
60	196.00	1529.55	45	194.50	1541.35	30	193.00	1553.33
59	195.90	1530.33	44	194.40	1542.14	29	192.90	1554.13
58	195.80	1531.12	43	194.30	1542.94	28	192.80	1554.94
57	195.70	1531.90	42	194.20	1543.73	27	192.70	1555.75
56	195.60	1532.68	41	194.10	1544.53	26	192.60	1556.55
55	195.50	1533.47	40	194.00	1545.32	25	192.50	1557.36
54	195.40	1534.25	39	193.90	1546.12	24	192.40	1558.17
53	195.30	1535.04	38	193.80	1547.92	23	192.30	1558.98
52	195.20	1535.82	37	193.70	1547.72	22	192.20	1559.79
51	195.10	1536.61	36	193.60	1548.51	21	192.10	1560.61
50	195.00	1537.40	35	193.50	1549.32	20	192.00	1561.42
49	194.90	1538.19	34	193.40	1550.12	19	191.90	1562.23
48	194.80	1538.98	33	193.30	1550.92	18	191.80	1563.05
47	194.70	1539.77	32	193.20	1551.72			
46	194.60	1540.56	31	193.10	1552.52			

Product Information

For more information on WaveReady™ 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, +1 800-5378-JDSU worldwide or via e-mail at sales@jdsu.com.

Sample: WRT-780DT000B

Product Code	Description
WRT-780DT000B	Dual Multirate Transponder (125 Mbps – 4.25 Gbps)

Associated Parts

Product Code	Description
DMS-3500FSE03	WR3500F Shelf
COM-200ET003Y	COM200 Communication module
WRA-217C0001B	Multi-channel C-Band Optical Amplifier, +17 dBm
WRA-11X	Single Channel, Optical Amplifier (+10 dBm up to +19 dBm)
WRT-SFPS24SC1310	SFP Transceiver, Multirate (155-2700 Mbps) with DDM, 1310 nm, 5-10 km
WRT-SFPS24SCIR1	SFP Transceiver, Multirate (155-2700 Mbps) with DDM, 1310 nm, 20-30 km
WRT-SFPL3C24SC-0xx	SFP Transceiver, Multirate (125-2700 Mbps) with DDM, CWDM, 80 km
WRT-SFPI3C42SC-0xx	SFP Transceiver, Dual rate (2125, 4250 Mbps) with DDM, CWDM, 30-50 km
WRT-SFPL3T24SC-0xx	SFP Transceiver, Multirate (125-2700 Mbps) with DDM, DWDM, 120 km
WRT-SFPL3T42SC-0xx	SFP Transceiver, Tri rate (1062, 2125, 4250 Mbps) with DDM, DWDM, 80-120 km
WRT-SFPM42SC0850	SFP Transceiver, Tri rate (1062, 2125, 4250 Mbps) SFP with DDM, 850 nm Multimode
WRT-SFPM20SC0850	SFP Transceiver, Tri rate (1062, 1250, 2125 Mbps) with DDM, 850 nm Multimode
WRT-SFPS42SC1310	SFP Transceiver, Tri rate (1062, 2125, 4250 Mbps) with DDM, 1310 nm, 20 km
WRT-SFPS10SC1310	SFP Transceiver, Dual rate (1062, 1250 Mbps) with DDM, 1310 nm, 10 km
WRT-SFPBT1000SC	SFP Transceiver, Dual speed (100/1000BT) Copper, 100 m