

# WaveReady 3000 Series Unidirectional, Protocol and Data Rate Independent Optical Regenerator

## WaveShifter 200 ER 3R



### Key Features

- Provides high transmit power with low power consumption and high receiver sensitivity ( $-30$  dBm typical)
- Provides data rate independent regeneration for data rates between 45 Mbps and 2488 Mbps
- Reshapes, retimes and regenerates optical signal – 3R operation
- Plug-and-play module installs in minutes

### Applications

- Provides reach extension at both central office (CO) and remote locations
- Enables deployment at power-limited locations

### Compliance

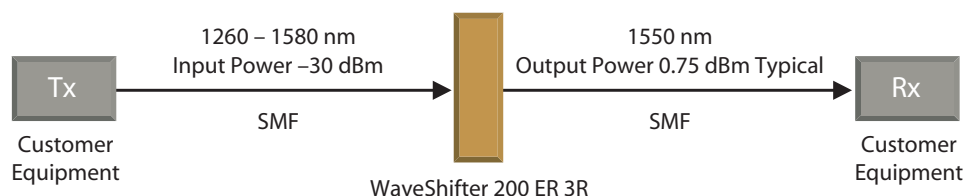
- NEBS Level 3
- GR-253 compliant
- FDA Class 1 laser device
- FCC Class A device
- UL 60950 Third Edition

The WaveReady™ 3000 series WaveShifter 200 ER 3R is a ruggedized, plug-and-play, 3R (reshape, retime, and regenerate) optical regenerator that increases maximum interconnect distance on single-mode fiber (SMF).

This innovative device accepts optical signals in the 1260 to 1580 nm range and converts them to 1550 nm for long reach applications. The WaveShifter 200 ER 3R operates with data rates from 45 to 2488 Mbps. Typical launch power is 0.75 dBm and receiver sensitivity is  $-30$  dBm.

Front panel LEDs indicate module status, while integrated electronics provide simple alarm and control functionality. An RS-232 interface and Ethernet port (through a communications module) allow for remote management. Its flexible package design allows the WaveShifter 200 ER 3R to be deployed in either the WaveReady 3500 or 3100 systems which mount in 19- or 23-inch telecommunications racks.

### Reach Extension



## 2

**Performance Specifications<sup>1</sup>**

Parameter	Minimum	Typical	Maximum
<b>Optical Characteristics</b>			
Input wavelength	1260 nm	—	1580 nm
Input sensitivity at BER 10 <sup>-10</sup> at 2488 Mbps (1260-1335 nm)	-27.5 dBm	-30 dBm	—
Input sensitivity at BER 10 <sup>-10</sup> at 2488 Mbps (1500-1580 nm)	-28.5 dBm	-31 dBm	—
Input overload power at BER 10 <sup>-10</sup>	-8 dBm	-7 dBm	—
Transmission rate	45 Mbps	—	2488 Mbps
Wavelength/temperature coefficient	—	0.1 nm/°C	—
Output wavelength range	1530 nm	—	1565 nm
Output power level	-1 dBm	0.75 dBm	3 dBm
Dispersion penalty (100 km)	—	—	2 dB
Extinction ratio	8.2 dB	9.5 dB	—
<b>Electrical Characteristics</b>			
DC supply voltage	—	-48 V	—
Power dissipation	—	4.5 W	6 W
Alarm relay signals	—	Dry contact	—
<b>Physical Dimensions</b>			
Size (H x W x L)	—	17.27 x 2.54 x 22.35 cm (6.8 x 1.0 x 8.8 in)	—
Weight (approximate)	—	0.635 kg (1.4 lb)	—
<b>Environmental Characteristics</b>			
Operating ambient temperature	-5°C	—	55°C
Storage temperature	-40°C	—	85°C
Relative humidity (non-condensing)	5%	—	95%

Note: This product should be deployed in accordance with your company's deployment directives.

1. Unless otherwise noted, all specifications are guaranteed over the life, operating temperatures, wavelength range, and input voltage range specified.

**Interface Specifications**

Parameter	Specification
Optical	SC/PC bulkhead, single-mode fiber (SMF)
Electrical	96-pin connector (power, alarms, craft/remote interface)
Craft	Menu and TL1 interfaces through RS-232. Access depends on the mounting solution
Alarms	Relay, dry contact: Major/Critical (MAJ/CRIT). Relay closed when alarm is active Front panel 4 LEDs: Power On (CARD), Major Alarm (MAJ/CRIT), Minor Alarm (MIN); Loss of Input (LOS A)

### 3

#### 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](mailto:customer.service@jdsu.com).

#### Sample: WSH-2003024SA

Product Code	Description
<b>Model</b>	
WSH-2003024SA	WaveShifter 200 ER 3R
<b>Associated Parts</b>	
10129126	DenseMount shelf
DMS-3100DC003	WaveReady 3100 DC shelf

**Test & Measurement Regional Sales**

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