

## WaveReady 2010 Gigabit Ethernet Fiberoptic Extender



### Key Features

- Compliant with GE IEEE 802.3z/D5 standards for fiberoptic interfaces
- Full duplex bandwidth operation with 2 Gb/s throughput
- Single- or dual-fiber wavelength division multiplexer (WDM) options available for new or existing fiber plants
- Low latency due to simultaneous transmit and receive functions
- Low jitter and a low bit error ratio

### Applications

- Long distance data communications via private or leased single mode fiberoptic lines
- Extension of the full duplex GbE LAN to the MAN (up to 100 km)

### Compliance

- NEBS Level 3
- Underwriters Laboratories (UL) 60950, 1950 Third Edition\*

The JDSU WaveReady™ 2010 is a Gigabit Ethernet (GbE) fiberoptic extender that increases the maximum interconnect distance of a GbE switch from 5000 m to 100 km (67 miles). The WaveReady 2010 enables local area network (LAN) technology to be extended to the metropolitan area network (MAN).

By eliminating distance limitations, the WaveReady 2010 permits a wider variety of uses for GbE products. The WaveReady 2010 makes it much easier to deploy Ethernet on a metro wide area network (WAN) scale. This product's extremely long reach and its low cost lead directly to reduced capital expenditures and maintenance.

The extender automatically locks onto serial data, then retimes and retransmits it. Operation is full duplex. The unit functions as a transparent extension of the local GbE port.

The WaveReady 2010 is fully compatible with GE IEEE 802.3z/D5 standards and allows users to take full advantage of the available 2 Gb/s full duplex bandwidth. The link provides low latency by allowing simultaneous transmit and receive functions.

\* UL tests and certifies this product to the applicable Canadian safety standards

## 2

### Optical Specifications

Parameter	Minimum	Typical	Maximum
<b>Standard GbE Optical Interface</b>			
Multimode link	-	-	7.5 dB
Distance (62.5 mm multimode / 50 mm multimode)	-	2 to 220 m / 2 to 500 m	-
Optical connector loss	-	-	1 dB
Optical connectors	-	SC/PC bulkheads	-
<b>GbE Optical Transmitter Interface</b>			
Output optical power <sup>1</sup> (multimode)	-9.5 dBm	-	-4 dBm
Optical extinction ratio	9 dB	-	-
Center wavelength	830 nm	850 nm	860 nm
Optical rise/fall time	-	-	0.26 ns
Relative intensity noise (RIN)	-	-	-117 dB/Hz
Total added jitter	-	-	227 ps (p-p)
<b>GbE Optical Receiver Interface</b>			
Optical input power, BER =1E-9	-17 dBm	-	0 dBm
Stressed Rx sensitivity (62.5 multimode / 50 multimode)	-	-	-12.5 dBm / -13.5 dBm
Operating wavelength	770 nm	-	860 nm
Optical return loss	12 dB	-	-
Stressed Rx eye opening	201 ps (p-p)	-	-
Interface standards compatibility	Compliant with all Gigabit Ethernet (IEEE 802.3z/D5) standards		
<b>Long Distance Optical Interface</b>			
Link			
Optical loss	32 dB	35 dB	-
Distance on SM fiber	-	100 km	-
LDI Optical Tx			
Optical output power <sup>2</sup>	0 dBm	1 dBm	-
Optical extinction ratio	7 dB	-	-
Center wavelength	1530 nm	1550 nm	1565 nm
Optical rise/fall time	-	-	0.26 ns
LDI Optical Rx			
Optical input power, BER =1E-9	-	-34 dBm	-32 dBm
Optical input power maximum, BER =1E-9	-8 dBm	-	-
Operating wavelength	1200 nm	1550 nm	1600 nm
Return loss	-	27 dB	-
System Rates and Lengths			
Bit rate, fiber line rate	-	1.25 Gbaud±100 ppm	-
Distance on single mode fiber <sup>3</sup>	5 m	-	100 km
Data format, encoded	-	8B10B	-

Note: All specifications are guaranteed over the life, operating temperatures, wavelength range, and input voltage specified. This product should be deployed in accordance with your company's deployment directives.

- Class 1 eye safe.
- Operation beyond 100 km can be loss limited. Unless a very low loss fiber plant exists, operation is limited to 100 km. An erbium-doped fiber amplifier (EDFA) can be used to overcome excessive loss and extend the link distance to over 100 km.
- >100 km special order; additional optical attenuation is required if the fiber loss is less than 10 dB.

### 3

#### Electrical Specifications<sup>1</sup>

Parameter	Minimum	Typical	Maximum
Power supply 100 to 240 V AC	50 Hz	-	60 Hz
Autoswitching	-	50 W	-

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

#### Environmental Specifications<sup>1</sup>

Parameter	Minimum	Typical	Maximum
Operating temperature	0 °C	-	50 °C
Storage temperature	-20 °C	-	70 °C
Relative humidity (non-condensing)	5 %	-	95 %

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

#### Interface and Management Specifications

Parameter	Specification
Interface	GbE
Craft	Local (Craft) management via RS-232/DB9 for TL1 commands through a local VT100 terminal or terminal emulator

**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: WVR-2010GE00A**

<b>Product Code</b>	<b>Description</b>
WVR-2010GE00A	WaveReady 2010 Gigabit Ethernet Fiberoptic Extender

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