

# 10 Gb/s Digital Receiver with Clock Recovery

The DRC-10-M is a 10 Gb/s bandwidth high gain, lightwave digital receiver module with a 10 Gb/s clock recovery circuit. It is designed for OC-192, DWDM, and Bit Error Rate Testing (BERT) of a digital optical link.

DRC-10-M 10 GB/s Digital Receiver with Clock Recovery



## Product Description

The DRC-10-M is a 10 Gb/s bandwidth high gain, lightwave digital receiver module with a 10 Gb/s clock recovery circuit. It is designed for OC-192, DWDM, and Bit Error Rate Testing (BERT) of a digital optical link. The DRC-10-M is an O/E converter with post/limiting amplifier module designed for use in receivers of STM-64/OC-192 (9.953 Gb/s) and STM-64/OC-192 with Forward Error Correction (FEC) (10.664 Gb/s) optical transmission systems. This module consists of a PIN photodiode, pre-amplifier, post-amplifier, and limiting amplifier. At the optical input level of -17 dBm, DRC-10-M provides an output level of 1.0 Vp-p.

The built-in clock recovery circuit has a separate 10 Gb/s clock recovery output and combined with the data output port makes it easy for BERT testing.

## Features

- Wide Bandwidth, 0.01 to 11 Gb/s
- Very high O/E gain of 50,000 V/W
- PIN Photodiode
- Pre-amplifier and post-amplifier
- Limiting Amplifier
- Excellent eye diagram at low input
- Built-in clock recovery function
- Optional 10.664 Gb/s Forward Error Correction (FEC)

## Applications

- OC-192
- DWDM Systems
- Bit Error Rate Testing (BERT)
- For use with Error Detector

## PRODUCT SPECIFICATIONS

### Optical Specifications

Operating Wavelength	1250 nm to 1650 nm
Optical Input Level	+3 dBm max.
Responsivity	0.85 A/W @ 1550 nm typ.
O/E Conversion Gain	50,000 V/W
Optical Return Loss	-30.00 dB typ.
Optical PDL @ 1550 nm	0.05 dB typ., 0.1dB max.

### Electrical Specifications

Useful Bandwidth	0.01 to 11 Gb/s
S21 3 dB Bandwidth	9 GHz typ.
S22 Characteristics	< -10 dB to 10 Gb/s typ.
Output Coupling	AC Coupled
RF Impedance	50 $\Omega$
Ripple over Bandwidth	$\pm$ 1.0 dB
Sensitivity	-18 dBm

### Clock Recovery

Standard Clock Rate	9.953 Gb/s
FEC Clock Rate	10.664 Gb/s (optional)
Data Output	DC-coupled
Clock Output	AC-coupled
Output Voltage	1.0 V typ.
Clock Voltage	1.0 V typ.

## Ordering Information

### DRC-10-x-M

- x S, Standard 9.953 Gb/s;
- F, Forward Error Correction (FEC) 10.664 Gb/s.



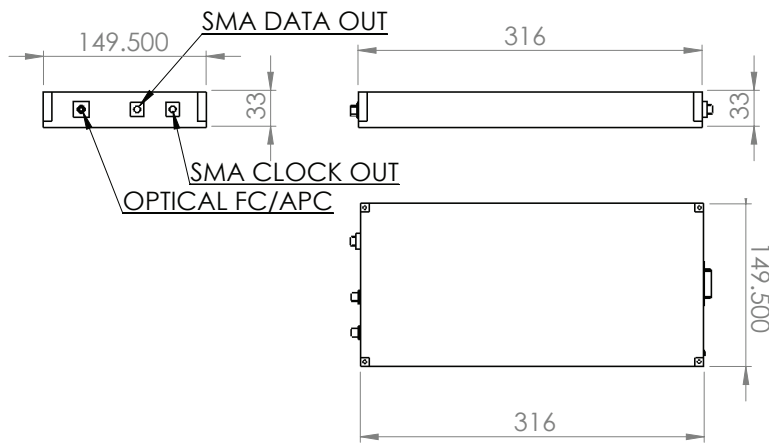
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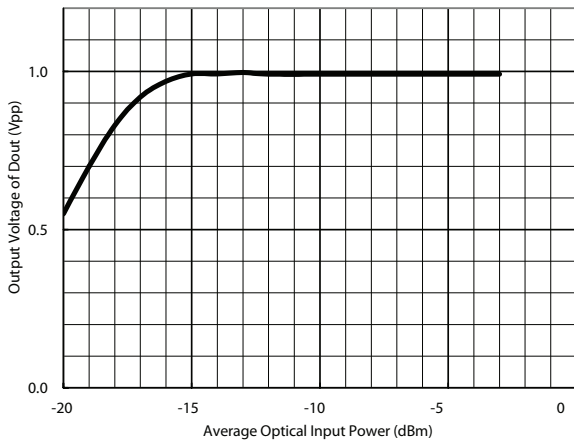
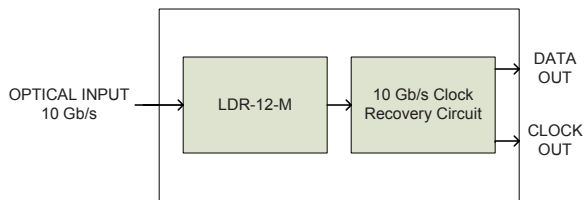
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Product specifications and description are subject to change without notice.  
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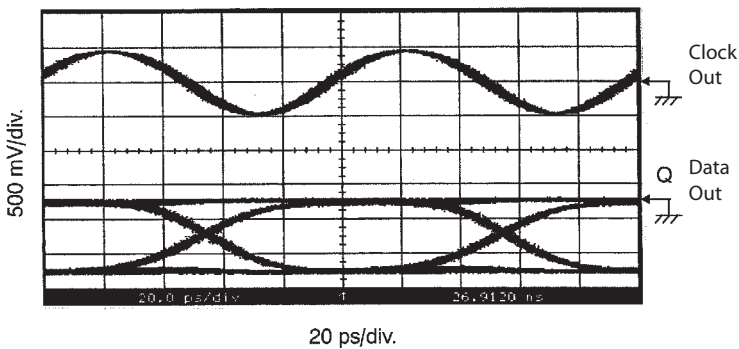
## Mechanical Drawing



## Block Diagram



O/E Transfer Characteristics at 9.96 Gb/s



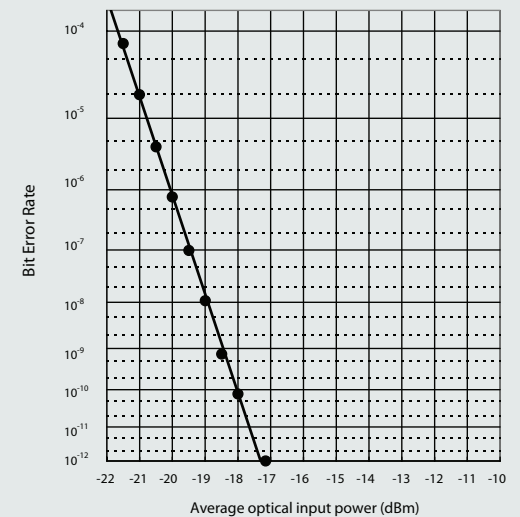
Eye diagram<sup>1</sup>

<sup>1</sup> Pin=-9Bm, Bit Rate=9.95 Gb/s, NRZ, PRBS 2<sup>23</sup>-1, Mark Ratio=1/2

## 10 Gb/s Digital Receiver with Clock Recovery

### Mechanical Specifications

Operating Temperature	0° C to +70° C
Storage Temperature	-40° C to +85° C
Power Supply Requirements	+12 V DC, 2 A max.
Optical Connector	FC/APC, SC/APC Optional
RF Output Connector	SMA Female, 50 Ω
DC Connector	DB-15
Local Alarm	LED: Optional Input Power
Dimensions	316 mm x 150 mm x 33 mm
Accessories Included	110 V - 240 V AC Adaptor
Housing	Precision Machined Aluminum, Anodized



Bit Error Rate<sup>1</sup>

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To order this product online, visit our site at [oequest.com](http://oequest.com)



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<sup>1</sup> Bit Rate = 9.95 Gb/s, NRZ, PRBS=2<sup>23</sup>-1, Mark Ratio=1/2