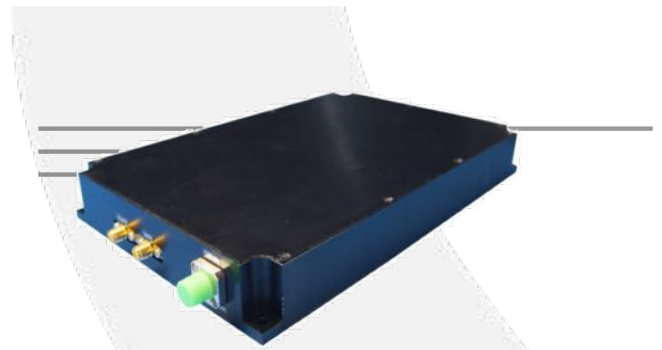




# LRD-10-CLK-M



## DEVICE

## 10 Gb/s Digital Receiver with Clock Recovery

## OVERVIEW

The Optilab LRD-10-CLK-M is a 10 Gb/s bandwidth high gain, lightwave digital receiver module with a 10 Gb/s clock recovery circuit, designed for OC-192, DWDM, and Bit Error Rate Testing (BERT) of a digital optical link. The LRD-10-CLK-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 cost-effective module consists of a PIN photodiode, pre-amplifier, post-amplifier, and limiting amplifier. The built-in clock recovery circuit has a separate 10 Gb/s clock recovery output, and at the optical input level of -17 dBm it provides an output level of 1.0 V<sub>p-p</sub>. Contact Optilab for more information.

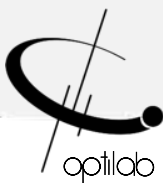
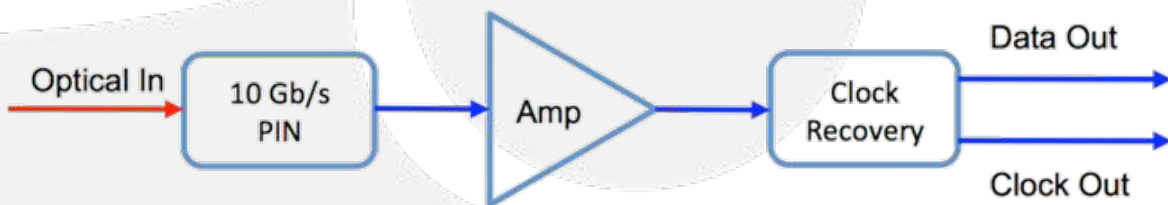
## FEATURES

- Built in VOA
- Internal DFB laser
- Remote access Via USB
- Up to 15 GHz operating range
- 10 dB attenuation range
- Automatic Bias, Q+ mode or 4 modes

## USE IN

- Analog photonics
- DWDM Network
- Satellite Communication
- Optical communications to 15 Gb/s
- Sub-nanosecond pulse generation
- 15 GHz RFoF transmission

## FUNCTIONAL DIAGRAM





# LRD-10-CLK-M

## SPECIFICATIONS

### OPTICAL

|                       |                           |
|-----------------------|---------------------------|
| 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., 0.1 dB max. |

### ELECTRICAL

|                       |                          |
|-----------------------|--------------------------|
| Useful Bandwidth      | 0.01 to 10 Gb/s          |
| S21 3 dB Bandwidth    | 10 GHz typ.              |
| S22 Characteristics   | < -10 dB to 10 Gb/s typ. |
| Output Coupling       | AC Coupled               |
| RF Impedance          | 50Ω                      |
| Ripple over Bandwidth | ± 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.             |

### MECHANICAL

|                           |                                       |
|---------------------------|---------------------------------------|
| Operating Temperature     | 0 °C to +70 °C                        |
| Storage Temperature       | -40 °C to +85 °C                      |
| Power Supply Requirements | + 12 V DC, 2 A max.                   |
| Optical Connectors        | FC/APC, SC/APC optional               |
| RF Output Connector       | SMA Female, 50Ω                       |
| DC Connector              | Molex 4-pin                           |
| Local Alarm               | LED: Optional Input Power             |
| Dimensions                | 210 mm x 135 mm x 28 mm               |
| Accessories Included      | 110 V – 240 V AC Adaptor              |
| Housing                   | Precision Machined Aluminum, Anodized |

### ORDERING OPTIONS

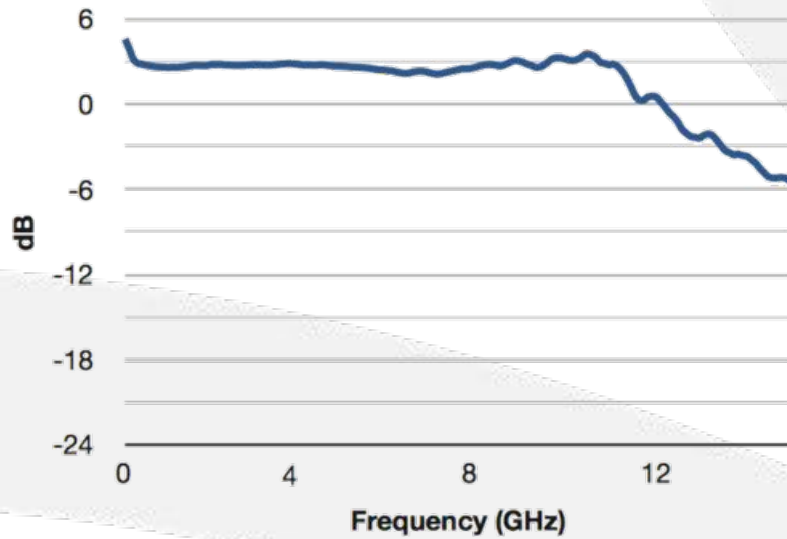
**LRD-x-CLK-M**  
x S, Standard 9.953 Gb/s;  
F, Forward Error Correction (FEC) 10.664 Gb/s





# LRD-10-CLK-M

## TYPICAL S21 BANDWIDTH



## TEST REPORTS

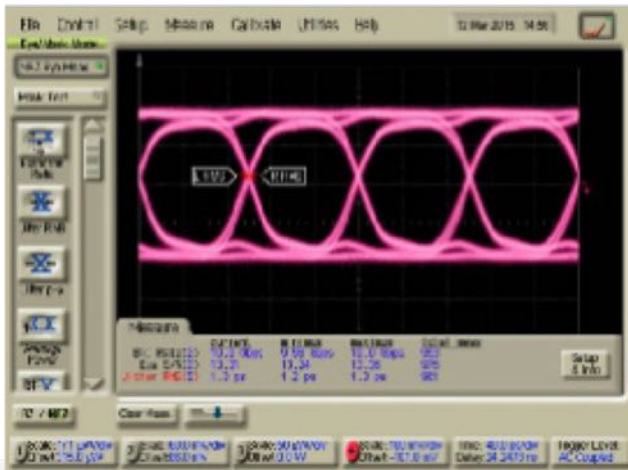


Figure 1: Recovered Data Output, measured with 2 dB attenuation and a DC block

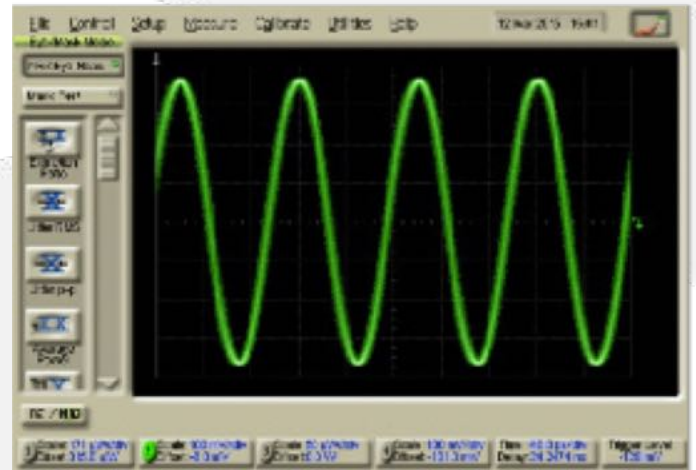


Figure 2: Recovered Clock Output, measured with 3 dB attenuation

