

## Optical Receiver System

### ORS20

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### FEATURES

- Switchable Filter Design which Supports Fibre Channel 1.063 Gb/s, Ethernet 1.25 Gb/s and SONET/SDH 2.488 Gb/s Data Rates
- Reference Receiver Performance Compliant with IEEE P802.3z, ANSI FC-PH and ITU-T G.957 for Standards Compliance Testing
- Broad Wavelength Performance for Testing Both Short (780 nm, 850 nm) and Long (1310 nm, 1550 nm) Wavelength Optical Signals
- 2.3 GHz Bandwidth for Analyzing Communication Eye-patterns or General Purpose Optical Signals
- High Dynamic Range
- 4th Order Bessel-Thompson Frequency Response
- Internal Power Supply for Use with CSA/TDS8000 and 11800/CSA803 Series Sampling Oscilloscopes or Other Instruments

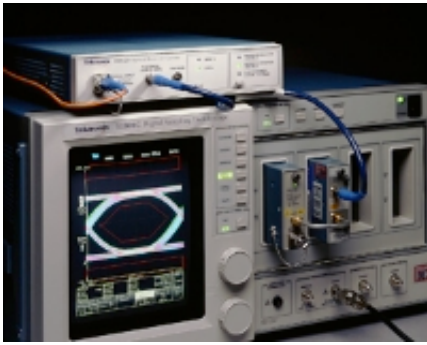
### APPLICATIONS

- Standards Compliance Testing: Ethernet 1.25 Gb/s, Fibre Channel 1.063 Gb/s, SONET/SDH 2.488 Gb/s
- Eye-pattern Measurements
- Extinction Ratio Measurements
- Characterize Relaxation Oscillation
- Optical Signal Analysis

### Verification of Gigabit Ethernet and Fibre Channel Signals

Data rates for the Local Area Networks (LANs) and Wide Area Networks (WANs) have exceeded 1 Gb/s and therefore increased the required interface performance for testing these high speed optical signals. The Tektronix ORS20 optical receiver systems provides the latest optical-to-electrical interface for compliance testing of Gigabit Ethernet as well as Fibre Channel optical transmission signals. Whether your transmission system or component is a short wavelength (850 nm) or long wavelength (1310 nm) design, the ORS20 utilizes a revolutionary broad wavelength photodetector design that allows engineers to verify standards compliance with a single optical-to-electrical converter.

The amplified design of the ORS20 converts the incoming optical light into a high gain, low noise electrical signal that can then be fed directly into the SD22 electrical sampling head. This allows convenient testing of both low power level as well as high peak amplitude power level optical signals commonly associated with Fabry Perot lasers. The ORS20 has integrated filters which allows users to manually or automatically (TTL



1.25 Gb/s Ethernet Eye-pattern with ORS20, 11801C and SD22.

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interface) engage 4<sup>th</sup> Order Bessel-Thompson filters required for Fibre Channel and Gigabit Ethernet eye-pattern testing. The 2.3 GHz full bandwidth setting allows designers to view the relaxation oscillation associated Vertical Cavity Side Emitting Lasers (VCSELs) or CD laser based transceivers and it also operates as a 2.5 Gb/s reference receiver as required by ITU-T G.957 for SONET/SDH 2.5 Gb/s signals. A certificate of calibration and two frequency response graphs are supplied with each ORS20 for performance documentation.

### Frequency Performance Values for An Optical Reference Receiver

Gigabit Ethernet and Fibre Channel recommendations define the nominal transfer function for an optical reference receiver as being a fourth-order Bessel-Thompson response where  $f_o$  is the transmitted data rate and  $f_r$  is the 3 dB cutoff, which is defined as  $f_r = 0.75f_o$ .

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Tektronix Measurement products are manufactured in ISO registered facilities.



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