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Find the *Tektronix ORS622* at our website: ***Click HERE***

SDH/SONET Reference Receivers

ORS622



ORS622 with Options 31 and 41

Features

ORS622

- Strict ITU-T G.957 Compliance
- Data Rates Through 2.488 Gbits/s
- Bessel-Thompson Frequency Response
- Accurate Extinction Ratio Measurements
- Low Distortion Eye Pattern and Pulse Measurements
- DC Coupled and Stabilized Amplification
- Convenient and Flexible Configurations
- Measures Average Optical Power
- Easy to Use
- Fully GPIB Controllable

Verifying SDH/SONET

SYSTEM PERFORMANCE

The Synchronous Data Hierarchy (SDH) and the Synchronous Optical NETwork (SONET) standards are crucial to the next generation of high-speed digital telecommunications systems. The Tektronix ORS optical reference receivers fill a crucial test system gap for verifying SDH/SONET optical system performance.

These are true optical receivers, not just filters. The result is a precision optical reference receiver that can be relied upon to faithfully represent transmitted signals at specific SDH/SONET bit rates for the purpose of waveform or eye pattern analysis. Without an optical reference receiver of this completeness and precision, optical transmitter signal evaluation can become fraught with uncertainties caused by unrelated optical transmitter noise.

In addition to defining optical system signal hierarchy and signal characteristics, SDH/SONET also defines test methodologies and specifications for verifying equipment and system performance. Prominent in this is the use of an SDH/SONET optical reference receiver and an oscilloscope for display and comparison of the data eye pattern to specified masks.



ORS156 with Option 1x/2x

ORS SERIES SPECIFICATIONS

SDH/SONET recommendations define the nominal transfer function for an optical reference receiver as being a fourth-order Bessel-Thompson response. The following table lists the corresponding attenuation at various frequencies, f. In this table f_o is the receiver's bit rate and f_r is the 3 dB cutoff, which is defined as $f_r = 0.75f_o$.

Allowable deviation from the nominal attenuation in the table is very tightly specified in the SDH/SONET recommendations. The actual allowable deviation values depend on f/f_r and the bit rate. These values run as low as ±0.3 dB.

NOMINAL PERFORMANCE VALUES FOR AN SDH/SONET OPTICAL REFERENCE RECEIVER (O/E CONVERTER AND FILTER TOGETHER)					
f/f_o	**f/f_r**	**Attenuation (dB)**	**f/f_o**	**f/f_r**	**Attenuation (dB)**
0.15	0.2	0.1	1.0	1.33	5.7
0.3	0.4	0.4	1.05	1.4	6.4
0.45	0.6	1	1.2	1.6	8.5
0.6	0.8	1.9	1.35	1.8	10.9
0.75	1.0	3.0	1.5	2.0	13.4
0.9	1.2	4.5	2.0	2.67	21.5

Each Tektronix ORS Series SDH/SONET Reference Receiver undergoes extensive frequency-response testing. All verification tests are documented. The verification document is supplied as part of the ORS Series SDH/SONET Reference Receiver. This document contains the serial number of the receiver as well as the measured verification data for that receiver.

Receiver selection is based, first of all, on the SDH/SONET bit rate of interest. For greatest flexibility, a receiver based on the OCP5502 O/E converter is recommended even for OC-1 applications. The broad bandwidth of the OCP5502 allows later addition of filters to cover higher bit rates as needed without having to purchase an additional O/E converter. For OC-1 applications requiring economy and high sensitivity, but not requiring flexibility for higher bit rates, a receiver based on the P6713 O/E Converter is recommended. Where economy or coverage of more than one bit rate is the greatest concern, receivers based on the P6703A O/E Converter are the appropriate choice for testing OC-1 and OC-3/STM-1-Bit rates.

The ORS Series SDH/SONET Reference Receivers are TEKPROBE® interface compatible. When used with Tektronix oscilloscopes having the TEKPROBE interface, screen displays will show the proper scale factor for the optical signal (microwatts of optical power). This allows direct measurement and display of results without having to manually apply conversion factors. For oscilloscopes or other instruments not having this

TEKPROBE interface, a Tektronix 1103 Power Supply can be ordered separately for ORS Series Reference Receivers using P6703A or P6713 O/E Converters. ORS Series Reference Receivers using the OCP5502 O/E Converter ORR24 are compatible with (but do not require) the TEKPROBE Interface for their operation.

SELECTION TABLES

Receiver	Option	Configuration	Optical Connectors	Key Benefits
OC-12/STM-4 (622.08 Mbits/s)				
ORS622		OCP5502/FS622 and OC-12 calibration	FC, ST, DIN 47256, and SC	Greatest flexibility. Built-in power meter. GPIB. Multiple bit rate options.
	1P	Delete OCP5502 power supply resulting in TM5000 compatible plug-in instrument	same	Provides compatibility with bench or rackmountable TM5000 Series Modular Instrument Mainframes.
	31	Add FS52 and OC-1 calibration		
	41	Add FS156 and OC-3 calibration		
OC-48/STM-16 (2.488 Gbits/s)				
(Not Available - see ORR24)				

*[*1]x=1 (FC Optical Input Connector). x=2 (ST Optical Input Connector). x=3 (DIN 47256 Optical Input Connector). x=4 (SMA Optical Input Connector). x=5 (SC Optical Input Connector).*

Note: [(a)]For further technical information on ORS Series products, request Data Sheet #3TW-8530-1.

[(b)]For information on SDH/SONET Reference Receiver calibration services available for new or previously purchased O/E Converters, contact your local Tektronix sales office.



Product(s) complies with IEEE Standard 488.1-1987, and with Tektronix Standard Codes and Formats



Tektronix Measurement products are manufactured in ISO registered facilities.

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