

2.97G Dual Receiver Video SFP with Digital Diagnostics

Product Overview

The Emerson Network Power Connectivity Solutions SP2R-20-P-2-B optical Video Small Form Factor Pluggable (V_SFP) dual receiver modules are high performance integrated duplex data links for uni-directional communication over single mode optical fiber. These modules are designed to receive data rates from 270Mbps to 2.97Gbps and are compatible with the following standards:

- SMPTE 424M/297M (1080p – 2.97Gbps)
- SMPTE 292M/297M (HDTV – 1.485Gbps)
- SMPTE 259M/297M (SDTV – 270/360Mbps)

The Stratos Lightwave simplex receiver V_SFP module is hot pluggable which allows a suitably designed enclosure to be changed from one type of external interface to another simply by plugging in a V_SFP having the alternative external interface. The SP2R-20-P-2-B operates using a single 3.3V supply. This optoelectronic simplex receiver module is designed to operate with a transmitter that is Class 1 Laser product compliant according to the FDA Radiation Performance Standards, 21 CFR Subchapter J and International Safety Standard IEC-825-1.



Ordering Information

SP2R - 20 - P - 2 - B

Key Features & Benefits

- SMPTE 424M/297M Compliant
- SMPTE 292M/259M/297M Compatible
- Based on Industry Standard SFP
- RoHS-6 Compliant
- Handles Pathological Test Matrix Pattern
- Internally Calibrated Digital Diagnostic Monitoring Interface
- 100Ω Differential AC Coupled CML Outputs
- Die Cast Metal Housing
- Hot Pluggable

Module Specifications – Electrical: 0°C<T_c<+70°C, +3.135V<V_{cc}<+3.465V

Parameter	Sym	MI	Typ	MAX	Unit	Notes
Supply Current	I _{cc}		160	200 300	mA	T _c = 25°C, V _{cc} = +3.3V 0°C<T _c <+70°C, +3.135V<V _{cc} <+3.465V
Surge Current	I _{surge}			30	mA	Surge above steady value
Receiver						
CML Outputs (Differential)		400	800	950	mV _{pp}	AC Coupled Outputs
Total Jitter [pk-pk]	T _j			120 100	ps	Measured with Pathological Test Matrix Pattern @ 2970/1485/360/270Mbps (Note 1) Measured with Color Bar Test Signal @ 2970/1485/360/270Mbps (Note 1)
Return Loss		15			dB	Worst case @ 10KHz to 3GHz
SCL, SDA	VoH VoL	2.5 0		V _{cc} +0.3 0.5	V	

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SP2R-20-P-2-B Dual Receiver Video SFP

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Note 1: Maximum jitter is specified for single module point-to-point applications only. In cascaded configurations, where the receiver electrical output is directly interfaced with the transmitter electrical input of a separate module, accumulated jitter may result in CRC errors to occur during pathological pattern transmission. For error-free operation in such a situation, use of re-clocker device is recommended at the output of the receiver before interfacing to the inputs of the optical transmitter. This will ensure that the output jitter will not exceed the input jitter tolerance of the succeeding transmitter input.

SP2R-20-P-2-B Optical Specifications – PIN RX: 0°C<Tc<+70°C, +3.135V<Vcc<+3.465V

Parameter	Sym	MIN	Typ	MAX	Unit	Notes
Link Distance (9.0µm Core Diameter SMF)	See Link Distance Table					
Receiver						
Optical Input Wavelength	λ	1270		1610	nm	
Optical Input Power with Pathological Test Matrix Pattern (Note 2,3)	Pr	-20 -20 -23		-3 -3 -3	dBm	@ 2.97Gbps @ 1.485Gbps @ 270/360Mbps
Optical Input Power with Color Bar Test Signal (Note 2,3)	Pr	-21 -21 -24		-3 -3 -3	dBm	@ 2.97Gbps @ 1.485Gbps @ 270/360Mbps
Optical Return Loss	ORL	29			dB	
RX_LOS – Asserted	Pa	-29			dBm	No Signal Pins Designated for RX_LOS. Assert/Deassert Levels can be Monitored via Digital Diagnostics Interface.
RX_LOS – Deasserted	Pd			-20	dBm	
RX_LOS – Hysteresis	Pa-Pd		1.5	5	dB	

Note 2: Minimum receiver input power is defined for line BER < 1 x 10⁻¹²

Note 3: When connecting SP2R-20-P-2-B receiver module to a high powered transmitter unit (i.e. SP2T-20-P-3-B, SP2T-20-P-3-xyy, etc.) using 2-3m fiber patch cord, the user shall place a 6dB in-line attenuation to prevent receiver overload.

Link Distance

Receiver	Transmitter	Data Rate	Link Distance (Min)	Notes
SP2R-20-P-2-B (PIN Receivers)	SP1T-20-P-2-B or SP2T-20-P-2-B (1310nm FP)	2970Mbps	5km	Note 4
		1485Mbps	11km	
		270/360Mbps	27km	
	SP1T-20-P-2L-B (1310nm)	2970Mbps	30km	
		1485Mbps	33km	
		270/360Mbps	39km	
	SP1T-20-P-3L-B or SP2T-20-P-3-B (1550nm DFB)	2970Mbps	33km	
		1485Mbps	58km	
		270/360Mbps	75km	

Note 4: The specified minimum link distances are based on IEEE link budget models. Assumes minimum transmitter output power and extinction ratio and worst case receiver sensitivity with pathological test matrix pattern.

For more information on this product consult the SP2R-20-P-2-B product data sheet.

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