

Features

- Intensity-modulated RGB/xGA transmission over three fibers
- Separate, adjustment-free installation (AGC) and operation on all three colors
- Provides electrical isolation and is immune to electrical noise in transmission path
- Video bandwidth up to 220 Mhz per color
- Excellent video quality
- Single-slot Series 9000 chassis system rack-mount card
- Network Management System (NMS) compatible



9311 Series

High-resolution RGB/xGA over fiber

Description

Ideal for remoting computer or video display screens from their video source, the 9311 transports RGB with Sync-on-Green, separate Composite Sync (CS), or separate Horizontal and Vertical (VS) Sync on three fibers.

Applications

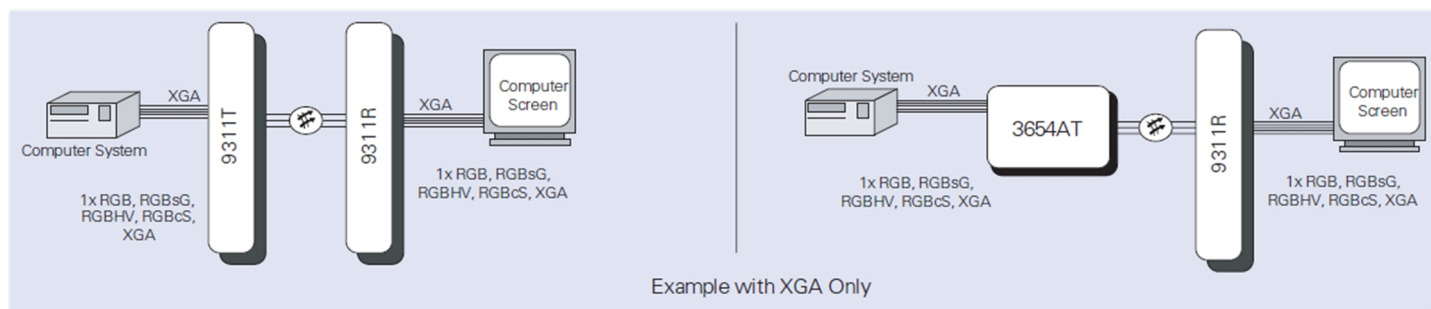
Normally, the high-frequency signals used for xGA and RGB do not travel well over any significant distances on copper. A 9311T transmitter/9311R receiver pair or a 9311 paired with a 3654A stand-alone provides the means of sending these signal types long distances over fibers. Fiber transmission also eliminates problems with grounding issues, noise, and offers a secure method of transporting these signals. The units support most RGB (Sync-on-Green) signals and xGA video with horizontal rates up to 128 KHz and vertical rates up to 130 hz.

Versions

The 9311T and 9311R are available in single-mode and multimode versions and are optically compatible with the 3654A stand-alone units.

Technical Specifications

9311 Series



Video

Video input level	700 mV p-p nominal, 900 mV p-p maximum
Video linearity	≥3% typical
Sync-on-Green level	300 mv nominal
External sync	
Input low level	0.0 V to +0.3 V typical
Input high level	-1.0 V to +4.3 V typical
Output low level	0.0 V
Output high level	+2.0 V into 75 Ω, +3.2 V into 300 Ω
Impedances	
Video input/output	75 Ω
Sync input	75 Ω or 300 Ω selectable
Sync output	75 Ω
Sync sources	Sync-on-Green, External Composite, External Horizontal, and External Vertical
Scan rates	15.75 khz to 128 khz horizontal, 45 Hz to 130 Hz vertical
Connector	HD15

Management

LED status indicators	
9311T	Not Sync, Sync, HS/CS Sync, VS Sync
9311R	Blue Level, Green Level, Red Level, Power
Network Management Interface (NMS) specifications	Card Location, Name, Serial Number, Revision Level, Chronometer, Reset Cycles, Firmware Revision T: Laser OK (R, G, B), Sync Input OK, HS, CS OK, VS OK D: RX Optical Power Low, High, OK (R, G, B)

Powering

Voltage	6 Vdc (supplied by chassis)
Current	
9311T (S, H1)	750 mA
9311T(LD)	1.0 A
9311R (S, H1, L)	1.4 A

Technical Specifications

9311 Series

Typical bandwidth requirements

XGA

Resolution	1024 x 768 @ 60 Hz
Pixel clock	65 MHz
Bandwidth required	50 MHz

XGA

Resolution	1024 x 768 @ 85 Hz
Pixel clock	94.5 MHz
Bandwidth required	70 MHz

SXGA

Resolution	1280 x 1024 @ 60 Hz
Pixel clock	108 MHz
Bandwidth required	80 MHz

SXGA

Resolution	1280 x 1024 @ 75 Hz
Pixel clock	135 MHz
Bandwidth required	100 MHz

UXGA

Resolution	1600 x 1200 @ 60 Hz
Pixel clock	162 MHz
Bandwidth required	120 MHz

WUXGA

Resolution	1920 x 1200 @ 60 Hz
Pixel clock	195 MHz
Bandwidth required	145 MHz

UXGA

Resolution	1600 x 1200 @ 75 Hz
Pixel clock	202.5 MHz
Bandwidth required	150 MHz

OXGA

Resolution	2048 x 1536 @ 60 Hz
Pixel clock	265 MHz
Bandwidth required	200 MHz

Environmental

Operating temperature	-20 °C to +50 °C (-4 °F to +122 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	0 to 95% noncondensing

Mechanical

Housing	Series 9000 system single-width card
Dimensions (h x w x d)	154.9 x 20.3 x 218.4 mm (6.1 x 0.8 x 8.6 in)
Weight	226.8 g (0.5 lbs)

Technical Specifications

9311 Series

Optical

	9311T-S-ST 9311R-S-ST	9311T-H1-ST 9311R-S-ST	9311T-H1-ST 9311R/HS-S-ST	9311T-H1-ST 9311R-S-ST	9311T-LD-ST 9311R-L-ST
Fiber type	MM (62.5/125 μm)	MM (62.5/125 μm)	MM (62.5/125 μm)	MM (50/125 μm)	SM (09/125 μm)
Wavelength	850 nm	865 nm	865 nm	865 nm	1310 nm
Bandwidth @ Distance ^{1, 2}					
2 m	160 MHz	180 MHz	150 MHz	150 MHz	220 MHz
0.6 km	90 MHz	90 MHz	100 MHz	90 MHz	220 MHz
1.2 km	40 MHz	50 MHz	50 MHz	40 MHz	220 MHz
Optical budget	5 dB	8 dB	11 dB	4 dB	10 dB
TX Out	-14.5 dBm	-11.5 dBm	-12 dBm	-16 dBm	-11 dBm
RX Sens	-19.5 dBm	-19.5 dBm	-22.5 dBm	-19.5 dBm	-21 dBm
Connector type	ST (others optional)	ST (others optional)	ST (others optional)	ST (others optional)	ST (others optional)

¹ See also section Typical bandwidth requirements

² Range may be limited by modal and chromatic dispersion, fiber quality, and bandwidth. Range estimates for multimode based on 500 Mhz/Km fiber.

Ordering information

Models	Description	Fiber type
9311T-S-ST	High-resolution RGB/xGA Video Transmitter, 850 nm	MM
9311R-S-ST	High-resolution RGB/xGA Video Receiver, 850 nm	MM
9311T-H1-ST	High-resolution RGB/xGA Video Transmitter, 865 nm	MM
9311R/HS-S-ST	High-resolution RGB/xGA Video Receiver, 865 nm	MM
9311T-LD-ST	High-resolution RGB/xGA Video Transmitter, 1310 nm	SM
9311R-L-ST	High-resolution RGB/xGA Video Receiver, 1310 nm	SM



The quality management system utilized in the development, production, sales, and support of this product is ISO 9001:2008 certified by LRQA.

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