

## OPT2-3120XXXR

Ultra-Low Data Rate TTL 1x9 Fiber Optical Transceiver, Single Mode, 2Mbps, 20km

### Features

- SC/ST/FC receptacle optical interface
- Single +3.3V or +5V Power Supply
- 1x9 SIP package
- Operating wavelength 1310nm
- Super low power consumption design, applied to some special require
- Optional transmission bit rate with down to 0bps and up to 2Mbps
- Standard TTL data output with signal detect indication
- Compliant with RS485 function
- RoHS Compliance
- Operating case temperature:
  - Standard: 0 to +70°C
  - Extended: -10 to +85°C
  - Industrial: -40 to +85°C



### Applications

- Industrial Ethernet Applications: industrial Ethernet switches, Ethernet media converters and fiber converters
- Serial Communications over fiber: Industrial RS-232/RS-422/RS-485 serial to fiber media converter, industrial RS-232 to RS-422 and RS-485 Adapters
- RS232/RS485/RS422 optical-electrical converter for electric power control, industrial control, industrial computing

### Description

The OPT2-3120xxxR family optical transceivers from Optcore provide the system designer and manufacturers with products to implement a range of industrial control, special low data rate Ethernet designs at the 0Mb/s-2Mb/s rate. This series fiber optic transceiver are all supplied in the industry standard 1x9 SIP package. The transceivers are high performance, cost effective modules with TTL data interface that supporting data-rate of 0~2Mbps and 20km transmission distance over single mode fiber cable (SMF).

The OPT2-3120xxxR series single mode transceiver help you convert copper signals to optical fiber. They are usually used for serial communications over fiber like RS-232/422/485 serial to fiber media converter and industrial Ethernet networks to fiber networks communications like industrial fiber optic converters and industrial Ethernet switches.

The OPT2-3120xxxR series features a duplex SC or ST or FC connector receptacle, which provide the choice of different connector for client. They provide 3 types operating temperature for different applications:

- Standard type (0~70°C) for commonly commercial application, provided with lowest cost
- Extended type (-10~85°C) for extended temperature application, provides wider operating temperature
- Industrial grade (-40~85°C) is made with robust and reliable components, to meet the needs of Industrial Ethernet application under hardened environmental conditions. It is designed for industrial media converter, Industrial Ethernet Switches, rugged switch and other industrial fiber connection equipment.

### Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V <sub>cc</sub>	0	6.0	V
Storage Temperature	T <sub>s</sub>	-40	+85	°C
Operating Humidity	-	5	95	%

### Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Standard	0		+70	°C
	Extended	-10		+85	°C
	Industrial	-40		+85	°C
Power Supply Voltage	V <sub>cc</sub>	4.75	5.0	5.25	V
	V <sub>cc</sub>	3.14	3.3	3.47	V
Power Supply Current	I <sub>TX</sub> +I <sub>RX</sub>			100	mA
Data Rate		0		2	Mbps

### Optical Characteristics

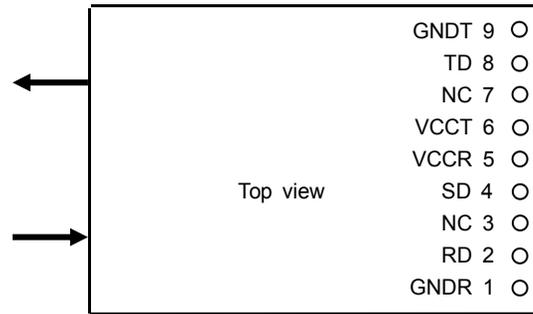
Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Transmitter</b>						
Centre Wavelength	$\lambda$	1260	1310	1360	nm	
Spectral Width	$\Delta\lambda$			3	nm	
Average Output Power	P <sub>out</sub>	-7	-5	-3	dBm	
Extinction Ratio	ER	9			dB	
<b>Receiver</b>						
Receiver Sensitivity				-18	dBm	
Receiver Overload		-3			dBm	
LOS De-Assert	LOS <sub>D</sub>			-20	dBm	
LOS Assert	LOS <sub>A</sub>	-30			dBm	

### Pin Definitions

Pin	Signal Name	Remark	Description
1	GNDR		Receiver section grounded
2	RD	TTL/LVTTL	Data output of receiver section
3	NC		No connect
4	SD	TTL/LVTTL	Optical alarm of receiver section, low level when no light
5	V <sub>ccR</sub>		Positive power of receiver section, normally +5V and 3.3V
6	V <sub>ccT</sub>		Positive power of transmitter section, normally +5V and 3.3V
7	NC		No connect
8	TD	TTL/LVTTL	Data input of transmitter section

9	GNDT		Transmitter section grounded
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**Topview diagram**



**Mechanical Dimensions**

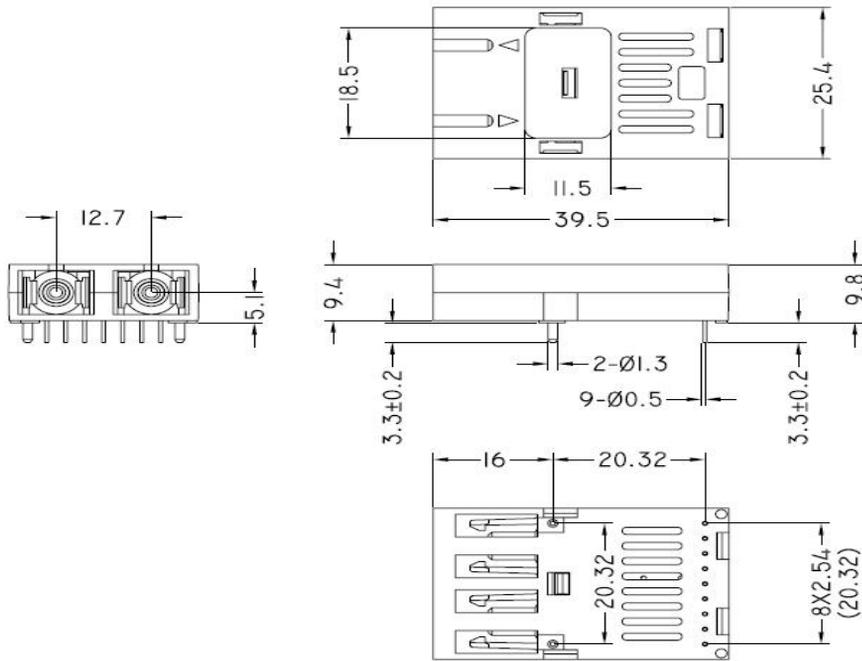


Figure 1. SC Connector

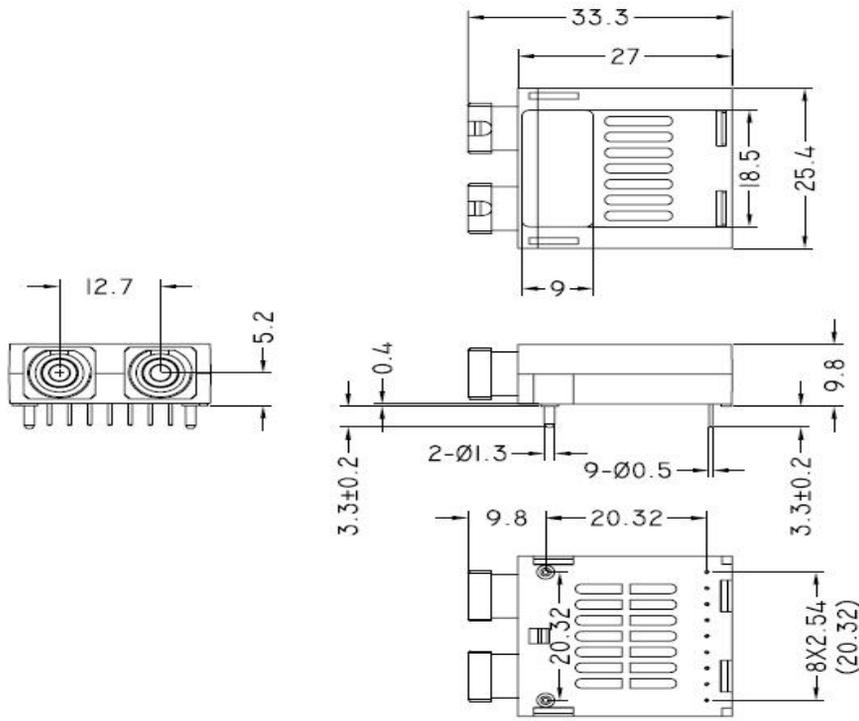


Figure 2. FC Connector

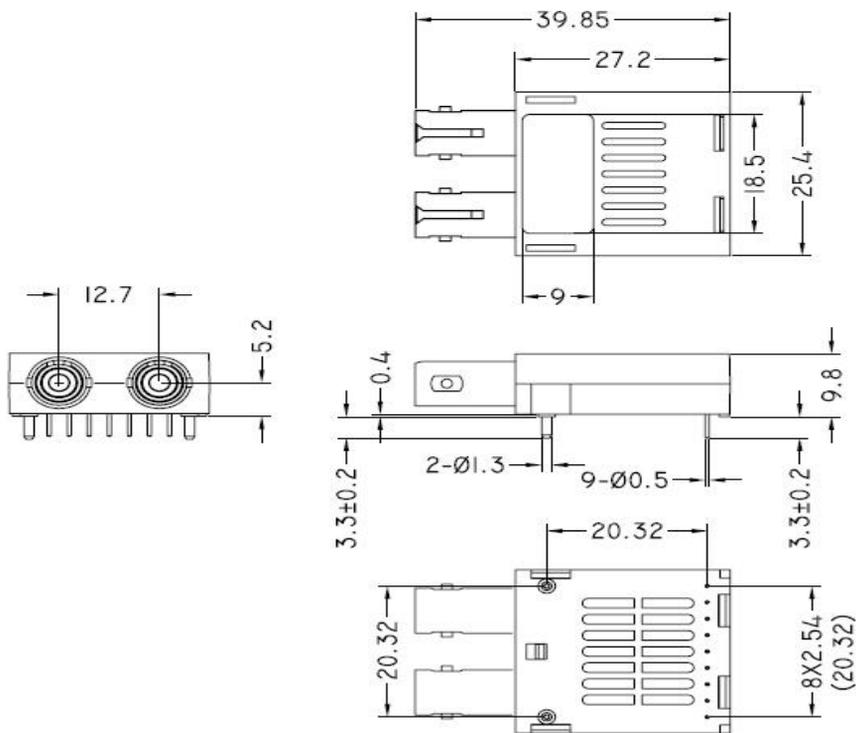


Figure 3. ST Connector

**Ordering information**

**0~2Mbps 1x9 TTL Single mode 1310nm 20km Transceiver (Commercial Temperature)**

Part number	Voltage	Connector	Operating Temperature
OPT2-31205SCR	5V	Duplex SC	0~70 °C

OPT2-31205TCR	5V	Duplex ST	0~70 °C
OPT2-31205FCR	5V	Duplex FC	0~70 °C
OPT2-31205PCR	5V	Duplex FC pigtail	0~70 °C
OPT2-31203SCR	3.3V	Duplex SC	0~70 °C
OPT2-31203TCR	3.3V	Duplex ST	0~70 °C
OPT2-31203FCR	3.3V	Duplex FC	0~70 °C
OPT2-31203PCR	3.3V	Duplex FC pigtail	0~70 °C

#### 0~2Mbps 1x9 TTL Single mode 1310nm 20km Transceiver (Extended Temperature)

Part number	Voltage	Connector	Operating Temperature
OPT2-31205SER	5V	Duplex SC	-10~85 °C
OPT2-31205TER	5V	Duplex ST	-10~85 °C
OPT2-31205FER	5V	Duplex FC	-10~85 °C
OPT2-31205PER	5V	Duplex FC pigtail	-10~85 °C
OPT2-31203SER	3.3V	Duplex SC	-10~85 °C
OPT2-31203TER	3.3V	Duplex ST	-10~85 °C
OPT2-31203FER	3.3V	Duplex FC	-10~85 °C
OPT2-31203PER	3.3V	Duplex FC pigtail	-10~85 °C

#### 0~2Mbps 1x9 TTL Single mode 1310nm 20km Transceiver (Industrial Temperature)

Part number	Voltage	Connector	Operating Temperature
OPT2-31205STR	5V	Duplex SC	-40~85 °C
OPT2-31205TTR	5V	Duplex ST	-40~85 °C
OPT2-31205FTR	5V	Duplex FC	-40~85 °C
OPT2-31205PTR	5V	Duplex FC pigtail	-40~85 °C
OPT2-31203STR	3.3V	Duplex SC	-40~85 °C
OPT2-31203TTR	3.3V	Duplex ST	-40~85 °C
OPT2-31203FTR	3.3V	Duplex FC	-40~85 °C
OPT2-31203PTR	3.3V	Duplex FC pigtail	-40~85 °C

## Warnings

### Process plug

The transceiver optics is supplied with a dust cover. This plug protects the transceiver optics during standard manufacturing processes by preventing contamination from air borne particles. It is recommended that the dust cover remain in the transceiver whenever an optical fiber connector is not inserted.

### Handling Precautions

The transceiver optics is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

### Laser Safety

The transceiver optics is a Class 1 laser product per international standard IEC 60825-1. Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

For more product information, visit us on the web at [www.optcore.net](http://www.optcore.net)



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