

IES-3162GC

>> Industrial 18-port Managed Ethernet Switch with 16x10/100Base-T(X) Ports and 2xGigabit combo ports

- Supports O-Ring (recovery time < 10ms over 250 units of connection), **Open-Ring, O-RSTP**, MSTP/RSTP/STP (IEEE 802.1s/w/D) for Ethernet Redundancy
- Supports SNMP v1/v2c/v3 & RMON & Port based/ 802.1Q VLAN Network Management
- Multiple notification for warning of excepted event
- Web-based ,Telnet, Console, CLI, and Windows utility (Open-Vision) configuration
- Support two Gigabit combo port



> Features

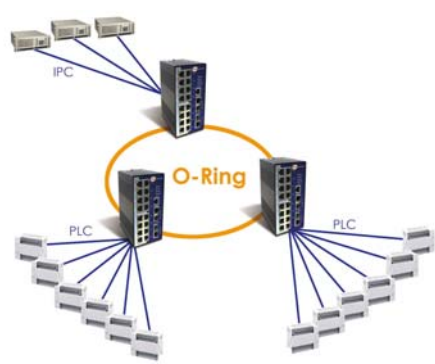
- World's fastest Redundant Ethernet Ring: O-Ring (recovery time < 10ms over 250 units of connection)
- Open-Ring support the other vendor's ring technology in open architecture
- O-RSTP support applications with complex topology
- STP/RSTP/MSTP supported
- IGMP snooping for filtering multicast traffic
- Port Trunking for easy of bandwidth management
- SNMP v1/v2c/v3 support for secured network management
- RMON for traffic monitoring
- Event notification through Syslog, Email, SNMP trap, and Relay Output
- Port lock to prevent access from unauthorized MAC address
- Windows utility (Open-Vision) support centralized management and configurable by Web-based ,Telnet, Console, CLI
- Dual redundant DC power inputs of terminal block
- Support two Gigabit combo port
- Very wide operating temperature range from -40 to 70°C
- Rigid IP-30 housing design
- DIN-Rail and panel mounting enabled

> Introduction

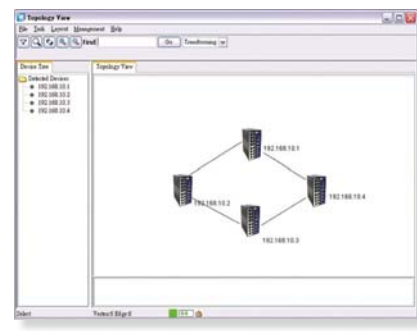
IES-3162GC is managed Redundant Ring Ethernet switch with 16x10/100Base-T(X) ports and 2xgigabit combo ports. With completely support of Ethernet Redundancy protocol, O-Ring (recovery time < 10ms over 250 units of connection), Open-Ring, O-RSTP and MSTP/RSTP/STP (IEEE 802.1s/w/D) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. All function of IES-3162GC can be managed centralized and convenient by a powerful windows utility — Open-Vision. In addition, the wide operating temperature range from -40 to 70°C can satisfy most of operating environment. Therefore, the switch is one of the most reliable choice for highly-managed and Fiber Ethernet application.

> Open-Vision

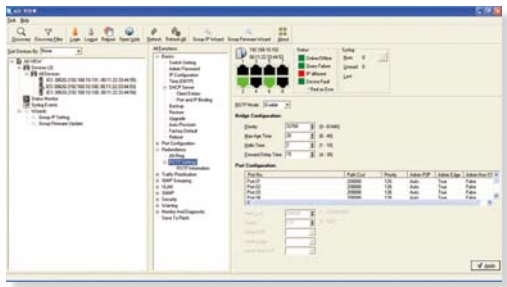
ORing's switches are intelligent switches. Different from other traditional redundant switches, ORing provides a set of Windows utility (Open-Vision) for user to manage and monitor all of industrial Ethernet switches on the industrial network.



Network connection

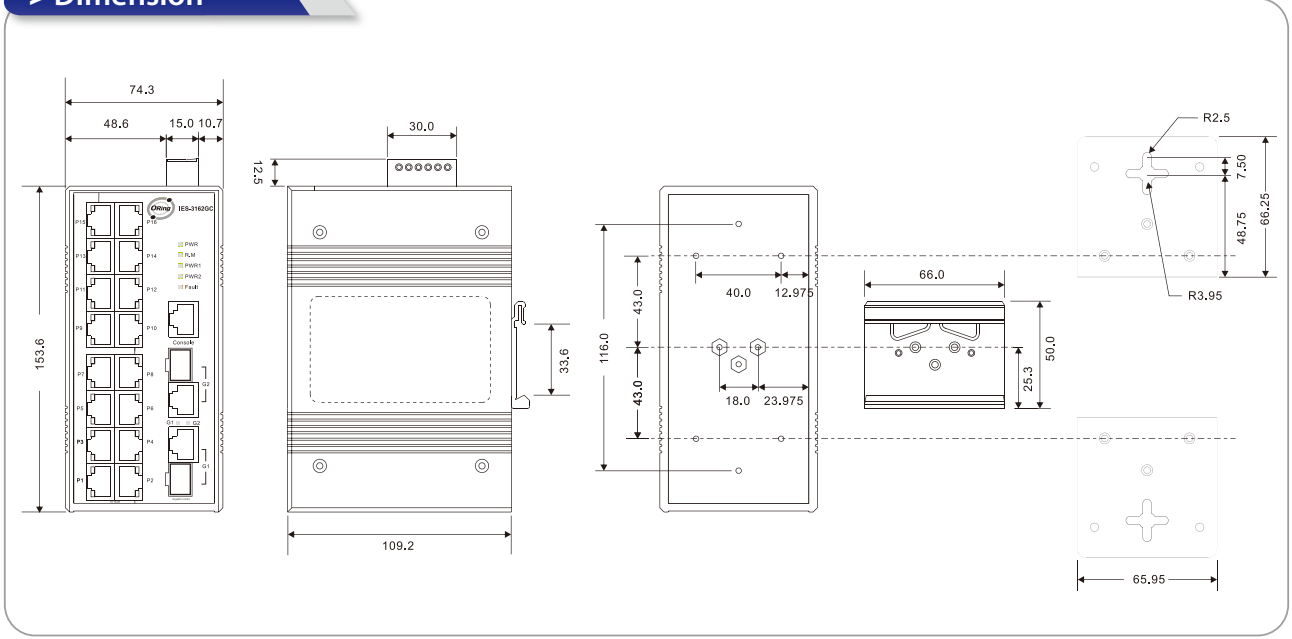


Topology View



Monitoring and Configuration interface

> Dimension



(Unit=mm)

> Specifications

ORing Switch Model	IES-3162GC
Physical Ports	
10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX	16
Gigabit combo port with 10/100/1000Base-T(X) and 100/1000Base-X SFP	2
Technology	
Ethernet Standards	IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseT(X) and 100BaseFX, IEEE 802.3z for 1000Base-X IEEE 802.3ab for 1000Base-T IEEE 802.3x for Flow control IEEE 802.3ad for LACP (Link Aggregation Control Protocol) IEEE 802.1D for STP (Spanning Tree Protocol) IEEE 802.1p for COS (Class of Service) IEEE 802.1Q for VLAN Tagging IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1x for Authentication
MAC Table	8192 MAC addresses
Priority Queues	4
Processing	Store-and-Forward
Switch Properties	Switching latency : 7 us Switching bandwidth : 7.2Gbps Max. Number of Available VLANs : 4096 IGMP multicast groups : 1024 Port rate limiting : User Define
Security Feature	Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security
Software Features	STP/RSTP/MSTP (IEEE 802.1D/w/s) Redundant Ring (O-Ring) with recovery time less than 10ms over 250 units TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging and GVRP supported IGMP Snooping for multicast filtering Port configuration, status, statistics, monitoring, security
Network Redundancy	O-Ring Open-Ring O-RSTP STP RSTP MSTP
RS-232 Serial Console Port	RS-232 in RJ45 connector with console cable. 9600bps, 8, N, 1
LED Indicators	
Power Indicator	Green : Power LED x 3
R.M. Indicator	Green : indicate system operated in O-Ring master mode
Fault Indicator	Amber : Indicate excepted event occurred
10/100Base-T(X) RJ45 port indicator	Green for port Link/Act. Amber for Duplex/Collision
10/100/1000Base-T(X) RJ45 port indicator	Green for port Link/Act. Amber for 100Mbps indicatir
1000Base-X / Fiber port indicator	Green for port Link/Act.

Fault Contact	
Relay	Relay output to carry capacity of 1A at 24VDC
Power	
Redundant Input Power	Dual DC inputs. 12 - 48VDC on 6-pin terminal block
Power Consumption (Typ.)	12 Watts
Overload Current Protection	Present
Reverse Polarity Protection	Present on terminal block
Physical Characteristic	
Enclosure	IP-30
Dimension (W x D x H)	74.3(W) x 109.2(D) x 153.6(H) mm (2.93x4.3x6.05 inch)
Weight (g)	1100 g
Environmental	
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Temperature	-40 to 70°C (-40 to 158°F)
Operating Humidity	5% to 95% Non-condensing
Regulatory approvals	
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6
Safety	EN60950
Warranty	5 years

> Ordering Information

IES-3 **AA** **B** **CC**

Code efnition	10/100Base-T(X) Port Number	Additional Port Number	Additional Port Type
Option	- 16 : 16 ports	- 2 : 2 ports	- GC : Gigabit combo with SFP

Available Model	Model Name	Description
	IES-3162GC	Industrial 18-port Managed Ethernet Switch with 16x10/100Base-T(X) ports and 2xGigabit combo ports

SFP100 LC Series

1-port Fast Ethernet SFP modules

Accessories Web Link ~ http://www.oring-networking.com/Industrial_Accessories.html

> Specifications

Spec	Model Name				
	SFP100-MM/-I	SFP100-SS30/-I	SFP100-SS60/-I	SFP100-SS100/-I	SFP100-SS120/-I
Fiber mode	Multi-mode	Single-mode	Single-mode	Single-mode	Single-mode
Typical Distance	2 km	30 km	60 km	100 km	120 km
Operating Temperature	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)
Output Optical Power 9/125 μm fiber (Max. TX)	-	-8 dBm	0 dBm	0 dBm	5 dBm
Output Optical Power 9/125 μm fiber (Min. TX)	-	-15 dBm	-5 dBm	-5 dBm	0 dBm
Output Optical Power 62.5/125 μm fiber (Max. TX)	-14 dBm	-	-	-	-
Output Optical Power 62.5/125 μm fiber (Min. TX)	-20 dBm	-	-	-	-
Output Optical Power 50/125 μm fiber (Max. TX)	-14 dBm	-	-	-	-
Output Optical Power 50/125 μm fiber (Min. TX)	-23.5 dBm	-	-	-	-
Wavelength	1310 nm	1310 nm	1310 nm	1550 nm	1550 nm
Optical Input Power-minimum (Sensitivity)	-31 dBm	-34 dBm	-35 dBm	-35 dBm	-35 dBm
Loss of Signal-Asserted	-31 dBm	-34 dBm	-35 dBm	-35 dBm	-35 dBm
Loss of Signal-Deasserted	-47 dBm	-45 dBm	-45 dBm	-45 dBm	-45 dBm
Loss of Signal-Hysteresis	1 dB	1 dB	1 dB	1 dB	1 dB

> Ordering Information

Available Model	Model Name	Description	Operating Temperature
		SFP100-MM	100Mbps SFP optical Transceiver, Multi-mode / 2KM, 1310nm,
	SFP100-MM-I	100Mbps SFP optical Transceiver, Multi-mode / 2KM, 1310nm, Industrial Grade	-40 ~ 85℃
	SFP100-SS30	100Mbps SFP optical Transceiver, Single-mode / 30KM, 1310nm,	0 ~ 70℃
	SFP100-SS30-I	100Mbps SFP optical Transceiver, Single-mode / 30KM, 1310nm, Industrial Grade	-40 ~ 85℃
	SFP100-SS60	100Mbps SFP optical Transceiver, Single-mode / 60KM, 1310nm,	0 ~ 70℃
	SFP100-SS60-I	100Mbps SFP optical Transceiver, Single-mode / 60KM, 1310nm, Industrial Grade	-40 ~ 85℃
	SFP100-SS100	100Mbps SFP optical Transceiver, Single-mode / 100KM, 1550nm,	0 ~ 70℃
	SFP100-SS100-I	100Mbps SFP optical Transceiver, Single-mode / 100KM, 1550nm, Industrial Grade	-40 ~ 85℃
	SFP100-SS120	100Mbps SFP optical Transceiver, Single-mode / 120KM, 1550nm,	0 ~ 70℃
	SFP100-SS120-I	100Mbps SFP optical Transceiver, Single-mode / 120KM, 1550nm, Industrial Grade	-40 ~ 85℃

SFP100-BIDI LC Series

1-port Fast Ethernet BIDI-SFP modules

Accessories Web Link ~ http://www.oring-networking.com/Industrial_Accessories.html

> Specifications

Spec	Model Name					
	SFP100B3-SS20/-I	SFP100B5-SS20/-I	SFP100B3-SS40/-I	SFP100B5-SS40/-I	SFP100B3-SS60/-I	SFP100B5-SS60/-I
Fiber mode	Single-mode	Single-mode	Single-mode	Single-mode	Single-mode	Single-mode
Typical Distance	20 m	20 m	40 km	40 km	60 km	60 km
Operating Temperature	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)
Output Optical Power 9/125 μm fiber (Max. TX)	-8 dBm	-8 dBm	0 dBm	0 dBm	0 dBm	0 dBm
Output Optical Power 9/125 μm fiber (Min. TX)	-14 dBm	-14 dBm	-8 dBm	-8 dBm	-5 dBm	-5 dBm
Wavelength	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm
Optical Input Power-minimum (Sensitivity)	-32 dBm	-32 dBm	-34 dBm	-34 dBm	-34 dBm	-34 dBm
Loss of Signal-Asserted	-32 dBm	-32 dBm	-34 dBm	-34 dBm	-34 dBm	-34 dBm
Loss of Signal-Deasserted	-45 dBm	-45 dBm	-45 dBm	-45 dBm	-45 dBm	-45 dBm

> Ordering Information

Available Model	Model Name	Description	Operating Temperature
		SFP100B3-SS20	100Mbps SFP optical Transceiver, Single-mode BIDI / 20KM, TX-1310nm, RX-1550nm
	SFP100B3-SS20-I	100Mbps SFP optical Transceiver, Single-mode BIDI / 20KM, TX-1310nm, RX-1550nm, Industrial Grade	-40 ~ 85℃
	SFP100B5-SS20	100Mbps SFP optical Transceiver, Single-mode BIDI / 20KM, TX-1550nm, RX-1310nm	0 ~ 70℃
	SFP100B5-SS20-I	100Mbps SFP optical Transceiver, Single-mode BIDI / 20KM, TX-1550nm, RX-1310nm, Industrial Grade	-40 ~ 85℃
	SFP100B3-SS40	100Mbps SFP optical Transceiver, Single-mode BIDI / 40KM, TX-1310nm, RX-1550nm	0 ~ 70℃
	SFP100B3-SS40-I	100Mbps SFP optical Transceiver, Single-mode BIDI / 40KM, TX-1310nm, RX-1550nm, Industrial Grade	-40 ~ 85℃
	SFP100B5-SS40	100Mbps SFP optical Transceiver, Single-mode BIDI / 40KM, TX-1550nm, RX-1310nm	0 ~ 70℃
	SFP100B5-SS40-I	100Mbps SFP optical Transceiver, Single-mode BIDI / 40KM, TX-1550nm, RX-1310nm, Industrial Grade	-40 ~ 85℃
	SFP100B3-SS60	100Mbps SFP optical Transceiver, Single-mode BIDI / 60KM, TX-1310nm, RX-1550nm	0 ~ 70℃
	SFP100B3-SS60-I	100Mbps SFP optical Transceiver, Single-mode BIDI / 60KM, TX-1310nm, RX-1550nm, Industrial Grade	-40 ~ 85℃
	SFP100B5-SS60	100Mbps SFP optical Transceiver, Single-mode BIDI / 60KM, TX-1550nm, RX-1310nm	0 ~ 70℃
	SFP100B5-SS60-I	100Mbps SFP optical Transceiver, Single-mode BIDI / 60KM, TX-1550nm, RX-1310nm, Industrial Grade	-40 ~ 85℃

SFP1G LC Series

1-port Gigabit Ethernet SFP modules

Accessories Web Link ~ http://www.oring-networking.com/Industrial_Accessories.html

> Specifications

Spec	Model Name							
	SFP1G-SX/-I	SFP1G-MLX/-I	SFP1G-LX10/-I	SFP1G-LX20/-I	SFP1G-LHX30/-I	SFP1G-LHX40/-I	SFP1G-XD50/-I	SFP1G-ZX70/-I
Fiber mode	Multi-mode	Multi-mode	Single-mode	Single-mode	Single-mode	Single-mode	Single-mode	Single-mode
Typical Distance	550 m	62.5/125 : 2km 50/125 : 1km	10 km	20 km	30 km	40 km	50 km	70 km
Operating Temperature	0~70℃ -20~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)	0~70℃ -40~85℃ (-I model)
Output Optical Power 9/125 μm fiber (Max. TX)	-	-	-3 dBm	-2 dBm	1 dBm	1 dBm	1 dBm	5 dBm
Output Optical Power 9/125 μm fiber (Min. TX)	-	-	-9.5 dBm	-8 dBm	-4 dBm	-4 dBm	-4 dBm	0 dBm
Output Optical Power 62.5/125 μm fiber (Max. TX)	-4 dBm	-1 dBm	-	-	-	-	-	-
Output Optical Power 62.5/125 μm fiber (Min. TX)	-9.5 dBm	-9 dBm	-	-	-	-	-	-
Output Optical Power 50/125 μm fiber (Max. TX)	-4 dBm	-1 dBm	-	-	-	-	-	-
Output Optical Power 50/125 μm fiber (Min. TX)	-9.5 dBm	-9 dBm	-	-	-	-	-	-
Wavelength	850 nm	1310 nm	1310 nm	1310 nm	1310 nm	1310 nm	1550 nm	1550 nm
Optical Input Power-minimum (Sensitivity)	-18 dBm	-19 dBm	-20 dBm	-23 dBm	-24 dBm	-24 dBm	-24 dBm	-24 dBm
Loss of Signal-Asserted	-18 dBm	-19 dBm	-20 dBm	-23 dBm	-24 dBm	-24 dBm	-24 dBm	-24 dBm
Loss of Signal-Deasserted	-35 dBm	-35 dBm	-35 dBm	-35 dBm	-35 dBm	-35 dBm	-35 dBm	-35 dBm

> Ordering Information

Available Model	Model Name	Description	Operating Temperature
		SFP1G-SX	1Gbps SFP optical Transceiver, Multi-mode / 550m, 850nm
	SFP1G-SX-I	1Gbps SFP optical Transceiver, Multi-mode / 550m, 850nm, Industrial Grade	-20 ~ 85℃
	SFP1G-MLX	1Gbps SFP optical Transceiver, Multi-mode / 2km, 1310nm	0 ~ 70℃
	SFP1G-MLX-I	1Gbps SFP optical Transceiver, Multi-mode / 2km, 1310nm, Industrial Grade	-40 ~ 85℃
	SFP1G-LX10	1Gbps SFP optical Transceiver, Single-mode / 10km, 1310nm	0 ~ 70℃
	SFP1G-LX10-I	1Gbps SFP optical Transceiver, Single-mode / 10km, 1310nm, Industrial Grade	-40 ~ 85℃
	SFP1G-LX20	1Gbps SFP optical Transceiver, Single-mode / 20km, 1310nm	0 ~ 70℃
	SFP1G-LX20-I	1Gbps SFP optical Transceiver, Single-mode / 20km, 1310nm, Industrial Grade	-40 ~ 85℃
	SFP1G-LHX30	1Gbps SFP optical Transceiver, Single-mode / 30km, 1310nm	0 ~ 70℃
	SFP1G-LHX30-I	1Gbps SFP optical Transceiver, Single-mode / 30km, 1310nm, Industrial Grade	-40 ~ 85℃
	SFP1G-LHX40	1Gbps SFP optical Transceiver, Single-mode / 40km, 1310nm	0 ~ 70℃
	SFP1G-LHX40-I	1Gbps SFP optical Transceiver, Single-mode / 40km, 1310nm, Industrial Grade	-40 ~ 85℃
	SFP1G-XD50	1Gbps SFP optical Transceiver, Single-mode / 50km, 1550nm	0 ~ 70℃
	SFP1G-XD50-I	1Gbps SFP optical Transceiver, Single-mode / 50km, 1550nm, Industrial Grade	-40 ~ 85℃
	SFP1G-ZX70	1Gbps SFP optical Transceiver, Single-mode / 70km, 1550nm	0 ~ 70℃
	SFP1G-ZX70-I	1Gbps SFP optical Transceiver, Single-mode / 70km, 1550nm, Industrial Grade	-40 ~ 85℃

SFP1G-BIDI LC Series

1-port Gigabit Ethernet BIDI-SFP modules

Accessories Web Link ~ http://www.oring-networking.com/Industrial_Accessories.html

> Specifications

Spec	Model Name							
	SFP1GB3 -LX10/-I	SFP1GB5 -LX10/-I	SFP1GB3 -LX20/-I	SFP1GB5 -LX20/-I	SFP1GB3 -LX40/-I	SFP1GB5 -LX40/-I	SFP1GB3 -LX60/-I	SFP1GB5 -LX60/-I
Fiber mode	Single-mode	Single-mode	Single-mode	Single-mode	Single-mode	Single-mode	Single-mode	Single-mode
Typical Distance	10 m	10 m	20 km	20 km	40 km	40 km	60 km	60 km
Operating Temperature	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)
Output Optical Power 9/125 µm fiber (Max. TX)	-3 dBm	-3 dBm	-2 dBm	-2 dBm	2 dBm	2 dBm	5 dBm	4 dBm
Output Optical Power 9/125 µm fiber (Min. TX)	-9 dBm	-9 dBm	-8 dBm	-8 dBm	-3 dBm	-3 dBm	0 dBm	-2 dBm
Wavelength	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm
Optical Input Power-minimum (Sensitivity)	-21 dBm	-21 dBm	-23 dBm	-23 dBm	-23 dBm	-23 dBm	-24 dBm	-25 dBm
Loss of Signal-Asserted	-21 dBm	-21 dBm	-23 dBm	-23 dBm	-23 dBm	-23 dBm	-24 dBm	-25 dBm
Loss of Signal-Deasserted	-35 dBm	-35 dBm	-35 dBm	-35 dBm	-35 dBm	-35 dBm	-35 dBm	-35 dBm

> Ordering Information

Available Model	Model Name	Description	Operating Temperature
		SFP1GB3-LX10-I	1Gbps SFP optical Transceiver, Single-mode BIDI / 10KM, TX-1310nm, RX-1550nm
	SFP1GB5-LX10	1Gbps SFP optical Transceiver, Single-mode BIDI / 10KM, TX-1310nm, RX-1550nm, Industrial Grade	-40 ~ 85°C
	SFP1GB5-LX10-I	1Gbps SFP optical Transceiver, Single-mode BIDI / 10KM, TX-1550nm, RX-1310nm	0 ~ 70°C
	SFP1GB3-LX20	1Gbps SFP optical Transceiver, Single-mode BIDI / 10KM, TX-1550nm, RX-1310nm, Industrial Grade	-40 ~ 85°C
	SFP1GB3-LX20-I	1Gbps SFP optical Transceiver, Single-mode BIDI / 20KM, TX-1310nm, RX-1550nm	0 ~ 70°C
	SFP1GB5-LX20	1Gbps SFP optical Transceiver, Single-mode BIDI / 20KM, TX-1310nm, RX-1550nm, Industrial Grade	-40 ~ 85°C
	SFP1GB5-LX20-I	1Gbps SFP optical Transceiver, Single-mode BIDI / 20KM, TX-1550nm, RX-1310nm	0 ~ 70°C
	SFP1GB3-LX40	1Gbps SFP optical Transceiver, Single-mode BIDI / 20KM, TX-1550nm, RX-1310nm, Industrial Grade	-40 ~ 85°C
	SFP1GB3-LX40-I	1Gbps SFP optical Transceiver, Single-mode BIDI / 40KM, TX-1310nm, RX-1550nm	0 ~ 70°C
	SFP1GB5-LX40	1Gbps SFP optical Transceiver, Single-mode BIDI / 40KM, TX-1310nm, RX-1550nm, Industrial Grade	-40 ~ 85°C
	SFP1GB5-LX40-I	1Gbps SFP optical Transceiver, Single-mode BIDI / 40KM, TX-1550nm, RX-1310nm	0 ~ 70°C
	SFP1GB3-LX60	1Gbps SFP optical Transceiver, Single-mode BIDI / 40KM, TX-1550nm, RX-1310nm, Industrial Grade	-40 ~ 85°C
	SFP1GB3-LX60-I	1Gbps SFP optical Transceiver, Single-mode BIDI / 60KM, TX-1310nm, RX-1550nm	0 ~ 70°C
	SFP1GB5-LX60	1Gbps SFP optical Transceiver, Single-mode BIDI / 60KM, TX-1310nm, RX-1550nm, Industrial Grade	-40 ~ 85°C
	SFP1GB5-LX60-I	1Gbps SFP optical Transceiver, Single-mode BIDI / 60KM, TX-1550nm, RX-1310nm	0 ~ 70°C
	SFP1G-ZX70-I	1Gbps SFP optical Transceiver, Single-mode BIDI / 60KM, TX-1550nm, RX-1310nm, Industrial Grade	-40 ~ 85°C