

ES 3000 Fiber Optic Transceiver

Fiber Optic Gigabit Ethernet Connectivity for ES 3000 Switches

WIRELESS NETWORK INFRASTRUCTURE

High-Quality, Affordable Fiber Optic Gigabit Ethernet Connectivity

The ES 3000 Fiber Optic Transceiver from Symbol Technologies extends your corporate LAN in distributed environments by connecting Symbol's ES 3000 switch at the edge of the network to core switches and routers. The cost-effective 1 Gbit/sec. connectivity provides high-bandwidth to support all data, video and voice applications.

Plug-and-Play Simplicity

The Small Formfactor Pluggable (SFP) interface delivers true plug-and-play simplicity and a form factor that is half the size of traditional Gigabit Ethernet Interface Converters (GBICs). In addition, the ES 3000 Fiber Optic Transceiver is easy to install and is hot pluggable into ports 25 and 26 on the front face of ES 3000 switches for greater flexibility in system configuration.

Robust, Reliable Connectivity and Industry-Standard Compliance

Symbol's ES 3000 Fiber Optic Transceiver delivers the superior transmission quality and benefits associated with fiber optics, including:

- ▶ Reduced electromagnetic interference (EMI) from surges, ground loops and other equipment
- ▶ Prompt notification of signal loss through alarm capabilities
- ▶ Decreased signal degradation
- ▶ Higher data rates over longer distances
- ▶ Eye-safe optical power with the Class 1 specification

The transceiver is compatible with all ES 3000 Series Ethernet Switches and easily functions in multi-vendor environments through compliance with a number of standards, including Gigabit Ethernet and the SFP Multisource Agreement (MSA).

Symbol's Capture, Move and Manage Reference Architecture

Symbol's mobility solutions provide new business advantage through the ability to capture, move and manage information throughout your enterprise. In addition to wireless and wired networks, Symbol's end-to-end solutions integrate ruggedized mobile computers, bar code scanners, enabling software, Symbol



Features	Benefits
Communication rates up to 1 Gbit/second	Delivers high-speed connectivity to support all your applications
Compliance with SFP Transceiver Multisource Agreement (MSA), specifications for IEEE 802.3z/ Gigabit Ethernet and RFT electrical connector and cage industry standards	Provides standards-based multi-vendor interoperability
Small Form Pluggable (SFP) interface	Enables true plug and play for fast and easy installation
Loss of Signal (LOS) circuit	Enables alarm notification when a loss of signal is detected
Laser Class 1 certification	Meets standard requirements to ensure eye safety
Compatible with all ES 3000 models	Flexibility simplifies system configuration and reduces costs—less devices to purchase and manage

Enterprise Mobility Services and high-ROI applications from business partners.

For more information on Symbol's ES 3000 Fiber Optic Transceiver, contact us at +1.800.722.6234 or +1.631.738.2400, or visit us on the web at www.symbol.com

ES 3000 Specification Highlights

Physical Characteristics	
Dimensions:	2.2 in. L x .5 in. W x .3 in. H 56.5 mm L x 13.4 mm W x 8.5 mm H
Weight:	.2 oz./6 g
Part Number:	FIBER-3000-15-WW
Performance Characteristics	
Packet Rate:	1.5 million packets per second
Performance:	Gigabit Ethernet
Range:	Up to 1,640 ft./500m
User Environment	
Storage Temperature:	-40 to 185° F/-40 to 85° C
Supply Voltage:	3.135 to 3.465 volts
Installation:	Hot pluggable into the fiber optic port of the ES 3000 (Port 25 or 26); no configuration is required
Cable Interface:	Duplex LC connector

Regulatory	
Electromagnetic Interference:	FCC CRF 47, Part15 Class B; EN 55022; Class B (CISPR 22A)
Radio Frequency	EN 61000-4-3; IEC 61000-4-3
Electromagnetic Field:	
Electrostatic Discharge to the Duplex LC Receptacle:	EN 61000-4-2; IEC 61000-4-2; IEC 801.2
Electrostatic Discharge to the Electrical Pins:	MIL-STD-883E Method 3015.7
Eye Safety:	US FDA CDRH AEL Class 1 — CDRH File # 0321539-00 EN 60950: 2000 — TUV Certificate No. R50032471 EN 60825-1: 1994+A11+A2; EN 60825-2: 2000
Component Recognition:	UL File # E239394: Underwriters Laboratories and Canadian Standards Association Joint Component Recognition for Information Technology Equipment Including Electrical Business Equipment
Warranty	
1 year (12 months)	

Specification/Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Absolute Maximum Ratings: Storage Temperature Supply Voltage	T _s V _{CC}	-40 0		85 5	°C V	
Recommended Operating Conditions: Ambient Operating Temperature Supply Voltage	T _A V _{CC}	0 3.135		70 3.465	°C V	
Electrical Characteristics (T _A =0 °C to 70 °C, V _{CC} =3.135V to 3.465V): Total Supply Current FIBER-3000-15-WW	ICCT			22	mA	
Transmitter						
Transmitter Differential Input Voltage	V _{DT}	0.5		2.4	V	1
Transmitter Disable Input-High	V _{DISH}	2		V _{CC} +0.3	V	
Transmitter Disable Input-Low	V _{DISL}	0		0.8	V	
Transmitter Fault Output-High	V _{TXFH}	2		V _{CC} +0.3	V	2
Transmitter Fault Output-Low	V _{TXFL}	0		0.8	V	2
Receiver						
Receiver Differential Output Voltage	V _{DR}	0.37	0.7	2	V	3
LOS Output Voltage-High	V _{LOSH}	2		V _{CC} +0.3	V	2
LOS Output Voltage-Low	V _{LOSL}	0		0.8	V	2
Output Data Rise/Fall Time	t _r / t _f			400	psec	4

Notes: (1) Internally AC coupled and terminated to 100 Ohm differential load. (2) Pull up to V_{CC} with a 4.7K – 10K Ohm resistor on host Board. (3) Internally AC coupled, but requires a 100 Ohm differential termination at or internal to Serializer / Deserializer. (4) These are 20%–80% values.

Specification/Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Optical Characteristics (T _A =0 °C to 70 °C, V _{CC} =3.135V to 3.465V, Data Rate=1.25Gb/sec, PRBS=2 ⁷ -1 NRZ, 50/125µm MMF):						
Transmitter						
Output Optical Power (Avg.)	PO	-9.5		-4	dBm	
Optical Extinction Ratio		9			dB	
Center Wavelength	λ c	830	850	860	nm	
Spectral Width (RMS)	σ			0.85	nm	
Optical Rise/Fall Time	t _r / t _f			320	psec	1
Relative Intensity Noise	RIN			-117	dB/Hz	
Output Eye	Complies with the IEEE 802.3z/D2 specification, and is class 1 laser eye safety					
Receiver						
Sensitivity (Avg.)	PIN			-17	dBm	2
Input Optical Wavelength	λ		850		nm	
LOS- De-Asserted (Avg.)	PD			-17	dBm	
LOS- asserted (Avg.)	PA	-30			dBm	
LOS-Hysteresis	PD-PA	0.5			dB	
Overload	P _o	-4			dBm	

Notes: (1) These are 20%–80% values. (2) The sensitivity is provided at a BER of 1_10⁻¹⁰ or better with an input signal consisting of 1250Mbls, 2⁷-1 PRBS.

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For system, product or services availability and specific information within your country, please contact your local Symbol Technologies office or Business Partner.

Corporate Headquarters
Symbol Technologies, Inc.
 One Symbol Plaza
 Holtsville, NY 11742-1300
 TEL: +1.800.722.6234/+1.631.738.2400
 FAX: +1.631.738.5990

For Asia Pacific Area
Symbol Technologies Asia, Inc.
 (Singapore Branch)
 Asia Pacific Division
 230 Victoria Street #05-07/09
 Bugis Junction Office Tower
 Singapore 188024
 TEL: +65.6796.9600
 FAX: +65.6337.6488

For Europe, Middle East and Africa
Symbol Technologies
 EMEA Division
 Symbol Place, Winnersh Triangle
 Berkshire, England RG41 5TP
 TEL: +44.118.9457000
 FAX: +44.118.9457500

For North America, Latin America and Canada
Symbol Technologies
 The Americas
 One Symbol Plaza
 Holtsville, NY 11742-1300
 TEL: +1.800.722.6234/+1.631.738.2400
 FAX: +1.631.738.5990

Symbol Website
 For a complete list of Symbol subsidiaries and business partners worldwide contact us at:
www.symbol.com

E-mail
info@symbol.com



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