

**065-73FXSM20MG Small Form-factor Pluggable (SFP)
 Fast Ethernet / SONET OC-3 / SDH STM-1 Singlemode Fiber Interface Module**



The Signamax 065-73FXSM20MG is a Small Form-factor Pluggable (SFP) singlemode fiber module that supports Fast Ethernet, SONET OC-3, or SDH STM-1 over singlemode fiber cable at distances up to 20 kilometers. It adheres to the IEEE 802.3u standard for Fast Ethernet over singlemode fiber at 1310 nm, and is a cost-effective method of providing changeable Fast Ethernet / OC-3 / STM-1 singlemode interfaces to switches and media converters designed for these applications that are equipped with a standard 100Base SFP slot.

Applications

- Metro Access Rings
- Point-to-Point networking
- SONET OC-3 / SDH STM-1 over singlemode fiber
- 100BaseFX Fast Ethernet over singlemode fiber

Key Features

- Compliant with SFP MultiSource Agreement. Compliant with IEEE802.3u.
- RoHS Compliant.
- Duplex LC connector.
- 1310 nm FP Laser.
- 3.3V power supply.
- Hot-Pluggable capability.
- Extended EMI & ESD protection.
- Class 1 laser product complies with EN 60825-1 and EN 60950.
- Suitable for Fast Ethernet (100BaseFX), SONET OC-3, and SDH STM-1 applications.

Ordering Information

Part Number	Description
065-73FXSM20MG	100BaseFX / OC-3 / STM-1 SFP Module – SM/LC, 20 km

Summary Specification

PART NUMBER	Model / Spectrum	Light Source	Link Power Budget	Typical Max. Distance**	Supply Voltage	Operating Temp.
065-73FXSM20MG	LX 1310 nm	FP Laser	19 dBm	20 km	3.3V	0 ~ 70 °C

** Maximum distances attainable on singlemode fiber circuits are dependent upon a circuit's conditions; i.e., the number of splices and patch panels and the number of bends in the circuit path. For comparison with competing products, please use the Link Power Budget for meaningful comparisons.

SPECIFICATIONS

DETAILED SPECIFICATIONS

• **APPLICABLE STANDARDS**

IEEE 802.3u (100BaseFX Fast Ethernet)
SONET OC-3
Synchronous Digital Hierarchy (SDM) STM-1

• **ABSOLUTE MAXIMUM RATINGS**

Storage Temperature: TS -40 -- 85 °C
Supply Voltage: V_{CC} -0.5 -- 6.0 V
Input Voltage: V_{IN} -0.5 -- V_{CC} V
Operating Humidity: 0-85 %

• **RECOMMENDED OPERATING CONDITIONS**

PARAMETER	SYMBOL	MIN	MAX	UNITS	NOTE
Ambient Operating Temperature	T _{AMB}	0	70	°C	
Supply Voltage	V _{CC}	3.1	3.5	V	
Supply Current (3.3V)	I _{TX} + I _{RX}		85	mA	

• **TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS**

V_{CC} = 3.1 V to 3.5V, T_A = 0 °C to 70 °C

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Transmitter Differential Input Voltage	TD +/-	400		2000	mV p-p	BER < 10 ⁻¹²
Output Optical Power 9/125 μm fiber	P _{out}	-15		-8	dBm	Average
Extinction Ratio	ER	8.2			dB	BER < 10 ⁻¹²
Center Wavelength	λ _C	1280	1310	1355	nm	BER < 10 ⁻¹²
Spectral Width (20dB)	Δλ			4	nm	BER < 10 ⁻¹²
Rise/Fall Time, (20–80%)	T _{r, f}			3	ns	BER < 10 ⁻¹²
Output Eye	Compliant with IEEE802.3u					
Transmit Fault Output-Low	TX_FAULT	V _{ee}		V _{ee} + 0.5	V	BER < 10 ⁻¹²
Transmit Fault Output-High	TX_FAULT	2.0		V _{CC}	V	BER < 10 ⁻¹²
Transmit Disable-Low	TX_FAULT	V _{ee}		V _{ee} + 0.8	V	BER < 10 ⁻¹²
Transmit Disable-High	TX_FAULT	2.0		V _{CC}	V	BER < 10 ⁻¹²

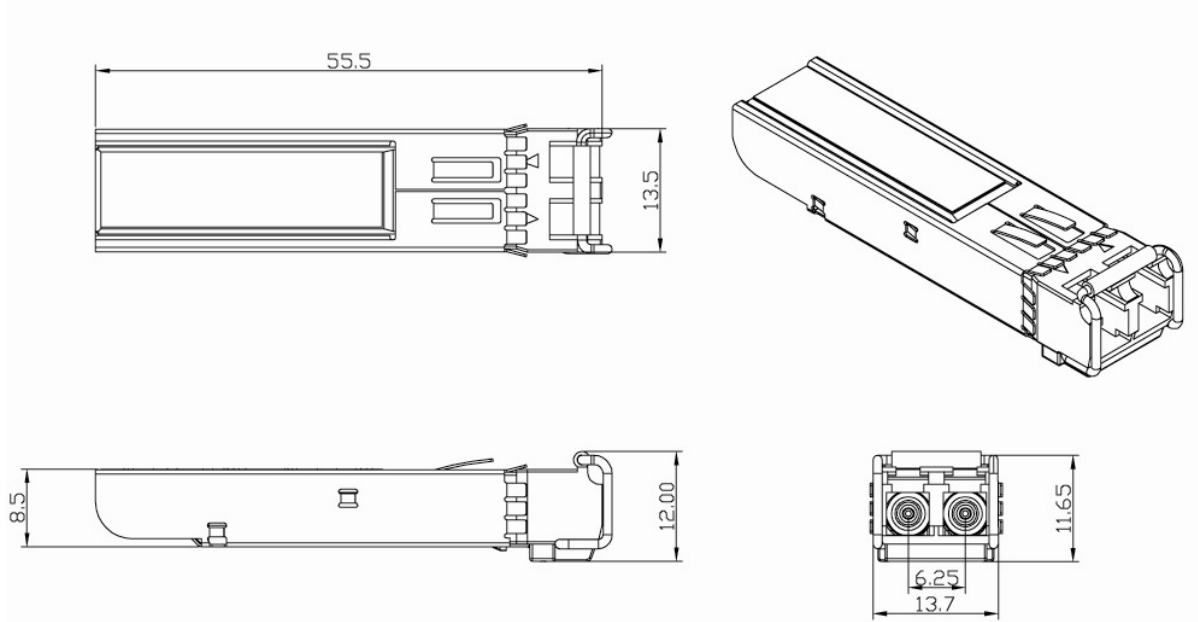
• **RECEIVER ELECTRO-OPTICAL CHARACTERISTICS**

V_{CC} = 3.1 V to 3.5 V, T_A = 0 °C to 70 °C

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Receiver Differential Output Voltage	RD +/-	600	800		mV p-p	
Optical Input Power-maximum	P _{IN}	-3			dBm	A BER < 10 ⁻¹²
Optical Input Power-minimum (Sensitivity)	P _{IN}			-34	dBm	A BER < 10 ⁻¹²
Operating Center Wavelength	λ _C	1270		1620	nm	
Loss of signal –Asserted	P _A	-45			dBm	A
Loss of signal –Deasserted	P _D			-34.5	dBm	A
Receiver Loss of Signal Hysteresis		0.5	2		dB	A
Note A: measured in the center of the eye opening with 2²³ -1 PRBS, NRZ						

DETAILED SPECIFICATIONS (continued)

• **DIMENSIONS (mm)**



• **REGULATORY COMPLIANCE**

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to optical connector	Variation of IEC 61000-4-2	Typically withstand at least 15kV without damage when port is contacted by Human Body Model probe.
Immunity	Variation of IEC 61000-4-3	Typically show no measurable effect from a 10 V/m field swept from 27 MHz to 1 GHz applied to the transceiver without a chassis enclosure.
Electromagnetic Interference (EMI)	FCC Class B CENELEC EN55022 Class B (CISPR 22A)	Margins are dependent on customer board and chassis design.
Laser Eye Safety	FDA21 CFR 1040.10 and 1040.11	Class 1 Laser Safety product.

• **WARRANTY**
 Lifetime