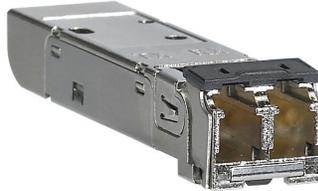


## 065-79SXMG-H Small Form - factor Pluggable (SFP) Gigabit Interface Module



The Signamax 065-79SXMG-H is a Small Form-factor Pluggable (SFP) multimode fiber module that supports Gigabit Ethernet over 62.5 micron multimode fiber at distances up to 220 meters, and at distances up to 550 meters over 50 micron multimode fiber cable. It adheres to the IEEE 802.3z standard for Gigabit Ethernet, and is a cost-effective method of providing changeable Gigabit Ethernet interfaces to switches and media converters equipped with a standard SFP slot.

### Applications

- Router / Server interface
- Distributed multi-processing
- Switch to switch interface
- High speed I/O for file server

### Key Features

- Compliant with SFP MultiSource Agreement. Compliant with IEEE802.3Z
- SCA-2 Host connector
- Duplex LC connector
- 850 nm VCSEL
- 3.3V power supply
- Hot-Pluggable capability
- Extended EMI & ESD protection
- Class 1 laser product complies with EN 60825-1

### Ordering Information

| Part Number  | Description   |
|--------------|---|
| 065-79SXMG-H | 1000BaseSX SFP Module – MM/LC, 220m Span on 62.5µm Fiber / 550m Span on 50µm Fiber, -40 degrees C to 85 degrees C operation |

### Summary Specification

| PART NUMBER  | Model / Spectrum | Light Source | Link Power Budget | Typical Max. Distance**                  | Supply Voltage | Operating Temp. |
|--------------|------------------|--------------|-------------------|--|----------------|-----------------|
| 065-79SXMG-H | SX<br>850 nm     | VCSEL        | 9 dBm             | 62.5µ Fiber = 220 m<br>50µ Fiber = 550 m | 3.3V           | -40 ~ 85 °C     |

\*\* Maximum distances attainable on multimode Gigabit Ethernet fiber circuits are primarily dependent upon multimode distortion, also known as modal dispersion. Larger aperture fiber optic cable allows more modes to be generated at the launch point; these modes cause the pulse width to spread across a Gigabit Ethernet bit time interval to a point where accurate determination of data (i.e., ones and zeroes) is not possible. These are physical properties that are not specific to this product. These properties also apply to competing products operating in the same frequency spectrum over multimode fiber cable having the same modal bandwidth.

SPECIFICATIONS

**DETAILED SPECIFICATIONS**

• **APPLICABLE STANDARDS**

IEEE 802.3z (1000BaseSX Gigabit Ethernet)

• **ABSOLUTE MAXIMUM RATINGS**

**Storage Temperature:** TS -40 -- 85 °C

**Supply Voltage:** V<sub>CC</sub> -0.5 -- 6.0 V

**Input Voltage:** V<sub>IN</sub> -0.5 -- V<sub>CC</sub> V

**Operating Humidity:** 5-95 %

• **RECOMMENDED OPERATING CONDITIONS**

| PARAMETER                     | SYMBOL                            | MIN | MAX | UNITS | NOTE |
|-------------------------------|-----------------------------------|-----|-----|-------|------|
| Ambient Operating Temperature | T <sub>AMB</sub>                  | 0   | 70  | °C    |      |
| Supply Voltage                | V <sub>CC</sub>                   | 3.1 | 3.5 | V     |      |
| Supply Current (3.3V)         | I <sub>TX</sub> + I <sub>RX</sub> |     | 85  | mA    |      |

• **TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS**

V<sub>CC</sub> = 3.1 V to 3.5V, T<sub>A</sub> = -40 degrees C to 85 degrees C

| PARAMETER                           | SYMBOL                    | MIN | TYP. | MAX             | UNITS | NOTE    |
|-------------------------------------|---------------------------|-----|------|-----------------|-------|---------|
| Output Optical Power 9/125 μm fiber | P <sub>out</sub>          | -9  |      | -3              | dBm   | Average |
| Extinction Ratio                    | ER                        | 9   |      |                 | dB    |         |
| Center Wavelength                   | λ <sub>C</sub>            | 830 | 850  | 860             | nm    |         |
| Spectral Width (20dB)               | Δλ                        |     |      | 0.85            | nm    |         |
| Rise/Fall Time, (20–80%)            | T <sub>r, f</sub>         |     |      | 260             | ps    |         |
| Relative Intensity Noise            | RIN                       |     |      | -117            | dB/Hz |         |
| Total Jitter                        | TJ                        |     |      | 227             | ps    |         |
| Output Eye                          | Compliant with IEEE802.3z |     |      |                 |       |         |
| Differential Data Input Swing       | V <sub>IN</sub>           | 200 |      | 1660            | mV    |         |
| Transmit Fault Output-Low           | TX_FAULT                  | 0.0 |      | 0.5             | V     |         |
| Transmit Fault Output-High          | TX_FAULT                  | 2.0 |      | V <sub>CC</sub> | V     |         |

• **RECEIVER ELECTRO-OPTICAL CHARACTERISTICS**

V<sub>CC</sub> = 3.1 V to 3.5 V, T<sub>A</sub> = -40 degrees C to 85 degrees C

| PARAMETER                                      | SYMBOL           | MIN | TYP. | MAX             | UNITS | NOTE                    |
|--|------------------|-----|------|-----------------|-------|-------------------------|
| Optical Input Power-maximum                    | P <sub>IN</sub>  | 0   |      |                 | dBm   | BER < 10 <sup>-12</sup> |
| Optical Input Power-minimum (Sensitivity)      | P <sub>IN</sub>  |     |      | -18             | dBm   | BER < 10 <sup>-12</sup> |
| Operating Center Wavelength                    | λ <sub>C</sub>   | 770 |      | 860             | nm    |                         |
| Optical Return Loss                            | ORL              | 12  |      |                 | dB    |                         |
| Receiver Electrical 3dB Upper Cutoff Frequency |                  |     |      | 1500            | MHz   |                         |
| Loss of signal –Asserted                       | P <sub>A</sub>   | -32 |      |                 | dBm   |                         |
| Loss of signal –Deasserted                     | P <sub>D</sub>   |     |      | -18             | dBm   |                         |
| Differential Data Output Swing                 | V <sub>out</sub> | 370 |      | 2000            | MV    |                         |
| Receiver Loss of Signal Output Voltage-Low     | RX_LOS           | 0   |      | 0.5             | V     |                         |
| Receiver Loss of Signal Output Voltage-High    | RX_LOS           | 2.0 |      | V <sub>CC</sub> | V     |                         |

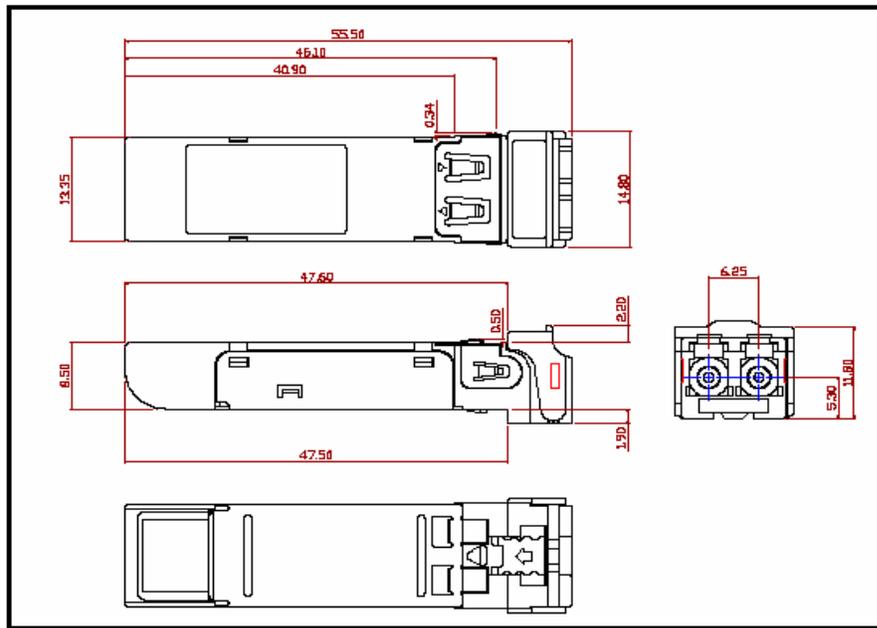
**DETAILED SPECIFICATIONS (continued)**

• **TIMING REQUIREMENTS**

V<sub>cc</sub> = 3.1 V to 3.5V, T<sub>A</sub> = -40 degrees C to 85 degrees C

| PARAMETER                                       | SYMBOL                | MIN | TYP. | MAX | UNITS | NOTE |
|---|-----------------------|-----|------|-----|-------|------|
| TX_DISABLE Assert Time                          | t <sub>off</sub>      |     |      | 10  | μs    |      |
| TX_DISABLE Negate Time                          | t <sub>on</sub>       |     |      | 1   | ms    |      |
| Time to initialize, include reset of TX_FAULT   | t <sub>init</sub>     |     |      | 300 | ms    |      |
| TX_FAULT from fault to assertion                | t <sub>fault</sub>    |     |      | 100 | μs    |      |
| TX_DISABLE time to start reset                  | t <sub>reset</sub>    | 10  |      |     | μs    |      |
| Receiver Loss of Signal Assert Time (off to on) | t <sub>A,RX_LOS</sub> |     |      | 100 | μs    |      |
| Receiver Loss of Signal Assert Time (on to off) | t <sub>D,RX_LOS</sub> |     |      | 100 | μs    |      |

• **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<br>CENELEC EN55022<br>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.  |

[www.signamax.com](http://www.signamax.com)

16295 N.W. 13th Avenue • Miami, FL 33169 • 800.446.2377 • 305.944.7710 • Fax: 305.949.4483

Copyright 2011 Signamax, Inc./AESP, Inc. All rights reserved • Signamax Connectivity Systems is a trademark of AESP, Inc. • Specifications subject to change.