

**12-Port 10/100 Hardened Managed Switch + 2-SFP/RJ-45 Dual Media Ports**



Signamax Connectivity Systems' 065-7714HSFPTB Hardened Managed Switch is designed to operate in rugged environments with extreme temperature conditions. It is equipped with twelve 10/100BaseT/TX RJ45 ports and two Dual Media 10/100/1000BaseT/TX ports in a compact package that offers a variety of mounting options. The 065-7714HSFPTB Hardened Managed Switch functions at temperatures ranging from -40° F to 167° F (-40° C to 75° C), meeting NEMA TS1 and TS/2 specifications for Traffic Control Equipment, and is tested for functional operation at even greater extremes: -40° F to 185° F (-40° C to 85° C). The 065-7714HSFPTB is a fully managed switch, with system administrator control via SNMP, Web Browser, Telnet or a Local Console port mounted on the front panel for easy access. This vehicle supports advanced features such as 802.1Q VLAN, MAC-based Trunking, IP-Multicast IGMP Snooping, Rapid Spanning Tree for Redundancy, QoS for priority queuing, and port mirroring for easy implementation of resilient, high-capacity networks supporting critical Traffic Control and Public Safety applications over Gigabit Ethernet copper and fiber backbones. Individual administrators or Network Operations Centers (NOCs) may also choose to perform remote monitoring and configuration using the Web browser or Telnet interfaces, or from overlay management systems such as HP OpenView™ or IBM/Tivoli NetView™ via SNMP and RMON. The 065-7714HSFPTB also supports rate control for individual port maximum bandwidth settings, for high-granularity network control. The Signamax 065-7714HSFPTB Hardened Managed Switch offers powerful control and administrative features in a rugged, compact, and cost-effective package.

**KEY FEATURES**

- Complies with NEMA TS1 & TS2 Environmental Requirements for Traffic Control Equipment.
- -40°F to 167°F (-40°C to 75°C) Operating Temperature Range.
- IEEE 802.1w RSTP, IEEE 802.1S MSTP and IEEE 802.1D STP supported
- Recover-Ring™ capability (recovery time < 20 ms).
- 2 Hardened SFP Dual Media Ports.
- Port Mirroring for Enhanced Network Monitoring.
- Bandwidth Rate Control.
- Complies with IEC61000-6-2 EMC Generic Standard Immunity for Industrial Environment.
- MAC-based Trunking with Automatic Link Failover for Bandwidth Aggregation.
- Supports port-based VLAN, IEEE 802.1Q VLAN Tagging, and GVRP
- IP Multicast Filtering via IGMP Snooping V1, V2 & V3.
- IEEE 802.1p QoS Supports 4 Priority Queues.
- 802.1x Access Control Improves Network Security.
- Redundant Power via 24 V DC Terminal Block.

**ORDERING INFORMATION**

PART NUMBER	DESCRIPTION
065-7714HSFPTB	12-Port 10/100 Hardened Managed Switch + 2 SFP/RJ-45 Gigabit Dual Media Ports
065-7714HDINMT	DIN-rail mounting hardware for 065-7714HSFPTB
065-7714HPANELMT	Panel mounting hardware for 065-7714HSFPTB
065-7714HRACKMT	19 inch rack mounting hardware for 065-7714HSFPTB
065-79SXMG-H	1000BaseSX Hardened SFP Module 850 nm – MM/LC, 220 m Span on 62.5µ Fiber / 550 m Span on 50µ Fiber, -40° F to 185° F (-40° C to 85° C) operation
065-79LXMG-H	1000BaseLX Hardened SFP Module 1310 nm – SM/LC, 10 km, -40° F to 185° F (-40° C to 85° C) operation

Note: Optional Mounting Hardware Kits and Hardened SFP Gigabit Ethernet Modules Sold Separately

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

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SPECIFICATIONS

## SPECIFICATIONS

### • APPLICABLE STANDARDS

IEEE 802.3 10BaseT  
IEEE 802.3u 100BaseTX  
IEEE 802.3ab 1000BaseT  
IEEE 802.3z 1000BaseSX/LX  
IEEE 802.1p Priority (Quality of Service [QoS])  
IEEE 802.1D Spanning Tree Protocol  
IEEE 802.1s Multiple Spanning Tree Protocol  
IEEE 802.1w Rapid Spanning Tree Protocol  
IEEE 802.1Q Tagged VLAN  
IEEE 802.3x Flow Control  
IEEE 802.1x Access Control

### • PORTS

**12** - RJ-45 10/100BaseT/TX ports  
**2** - Dual Media Gigabit Ethernet ports (2- RJ-45 10/100/1000BaseT/TX ports with corresponding Small Form-factor Pluggable [SFP] auto-detecting ports)  
Broadcast/Multicast Storm Suppression enabled.

#### Optional Interfaces:

**065-79SXMG-H:** 1000BaseSX Hardened SFP fiber optic module with LC multimode fiber connectors, -40° C to 85° C operation.  
**Maximum distance:** 220 meters with 62.5/125 micron fiber or 550 meters with 50/125 micron fiber.

**065-79LXMG-H:** 1000BaseLX Hardened SFP fiber optic module with LC multimode fiber connectors, -40° C to 85° C operation.  
**Maximum distance:** 10 km with 9/125 micron fiber.

• **Optional Hardened SFP Gigabit Ethernet Modules Sold Separately. Other SFP Modules are also available. Please visit [www.signamax.com](http://www.signamax.com) for additional details.**

### • LED STATUS INDICATORS

**Per Switch:** Power Status 1, 2, & 3  
**Per Port:** Link/Activity, 10/100 or 10/100/1000 speed

### • PERFORMANCE

**Latency:** <4.5  $\mu$ s (LIFO).  
**Throughput:** 1.48810 million pps (64-byte packets)  
**Switch Fabric Speed:** 8.0 Gbps (non-blocking, wire speed performance)  
**MAC Address Capacity:** 8 K MAC addresses  
Per-port programmable MAC address locking  
Up to 24 Static Secure MAC addresses per port  
**Frame Buffer:** 2 MB  
**Port Mirroring:** Inbound and Outbound, assignable to any port.

### • NETWORK SECURITY

IEEE 802.1x access control

### • INTERNETWORKING PROTOCOLS SUPPORTED

**MAC-based Trunking:** 2 Fast Ethernet +1 Gigabit Ethernet trunking groups; up to 4 ports for each group  
**GVRP/GARP (GARP VLAN Registration Protocol / Generic Attribute Registration Protocol):**  
IEEE 802.1Q with GVRP/ GARP  
**Multicasting:** Supports IP Multicast Filtering via IGMP Snooping V1, V2 & V3  
**STP/RSTP/MSTP (Spanning Tree Protocol / Rapid Spanning Tree / Multiple Spanning Tree Protocol):** IEEE 802.1d/1w/1s

### • VLAN CAPABILITIES

Port-based VLAN  
IEEE 802.1Q Tag-based VLAN; up to 4K active VLANs possible

### • QoS CAPABILITIES

Supports 802.1p QoS with four level priority queue  
Supports two scheduling types, Strict Priority and Weighted Round Robin (WRR) with user-variable weighting.  
Supports bandwidth rating per port

### • BANDWIDTH CONTROL CAPABILITIES

#### Bandwidth Rate Limiting:

##### Ingress rate limits:

Ports 1-12: 64 Kbps up to 100 Mbps  
Ports 13 & 14: 64 Kbps up to 1000 Mbps

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Ports 1-12: 64 Kbps up to 100 Mbps  
Ports 13 & 14: 64 Kbps up to 1000 Mbps

#### Broadcast Storm Suppression:

Multicast/Broadcast/Unknown-Unicast Storm suppression

## SPECIFICATIONS (continued)

### • MANAGEMENT

**Access Methods:** Console port access via RS-232C DB-9 local console serial port, Telnet remote access, SNMP agent, and Web browser.

**Software Upgrade Capability:** Via TFTP

**SNMP v1, v2, and v3 Network Management:**

**RFC 1213 MIB (MIB-2)**

**RFC 1757 RMON MIB**

Statistics Group 1

History Group 2

Alarm Group 3

Event Group 9

**RFC 1493 Bridge MIB**

**VLAN MIB (IEEE802.1Q/RFC2674)**

**Private MIB**

### • CERTIFICATIONS

**Safety:** UL508, EN60950-1, IEC60950-1; CE Mark

**EMI:** FCC Part 15 Class A; EN61000-6-3; EN55022; EN61000-3-2; EN61000-3-3

**EMS:**

**ESD Standards (IEC 61000-4-2):**

**Enclosure Contact:** + / - 4KV; Criteria B;

**Enclosure Air:** + / - 8KV; Criteria B

**Radiated FRI Standards (IEC 61000-4-3):**

**Enclosure Ports:** 10V/m, 80 to 1000MHz, 80% AM; Criteria A

**Burst Standards (IEC 61000-4-4):**

**Enclosure Ports:** + / - 4KV @ 2.5 KHz; Criteria B

**D.C. Power Ports:** + / - 4KV; Criteria B

**A.C. Power Ports:** + / - 4KV; Criteria B

**Surge Standards (IEC 61000-4-5):**

**Signal Ports:** + / - 1KV; Line-to-line; Criteria B

**D.C. Power Ports:** + / - 0.5KV; Line-to-earth; Criteria B

**A.C. Power Ports:** + / - 2KV; Line-to-earth; Criteria B

**Induced RFI Standards (IEC 61000-4-6):**

**Signal Ports:** 10V RMS @ 0.15-80MHz, 80% AM; Criteria A

**D.C. Power Ports:** 10V RMS @ 0.15-80MHz, 80% AM; Criteria A

**A.C. Power Ports:** 10V RMS @ 0.15-80MHz, 80% AM; Criteria A

**Earth Ground Ports:** 10V RMS @ 0.15 - 80MHz, 80% AM; Criteria A

**Magnetic Field Standards (IEC 61000-4-8):**

30A/m @ 50, 60Hz; Criteria A

**Voltage Dip Standards (IEC 61000-4-11):**

**A.C. Power Ports:** 30% Reduction for 0.5 period; Criteria B

**Environmental Test Compliance:**

**Vibration Resistance (IEC 60068-2-6fc):** 5G @ 150Hz (Operation/Storage/Transport); Criterion 3

**Shock (IEC 60068-2-27):** 25G @ 11ms (Half-Sine Shock Pulse; Operation); 50G @ 11ms (Half-Sine Shock Pulse; Storage/Transport)

**Free Fall (IEC 60068-2-32 Ed):** 1 Meter (3.281 ft.)

**NEMA TS1/2 Environmental Requirements for Traffic Control Equipment**

### • PHYSICAL CHARACTERISTICS

**Dimensions:** 9.25"W x 4.92"D x 1.97"H (235 mm x 125 mm x 50 mm)

**Housing:** IP30 protection, metal case

- Optional DIN-rail, panel, and/or 19-in rack mounting hardware sold separately.

**Weight:** 3.3 lbs (1.5 kg)

### • ELECTRICAL CHARACTERISTICS

**Maximum Power Consumption:** 15 Watts

**Maximum Current Drawn:** 1.25 A @ 12 VDC; 0.625 A @ 24 V DC

**DC Input Range:** 12 to 32 V DC, connected via redundant terminal block.

### • ENVIRONMENTAL CHARACTERISTICS

**Operating Temperature:** -40°F to 167°F (-40°C to 75° C); Tested to -40°F to 185°F (-40°C to 85° C)

**Storage Temperature:** -40°F to 185°F (-40°C to 85° C)

**Operating Humidity:** 5 to 95% RH, non-condensing

### • WARRANTY

Five years

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