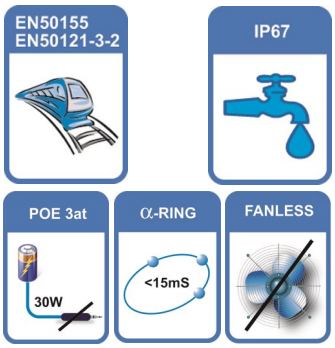
EN50155and IP67 Hardened Switch

Version 1.1 – July 2013

SWMP-H67-16TM-2GM
SWMP-H67-8TM8TPM-2GM



Features

- Hardened Ethernet Manageable Layer2 , **IP67** grade
- Compliant for Railway Rolling stock equipment EN50155, EN50121-3-2

Models

- **SWMP-H67-16TM-2GM:** 16 FE and 2 uplink GE copper or fiber ports
- **SWMP-H67-8TM8TPM-2GM**: 8 FE standard and 8 FE PoE source 802.3af at 30W max, 2 GE, GSX or GLX ports
- M12 waterproof connectors for copper FE/GE and LC fiber for GSX/GLX

Ethernet supports:

- α-ring and RSTP/MSTP for Ethernet ring redundancy, with dual homing
- Port-base VLAN, 802.1Q VLAN Tagging and GVRP
- IP multicast filtering through IGMP Snooping V1, V2, V3
- IEEE802.1p QoS with four priority queues
- MAC-based trunking, LACP
- IEEE802.1x port-security
- Bandwidth rate control
- Port-lock for authorized MAC address access only

Management

- Over console, Telnet, SSH, CLI http, https, SNMP v1, v2c &v3, RMON and TFTP
- Port mirroring
- NTP synchronization
- -40°C to 75°C operating temperature range

ETHERNET SWITCH FOR ROLLING STOCK MATERIAL

The IP67 grade SWMP-H67-16TM-2GM: and SWMP-H67-8TM8TPM-2GM manageable Ethernet switches are use in very hardened environment and thanks to strong concept and M12/M23 connectors they are used in railway rolling stock material according to EN50155, EN50121-3-2 compliances.

The SWMP-H67-8TM8TPM-2GM model support 8 ports 10/100BaseT with PoE Power Sourcing Equipment (PSE) IEEE 802.3at up to 30W per port.

This switch is build in strong metal case and waterproof according to IP67. Gore-Tex Vent provides pressure and humidity equalization, preventing water permeating.

Its operating temperature covers the range of –40 to 75°C, -40 to 167°F. All devices are tested in production at 85°C during 72h.

Thanks to his hardware and mechanical design for EMI/EMS, chock and vibration resistant, this switch is designed to comply with railway/metro station according to EN50121-4 but also in rolling stock material in compliance with EN50155 and EN50121-3-2. It is provided with panel mount kit.

The model provides 8 POE sources ports according to IEEE802.3at and supplies up to 30W per port. The PoE level is controlled and scheduling along the week.

This **Layer 2 manageable Ethernet switch** supports all Ethernet feature of the CXR industrial and hardened switch ranges for secure, QoS and powerful switching.

The ***SWMP-H67-16TM-2GM*** supports the STP/RTSP/MSTP and the α-ring Ethernet redundancy. The α-ring provides very fast recovery delay over Ring topologies, bellow 15 ms based on .Layer1 over copper or fiber ports. Dual homing α-ring and RSTP/MSTP protocols are running in the same switch.

Secure access is provided by the Radius authenticate 802.1x but also the Per-port programmable MAC address locking or the 24 static addresses per port set-up.

SWMP-H67 switche supports a lot of protocols for QoS, VLAN per port or IEEE802.1Q VLAN Tagging with GVRP setup and video traffic optimization such as IGMP snooping v1, v2 and V3. Each port can be assigned a four level priority queuing policy and a rate limiting.

This switch supports MAC-based trunking and LACP.

This switch is manageable trough in http or https, in telnet with SSH or the consol port with CLI command or in SNMP v1/2c/3 and TFTP. It's provided with an RMON probe interface and port mirroring to facilitate the deployment.

APPLICATIONS

- Railway rolling stock
- Metro / Underground rolling stock
- Railway/tramway station
- Bus for camera support
- Outdoor utilization for POE Wireless Access Point and camera
- Industrial environment

IP67 switch EN50155

SPECIFICATIONS

Technology	
Standards	• IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX/FX, IEEE802.3x, IEEE802.3ab 1000BASE-T, IEEE802.3z 1000, IEEE802.1p CoS, IEEE802.1D STP, IEEE802.1w RSTP
Forward and Filtering Rate	• 14,880pps for 10Mbps • 148,810pps for 100Mbps • 1,488,100pps for 1000Mbps
Processing Type	• Store-and-Forward • Half-duplex back-pressure and IEEE802.3x full-duplex flow control
Address Table Size	• 8K MAC addresses

Power	
Power Input	• Redundant power inputs: M23: 12 - 48VDC, 18 - 30VAC (for non-PoE model) M23: 47 - 57VDC (for PoE model)
Power Consumption	• Device: Max. 11W (without PoE) • PoE power budget (depends on power input): 240W Max.
PoE Power Output	• Port 1 to 8 • IEEE802.3at: up to 30W/port, 50 - 57VDC

- Supports overload current protection
- Supports reverse polarity protection

Mechanical	
Casing	• Metal case • IP67
Dimensions	• 258mm(W) x 117mm(D) x 228mm(H) (10.15" (W) x 4.6"(D) x 8.97"(H))
Weight	• 3Kg(6.6lbs.)
Installation	•

Interface	
Ethernet Port	• 10/100BASE-M12 D-Code 4-Pin Female: 16 ports • Gigabit-TX/LC: 2 ports
Console Port	• Port: One M12 RS-232 port
LED Indicators	• Per Unit: Power Status: Power 1 (Green), Power 2 (Green) • Per Port: 10/100BASE: Link/Activity (Green) Gigabit: Link/Activity (Green) PoE: PoE (Port 1 to 8) (Green) (for PoE model)
Alarm Contact	• One relay M12 A-Code 4-Pin Female output with corrent 1A @ 250VAC

Environment	
Operating Temperature	• -40°C to 75°C (-40°F to 158°F)
Storage Temperature	• -40°C to 85°C (-40°F to 168°F)
Ambient Relative Humidity	• 5% to 95% (non-condensing)

Regulatory Approvals	
ISO	• Manufactured in an ISO9001 facility
EMI	• FCC Part 15, Class A • EN61000-6-4 - EN55022 - EN61000-3-2 - EN61000-3-3
EMS	• EN50121-3-2 • EN61000-6-2 • EN61000-4-2 (ESD Standards) - Contact: + / - 6KV - Air: + / - 8KV • EN61000-4-3 (Radiated RFI Standards) - 20V/m, 800 to 1000MHz; 80% AM, 1kHz - 10V/m, 1400 to 2100MHz; 80% AM, 1kHz - 5V/m, 2100 to 2500MHz; 80% AM, 1kHz • EN61000-4-4 (Burst Standards) - Signal Ports: + / - 2KV; Criteria A, + / - 4KV - D.C. Power Ports: + / - 2KV; Criteria A, + / - 4KV • EN61000-4-5 (Surge Standards) - Signal Ports: + / - 2KV; Line-to-Line - D.C. Power Ports: + / - 0.5KV; Line-to-Earth • EN61000-4-6 (Induced RFI Standards) - Signal Ports: 10Vrms @ 0.15 - 80MHz; 80% AM - D.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM • EN61000-4-8 (Magnetic Field Standards) - 30A/m @ 50, 60Hz
Environmental Test Compliance	**Vibration Resistance** • EN61373: X 0.07grms, Y 0.046grms, Z 0.1grms (Operating) X 0.56grms, Y 0.375grms, Z 0.8grms (Storage/Transport) • IEC60068-2-6 Fc: 5g @ 10 - 150Hz, Amplitude 0.35mm (Operation/Storage/Transport) **Shock** • EN61373: X 5g, Y, Z 3g • IEC60068-2-27 Ea 25g @ 11ms (Half-Sine Shock Pulse; Operation) 50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport) **Free Fall** • IEC60068-2-32 Ed : 1M (3.281ft.)

IP67 Case

This IP67 waterproof grade includes waterproof Ethernet and power supply connectors that can be remove without open the box.

This includes

- 5 Windows for LED
- 6 M12 connectors for FE
- 1 M12 for consol port
- 1 M12 for output relay
- 1 M23 DC power supply connector

On the back a Gore-Tex Vent provides pressure and humidity equalization, preventing water permeating.

The switch is supplied with a metal panel mount support to fix the switch on the wall of the rolling stock material.

Models /Order number

SWMP-H67-16TM-2GM	Hardened Layer 2 Ethernet switch , IP67 case, 16 10/100Baset ports and 2 uplink ports 1000BaseT with M12 connectors, VLAN tagging 802.1q,QoS 802.1p, port trunking, RSTP, Alfa-Ring <15ms, SNMP V3, AC power supply, working temperature -40 à +75°C , EN50121-3 and EN50155 (rolling stock railway)
SWMP-H67-16TM-2GMM	Hardened Layer 2 Ethernet switch , IP67 case, 16 10/100Baset ports and 2 GSX MM 550m uplink with LC M12 connectors, VLAN tagging 802.1q,QoS 802.1p, port trunking, RSTP, Alfa-Ring <15ms, SNMP V3, AC power supply, working temperature -40 à +75°C , EN50121-3 and EN50155 (rolling stock railway)
SWMP-H67-16TM-2GSM20	Hardened Layer 2 Ethernet switch , IP67 case, 16 10/100Baset ports and 2 GSX SM 20km uplink with LC M12 connectors, VLAN tagging 802.1q,QoS 802.1p, port trunking, RSTP, Alfa-Ring <15ms, SNMP V3, AC power supply, working temperature -40 à +75°C , EN50121-3 and EN50155 (rolling stock railway)
SWMP-H67-8TM8TPM-2GM	Hardened Layer 2 Ethernet switch , IP67 case, 16 10/100Baset ports with 8 POE PsE 802.3at and 2 uplink ports 10/100/1000BaseT with M12 connectors, VLAN tagging 802.1q,QoS 802.1p, port trunking, RSTP, Alfa-Ring <15ms, SNMP V3, DC 48v power supply, working temperature -40 à +75°C , EN50121-3 and EN50155 (rolling stock railway)
SWMP-H67-8TM8TPM2GMM	Hardened Layer 2 Ethernet switch , IP67 case, 16 10/100Baset ports with 8 POE PsE 802.3at and 2 GSX MM 550m uplink with LC M12 connectors, VLAN tagging 802.1q,QoS 802.1p, port trunking, RSTP, Alfa-Ring <15ms, SNMP V3, DC 48v power supply, working temperature -40 à +75°C , EN50121-3 and EN50155 (rolling stock railway)
SWMP-H67-8TM8TP2GS20	Hardened Layer 2 Ethernet switch , IP67 case, 16 10/100Baset ports with 8 POE PsE 802.3at and 2 GSX SM 20km uplink with LC M12 connectors, VLAN tagging 802.1q,QoS 802.1p, port trunking, RSTP, Alfa-Ring <15ms, SNMP V3, DC 48v power supply, working temperature -40 à +75°C , EN50121-3 and EN50155 (rolling stock railway)

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