

## Rugged Ethernet Switches & Media Converters



# Rugged Ethernet solutions



## Rugged electronics

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# RES-GMC with Expanded Beam technology Military Ethernet media converter

For harsh environment - Fully MIL-STD compliant

Amphenol's RES-GMC is a MIL-STD rugged, unmanaged-military-grade security gateway, offering up to 2 Gigabit security gateways per device for unidirectional and data diodes solution for total isolation between two network with different security classification. The unit supports PoE on 2 ports (IEEE802.3af and IEEE802.3at).

Developed for military and harsh environment applications, the RES-GMC features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability.

The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through sealed MIL-D-38999 circular connectors.

Leveraging best-in-class switching technology, the RES-GMC series serves as a robust solution to extend your Tactical Gigabit Ethernet network connectivity of up to 120Km over fiber. Compact in size, the RES-GMC is particularly useful for remote and space-constrained locations either on ground vehicle environments or airborne.

## Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Combat vehicles
- Avionic & shipboard systems



## Key features

### ■ Ethernet ports

- 1 or 2 ports 10/100/1000 or 10/100 Base TX
- 1 or 2 ports 1000 or 100 Base FX/SX/LX or WDM single fiber
- Version 2x2 ports: total isolation between the 2 networks

### ■ Networking

- Full wire-speed forwarding rate
- Option for Up to 2 ports PoE - IEEE802.3af, IEEE802.3at
- Store-and-forward or Pass through mechanism
- Auto MDI-II, MDI-X, FDX, HDX, Flow control
- Auto-negotiation and fixed settings via DIP switch
- Jumbo frame support
- Link loss forwarding mechanism

### ■ Connectors

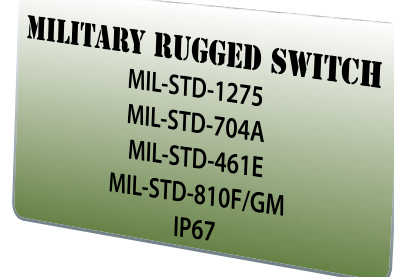
- LAN connector type:
  - Models 1x1 ports: RJ45
  - Models 2x2 ports: D38999/24WB35SN
- Fiber connector type: CTOS 77PC or TACBeam EB4H8000. 2 fibers are used for 1x1 ports versions. 4 fibers are used for 2x2 ports versions.

### ■ Chassis

- Low profile rugged aluminium extrusion
- Conductively cooled w/custom internal heat-sinks
- Ingress protection against sand, dust and moisture
- Epoxy-Polyamide Paint, Per MIL-C-83286, matt texture, color: Nato green

### ■ Standards

- MIL-STD-1275, MIL-STD-704A, MIL-STD-461E,
- MIL-STD-810F GM, IP67/68



## Product specifications

### Performance

- 26.8 Mpps wire speed forwarding rate
- 2 Gbps maximum forwarding bandwidth
- 4K MAC address
- 2 LED indication (Speed, Link/Activity) per port
- Wire-speed reception and transmission

### Standards compliance

- IEEE 802.3, 10 Mbps 10BASE-T (Ethernet)
- IEEE 802.3u, 100 BASE-TX 100 Mbps (Fast Ethernet)
- IEEE 802.3ab, 1000Base-TX
- IEEE 802.3z, 1000Base-FX Gigabit
- IEEE 802.3x Flow control

### Voltage input

- VDC versions: 24VDC nominal (18-32VDC)
- VAC versions: 90-265 VAC / 47-65 Hz
- PoE versions: 48VDC

### Electromagnetic

- MIL-STD-461E Electromagnetic compatibility
- CE-102, CS-114, CS-115, CS-116, RE-102, RS-103

### Environmental : shock/vibration/humidity

- MIL-STD-810F, 501.4I, 501.4II, 502.4I, 502.4II, 507.4, 500.4II, 514, 516I, 516VI, 514.5, 512.4
- IP67/68

### Physical

- Dimensions: 210mm (L) x 151mm (W) x 59mm (H), including connectors & hardware
- Weight: 1.260 kg

### Installation

- Set of Four 4x4.5 mounting holes on bottom for mounting to any flat surface.
- Carrying handles - Optional

### Cooling

- No moving parts. Passive cooling.

### Operating temp

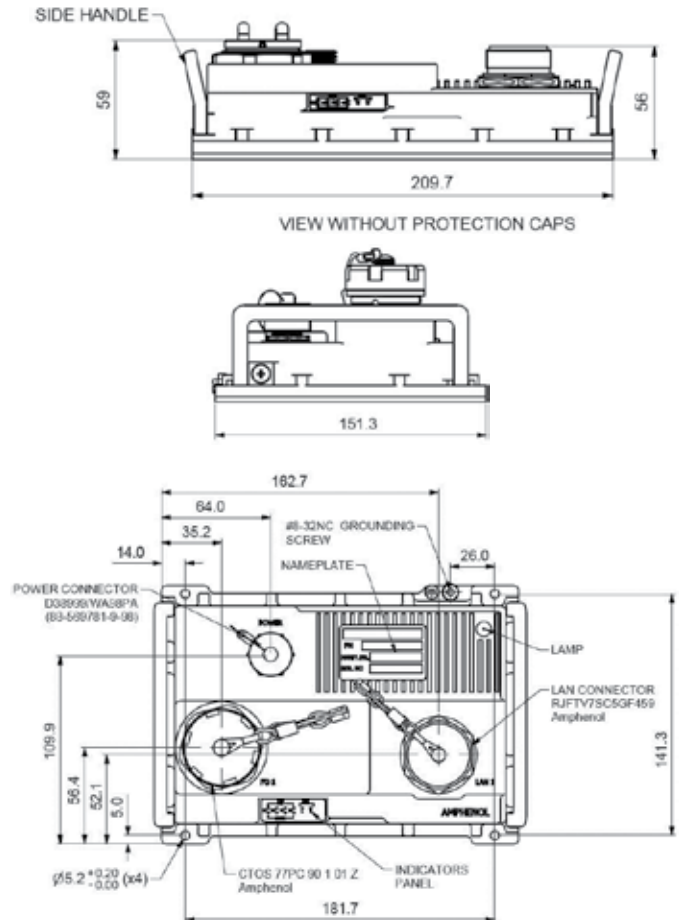
- -35°C to +75°C (-31°F to +167°F) / -35°C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



## Part number code

	RESGMC	1M	G	RJF	1CTOS	OD	DC
<b>Ports and type of optical fiber</b>							
<b>1M</b>		1 copper port and 1 optical fiber port, Multimode					
<b>1S</b>		1 copper port and 1 optical fiber port, Singlemode					
<b>2M</b>		2 copper port and 2 optical fiber port, Multimode					
<b>2S</b>		2 copper port and 2 optical fiber port, Singlemode					
<b>Datarate</b>							
<b>G</b>		10/100/1000TX to 1000 Mbps on fiber side					
<b>100</b>		10/100TX to 100 Mbps on fiber side					
<b>Copper LAN connectors</b>							
<b>RJF</b>		RJ45 connector, RJ45 with MIL-DTL-38999 III Thread coupling mechanism (for 1x1 ports versions)					
<b>TV</b>		MIL-DTL-38999 III connector, arrangement 11-35S (for 1x1 ports versions)					
<b>2TV</b>		MIL-DTL-38999 III connector, arrangement 11-35S (for 2x2 ports versions)					
<b>Optical fiber connectors</b>							
<b>1CTOS</b>		CTOS connector with expanded beam, for intensive use in harsh environments, STANAG 4290					
<b>1TACB</b>		TACBEAM connector with expanded beam, M83526/20&21					
<b>Protection of connectors</b>							
<b>OD</b>		All connectors and caps are plated with Olive drab Cadmium					
<b>NI</b>		All connectors and caps are plated with Nickel (RoHs compliant MC)					
<b>Voltage input</b>							
<b>DC</b>		Unit powered with 18-36VDC					
<b>VAC</b>		Unit powered with 90-265 VAC / 47-65 Hz					
<b>PoE</b>		Unit powered with Power over Ethernet					

► For specific cable harnesses, please consult us.

# RES-GMC with butt joint fiber connector Military Ethernet media converter

For harsh environment - Fully MIL-STD compliant

Amphenol's RES-GMC is a MIL-STD rugged, unmanaged-military-grade security gateway, offering up to 2 Gigabit security gateways per device for unidirectional and data diodes solution for total isolation between two network with different security classification. The unit supports PoE on 2 ports (IEEE802.3af and IEEE802.3at).

Developed for military and harsh environment applications, the RES-GMC features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability.

The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through sealed MIL-D-38999 circular connectors.

Leveraging best-in-class switching technology, the RES-GMC series serves as a robust solution to extend your Tactical Gigabit Ethernet network connectivity of up to 120Km over fiber. Compact in size, the RES-GMC is particularly useful for remote and space-constrained locations either on ground vehicle environments or airborne.

## Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Combat vehicles
- Avionic & shipboard systems

## Key features

### ■ Ethernet ports

- 1 or 2 ports 10/100/1000 or 10/100 Base TX
- 1 or 2 ports 1000 or 100 Base FX/SX/LX or WDM single fiber
- Version 2x2 ports: total isolation between the 2 networks

### ■ Networking

- Full wire-speed forwarding rate
- Option for Up to 2 ports PoE - IEEE802.3af, IEEE802.3at
- Auto MDI-II, MDI-X, FDX, HDX, Flow control
- Auto-negotiation and fixed settings via DIP switch
- Jumbo frame support
- Option for one way fiber security

### ■ Connectors

- LAN connector type:
  - Models 1x1 ports: RJFTV
  - Models 2x2 ports: D38999/24WB35SN
- Fiber connector type: TVOP arrangement 11-02. 2 fibers are used for 1x1 ports versions. 4 fibers are used for 2x2 ports versions.

### ■ Chassis

- Low profile rugged aluminium extrusion
- Conductively cooled w/custom internal heat-sinks
- Ingress protection against sand, dust and moisture
- Epoxy-Polyamide Paint, Per MIL-C-83286, matt texture, color: Nato green

### ■ Standards

- MIL-STD-1275, MIL-STD-704A, MIL-STD-461E,
- MIL-STD-810F GM, IP67/68



**MILITARY RUGGED SWITCH**  
MIL-STD-1275B  
MIL-STD-704A  
MIL-STD-461E  
MIL-STD-810F/GM  
IP67

## Product specifications

### Performance

- 26.8 Mpps wire speed forwarding rate
- 20 Gbps maximum forwarding bandwidth
- 4K MAC address
- 2 LED indication (Speed, Link/Activity) per port
- Wire-speed reception and transmission

### Standards compliance

- IEEE 802.3, 10 Mbps 10BASE-T (Ethernet)
- IEEE 802.3u, 100 BASE-TX 100 Mbps (Fast Ethernet)
- IEEE 802.3ab, 1000Base-TX
- IEEE 802.3z, 1000Base-FX Gigabit
- IEEE 802.3af, IEEE802.3at

### Voltage input

- VDC versions: 24VDC nominal (18-32VDC)
- VAC versions: 90-265 VAC / 47-65 Hz
- PoE versions: 48VDC

### Electromagnetic

- MIL-STD-461E Electromagnetic compatibility
- CE-102, CS-114, CS-115, CS-116, RE-102, RS-103

### Environmental : shock/vibration/humidity

- MIL-STD-810F, 501.4I, 501.4II, 502.4I, 502.4II, 507.4, 500.4II, 514, 516I, 516VI, 514.5, 512.4
- IP67/68

### Physical

- Dimensions: 170mm(L) x 150(W) x 65(H), including connectors & hardware
- Weight: 1 kg

### Installation

- Set of Four 4x4.5 mounting holes on bottom for mounting to any flat surface.
- Carrying handles - Optional

### Cooling

- No moving parts. Passive cooling.

### Operating temp

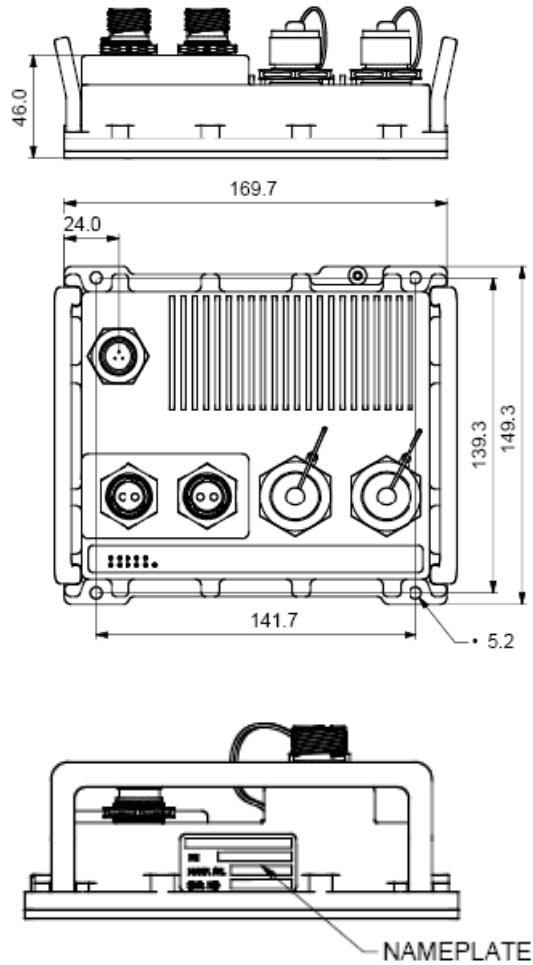
- -35°C to +75°C (-31°F to +167°F) / -35°C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



## Part number code

	RESGMC	1M	G	RJF	1TVOP	OD	DC
<b>Ports and type of optical fiber</b>							
1M		1 copper port and 1 optical fiber port, Multimode					
1S		1 copper port and 1 optical fiber port, Singlemode					
2M		2 copper port and 2 optical fiber port, Multimode					
2S		2 copper port and 2 optical fiber port, Singlemode					
<b>Datarate</b>							
G		10/100/1000TX to 1000 Mbps on fiber side					
100		10/100TX to 100 Mbps on fiber side					
<b>Copper LAN connectors</b>							
RJF		RJ45 connector, RJ45 with MIL-DTL-38999 III Thread coupling mechanism (for 1x1 ports versions)					
TV		MIL-DTL-38999 III connector, arrangement 11-355 (for 1x1 ports versions)					
2TV		MIL-DTL-38999 III connector, arrangement 11-355 (for 2x2 ports versions)					
<b>Optical fiber connectors</b>							
1TVOP		1x TVOP connector with butt joint, arrangement 11-02 (for 1x1 ports versions)					
2TVOP		2x TVOP connectors with butt joint, arrangement 11-02 (for 2x2 ports versions)					
<b>Protection of connectors</b>							
OD		All connectors and caps are plated with Olive drab Cadmium					
NI		All connectors and caps are plated with Nickel (RoHS compliant MC)					
<b>Voltage input</b>							
DC		Unit powered with 18-36VDC					
VAC		Unit powered with 90-265 VAC / 47-65 Hz					
PoE		Unit powered with Power over Ethernet					

► For specific cable harnesses, please consult us.

# RJS-GMC with Expanded Beam technology Military Ethernet Media Converter

For harsh environment - with industrial EMI compliancy

Amphenol's RJS-GMC is a rugged, military-grade Ethernet media converter.

Developed for military and harsh environment applications, the RJS-GMC features mechanical packaging enhancements designed for MIL-STD-810F ground environmental compliance and high reliability.

The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling. The interfaces are protected through sealed RJFTV MIL-D-38999 circular connectors and CTOS expanded beam fiber optics connectors.

The conductive cadmium plating is suitable for most demanding EMI-RFI environments. Black paint is also offered when RoHS is required (other colors available).

Leveraging industrial grade switching technology, the RJS-GMC series serves as a robust and cost efficient solution to extend your Tactical Gigabit Ethernet network connectivity over fiber optics.

The RJS-GMC is already widely use for training and combat simulation of troops.

## Military applications

- Battlefield communication C4ISR
- Rugged Networks
- Combat simulation & training of troops
- Combat vehicles

## Key features

### ■ Ethernet ports

- 1, 2 or 4 ports 10/100/1000 BaseTX
- 1, 2 or 4 ports 1000 Base FX/SX/LX
- Versions 2x2 and 4x4 ports: total isolation between the networks

### ■ Networking

- Full wire-speed forwarding rate
- Store-and-forward or Pass through mechanism
- Auto MDI-II, MDI-X, FDX, HDX, Flow control
- Auto-negotiation
- Jumbo frame support
- Link loss forwarding mechanism

### ■ Connectors

- POWER connector : MIL-DTL-38999 III
- LAN connectors: MIL-DTL-38999 III RJFTV
- Fiber optic connectors: CTOS expanded beam

### ■ Chassis

- Rugged molded aluminium
- Cadmium or paint protection
- Conductively cooled with internal heat-sinks
- Ingress protection against sand, dust and moisture
- IP65/IP68 rated

### ■ IEEE Ethernet standards

- IEEE 802.3/u : 10 Mbps & 100 Mbps Fast Ethernet
- IEEE 802.3ab : 1000 Mbps Gigabit Ethernet
- IEEE 802.3x : Full-Duplex with Flow Control

### ■ Environmental specifications

- EMI emissions : FCC Class A, CE, UL, CSA
- Operating Temperature: 0°C to +50°C
- Storage Temperature: -20°C to +60°C



## MIL POWER PROTECTION FOR MODELS DC-704

MIL-STD-461E

DEF-STAN-59-41

DEF-STAN-61-5

MIL-STD-704A

MIL-STD-1275A

CE102

CE03 600V spike

DCE01/DCE02

Pt 6, Iss. 5

600V input transient

Spikes: +/- 250 V for 100µs

Surges: 100 V for 50 ms at 0.5mΩ

Ripple: 14VAC pk-pk

## Product specifications

### Ethernet features

- 1, 2 or 4 shielded RJ45 ports 10/100/1000 BaseT(X)
- RJFTV connectors: jam nut receptacle based on MIL-DTL-38999 III
- Full / Half Duplex, Automatic or Configurable
- RJ45 MDI/MDIX Auto-crossover
- RJ45 TD and RD Auto-polarity

### Dimensions

- Version 1x1: 220 x 122 x 80 mm without connectors and caps
- Version 2x2: 220 x 122 x 80 mm without connectors and caps
- Version 4x4: 360 x 160 x 90 mm without connectors and caps

### Weight

- Version 1x1: approx 1.9 kg
- Version 2x2: approx 2.5 kg
- Version 4x4: approx 4.5 kg

### Installation

- All versions: Set of 4 mounting holes fixed on the bottom
- Version 4x4: carrying handles fixed on the top

### Power supply

#### Input voltage

- DC : 9-36 VDC
- DC-704 : 9-33 VDC, reverse voltage protection
- VAC : 85/264 VAC, 47/63 Hz

#### Input power

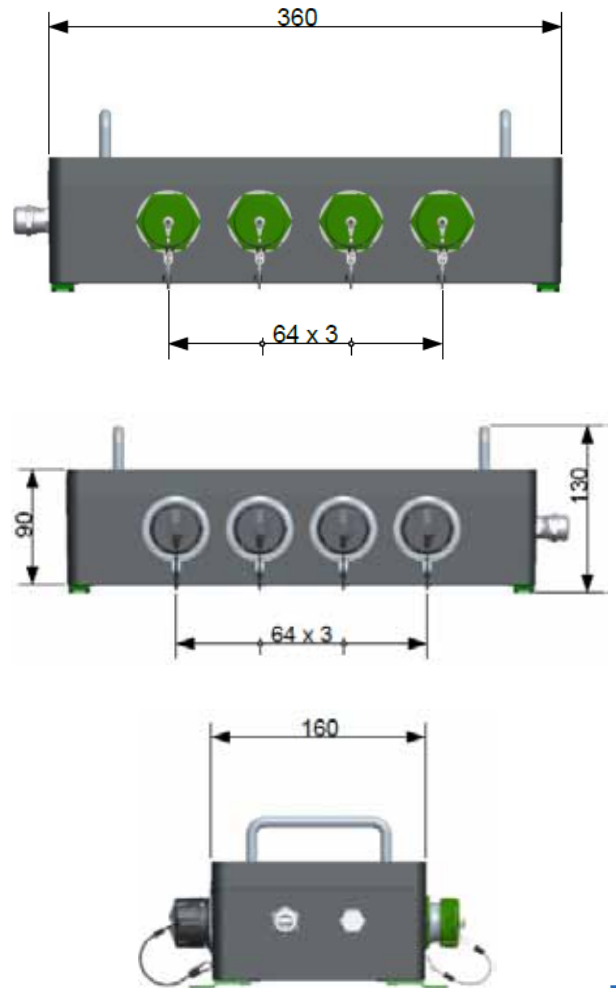
- Version 1x1: 3W
- Version 2x2: 6W
- Version 4x4: 12W

#### Connectors for power

- MIL-DTL-38999 III jam nut receptacle, olive drab cadmium or nickel
- DC & DC-704 TVx07xx0998PA: 3 cts # 20 (wire AWG 24 to 20)
- VAC TVx07xx0998P

## Dimensional line drawing

All measurements are in millimeters



## Part number code

	RJS-GMC	ML	1CTOS	MG	OD	DC-CAPS
<b>Protection and color</b>						
<b>ML</b>	Olive Drab Cadmium Plating on enclosure and receptacles					
<b>BKN</b>	RAL 9005 (Jet Black) Paint on enclosure, Nickel plated receptacles, ROHS compliant					
<b>ML1019</b>	RAL 1019 (Sand) Paint on enclosure, Olive Drab Cadmium plated receptacles					
<b>BKN9010</b>	RAL 9010 (White) Paint on enclosure, Nickel plated receptacles, ROHS compliant					
<b>Number of ports</b>						
<b>1CTOS</b>	1 port LAN to 1 port fiber optics, 1 RJFTV and 1 CTOS connector					
<b>2CTOS</b>	2 ports LAN to 2 ports fiber optics, 2 RJFTV and 2 CTOS connectors					
<b>4CTOS</b>	4 ports LAN to 4 ports fiber optics, 4 RJFTV and 4 CTOS connectors					
<b>Type of fiber and datarate</b>						
<b>MG</b>	Multimode, 50/125, Gigabit Ethernet					
<b>SG</b>	Singlemode, 9/125, Gigabit Ethernet					
<b>MF</b>	Multimode, 50/125, Fast Ethernet					
<b>Protection of LAN and Power connectors and caps</b>						
<b>OD</b>	Olive drab cadmium plating					
<b>BZN</b>	Black Zinc Nickel (RoHS compliant)					
<b>NI</b>	Nickel plating, bright (RoHS compliant)					
<b>Power supply and caps</b>						
<b>DC-CAPS</b>	24VDC powered, attached caps on all receptacles					
<b>DC-704-CAPS</b>	24VDC powered, with 704 filtering option, attached caps on all receptacles					
<b>VAC-CAPS</b>	85-264 VAC, 47-63 Hz, attached caps on all receptacles					

► For specific cable harnesses, please consult us.



# RES-GMC-1M-FORC Military Ethernet Media Converter with Remote Control

For fiber extension of existing systems on the Field

Amphenol's RES-GMC-1M-FORC is a MIL-STD rugged, unmanaged-military-grade Media converter, offering Gigabit communication. Developed for network deployment in harsh environment applications, the RES-GMC-1M-FORC series serves as a robust solution to extend your Tactical Gigabit Ethernet network over fiber. The fiber interface is a CTOS connector with expanded beam, designed for intensive use in severe environments.

Combining the 2 units of RES-GMC-1M-FORC with a fiber drum, your network will be extended on the field and remote controlled from safe area through fiber optics.

> Simply add 2 media converters unit 1 and unit 2 + a fiber drum

Due to extreme low consumption of unit 2 in STANDBY mode, your battery on the field will operate longer.

Operation:

- Connect the unit 1 to a command or control post in a safe area.
- Install the unit 2 together with the deployed system directly on the field, powered by battery through DC IN.
- Link the 2 units with an optical fiber harness.
- The unit 2 is remote controlled by unit 1. Once unit 1 is powered, it will wake up the unit 2.
- The deployed system will be powered from the battery, through DC OUT connector of the unit 2.
- Up to 100A can be provided to the deployed system!



Unit 1



Fiber drum



Unit 2

## Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Combat vehicles

Where your system can be extended through network.

## Key features

- **Ethernet ports**
  - 10/100/1000 Base TX to 100/1000 Base SX-(MM) Media converter
- **Networking**
  - Full wire-speed forwarding rate
  - Store-and-forward or Pass through mechanism
  - Auto MDI-II, MDI-X, FDX, HDX, Flow control
  - Auto-negotiation and fixed settings via DIP switch
  - Jumbo frame support
  - Link loss forwarding mechanism
- **Connectors**
  - MIL-D-38999 (Power & Ethernet signals)
  - Fiber connector type: CTOS 77 PC (2 fibers for Ethernet, 1 fiber for remote control)
  - Protective caps over each connector
- **Chassis**
  - Low profile rugged aluminium extrusion
  - Conductively cooled w/custom internal heat-sinks
  - Ingress protection against sand, dust and moisture
  - Epoxy-Polyamide Paint, Per MIL-C-83286, semi-gloss
  - Color: sand mate
- **Standards**
  - MIL-STD-1275, MIL-STD-704A, MIL-STD-461E,
  - MIL-STD-810F GM, IP67/68

**MILITARY RUGGED SWITCH**  
MIL-STD-1275B  
MIL-STD-704A  
MIL-STD-461E  
MIL-STD-810F/GM  
IP67

## Product specifications

### Performance

- 26.8 Mpps wire speed forwarding rate
- 2 Gbps maximum forwarding bandwidth
- 4K MAC address
- 2 LED indication (Speed, Link/Activity) per port
- Wire-speed reception and transmission

### Standards compliance

- IEEE 802.3, 10 Mbps 10BASE-T (Ethernet)
- IEEE 802.3u, 100 BASE-TX 100 Mbps (Fast Ethernet)
- IEEE 802.3ab, 1000Base-TX
- IEEE 802.3z, 1000Base-FX Gigabit
- IEEE 802.3x Flow control

### Power

- MIL-STD-1275B & MIL-STD-704A Surge and Spike protection
- Voltage input: 24Vdc nominal (18-36V)
- Power switching of the external DC input of unit 2 upon ON/OFF command from unit 1
- Maximum power consumption: 5W for unit 1, 10W for unit 2
- Standby consumption of unit 2: <0.1W
- Chassis grounding
- Max power at output of unit 2 (relay) : 100A

### Electromagnetic

- MIL-STD-461E Electromagnetic compatibility

### Environmental : shock/vibration/humidity

- MIL-STD-810F, 501.4I, 501.4II, 502.4I, 502.4II, 507.4, 500.4II, 514, 516I, 516VI, 514.5, 512.4
- IP67/68

### Physical

- Dimensions: 170mm(L) x 140(W) x 110(H), including connectors & hardware
- Weight: 1.55kg for unit 1, 1.80kg for unit 2

### Installation

- Set of Four 4x4.3 mounting holes on bottom for mounting to any flat surface

### Cooling

- No moving parts. Passive cooling

### Operating temp

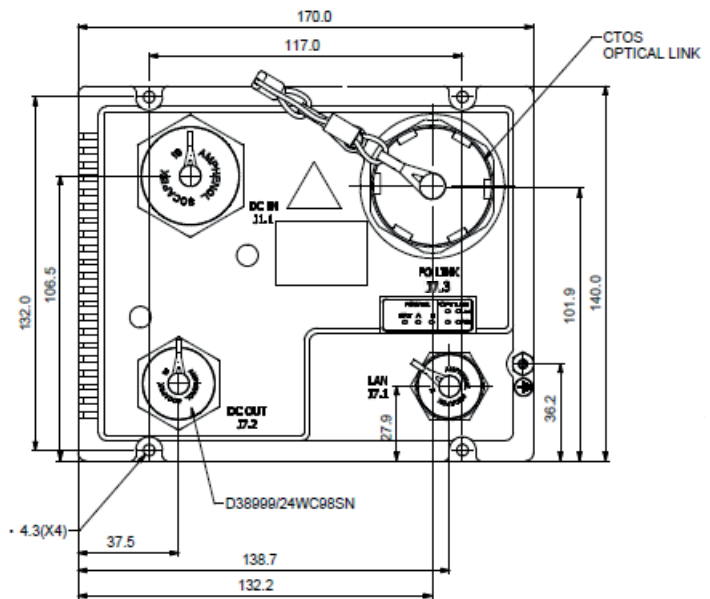
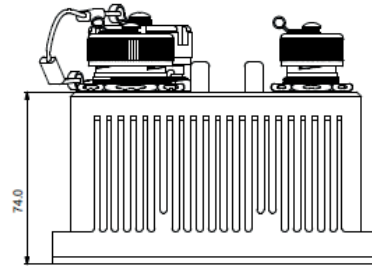
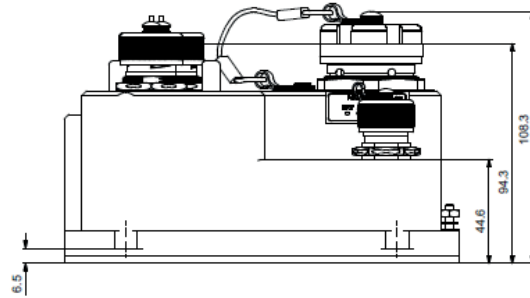
- -35°C to +75°C (-31°F to +167°F) / -35°C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



		Description
Part number	RES-GMC-1M-FORC-1	MIL-STD Rugged Gigabit Media Converter unit 1, 1x RJF connector, 1x fiber CTOS connector, MM, SX
	RES-GMC-1M-FORC-2	MIL-STD Rugged Gigabit Media Converter unit 2, 1x RJF connector, 1x fiber CTOS connector, MM, SX, remote controlled by unit 1
	CTOS drum	Please consult us

► For specific cable harnesses, please consult us.

# RES-SCE-AC-8US

## Unmanaged miniature portable Ethernet switch - 8 fast ports

Military ethernet switch for harsh environment - Fully MIL-STD compliant

Amphenol's RES-SCE-AC-8US is a MIL-STD rugged, unmanaged-military-grade Ethernet switch, offering 8 Fast Ethernet 10/100 Ports. The portable rugged Ethernet switch is intended for unmanned vehicles or man packable command post.

Developed for SWaP (Size Weight and Power) and mobile portable military applications, the RES-SCE-AC-8US features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability. The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through sealed MIL-SCE circular connectors.

Leveraging best-in-class switching technology, the RES-SCE-AC-8US serves as a robust solution for providing local area network (LAN) connectivity to IP-enabled computing and net-centric devices. Compact in size, the RES-SCE-AC-8US is particularly useful for expanding port density in space-constrained airborne and ground vehicle environments.

### Military applications

- Unmanned Vehicles
- Battlefield communication C4ISR
- Mobile communications
- Avionic & shipboard systems



SWaP

### Key features

- **Ethernet ports**
  - 8 x switched 10/100 (Fast Ethernet) ports
- **Networking**
  - Full wire-speed forwarding rate
  - Store-and-forward mechanism
  - Auto MDI-II, MDI-X
  - Auto-negotiation protocol
  - Address look-up
- **Connectors**
  - Power + LAN connector : SCE2-B-76A06-07SN-001
- **Chassis**
  - Low profile rugged aluminium extrusion
  - Conductively cooled w/ custom internal heat-sinks
  - Ingress protection against sand, dust and moisture
  - Epoxy-Polyamide Paint, Per MIL-C-83286, matt texture, color: Nato green
- **Standards**
  - MIL-STD-461E, MIL-STD-810F/G/GM, IP67/68
- **Voltage operation**
  - 5VDC (USB) INPUT, shared with LAN Port Number 1
- **Activity status**
  - Indicators for Power and LAN activity (light off by default)
  - STATUS pushbutton to turn on the indicators

**MILITARY RUGGED SWITCH**  
MIL-STD-461E  
MIL-STD-810F/G/GM  
IP68

## Product specifications

### Performance

- 128K byte of SRAM for frame buffering
- 2.0 Gbps high-performance memory bandwidth
- LED indication (speed, link/activity) per port - Optional
- Wire-speed reception and transmission
- Integrated address look-up engine
- Automatic address learning

### Standards compliance

- IEEE 802.3 10 Mbps 10BASE-T (Ethernet)
- IEEE 802.3u 100BASE-TX 100 Mbps (Fast Ethernet)
- IEEE 802.3x flow control

### Power

- Voltage input: 5Vdc nominal - Optional USB sourcing
- Power consumption: 2W typical
- Chassis grounding

### Electromagnetic

- MIL-STD-461E electromagnetic compatibility
- CE-102, CS-114, CS-115, CS-116, RE-102, RS-103

### Environmental

- MIL-STD-810F/G/GM
- Random vibration (514.5I), Bench handling (516.6VI), High temp (501.5I, II), Low temp (502.5I), Humidity (507.5II), Air pressure (500.5I, II), Blowing rain (506.5I), Immersion (512.5I), Salt atmosphere (509.5I), Blowing dust (510.5I), Loose cargo vibration (514.6II), Wind analysis
- IP67/68

### Physical

- Dimensions: 82.2mm (L) x 61.4 (W) x 26 (H), Not including connectors Dust Caps.
- Weight: 140g - Not including dust caps

### Installation

- Portable, flat for mounting to any flat surface.

### Cooling

- No moving parts. Passive cooling.

### Operating temp

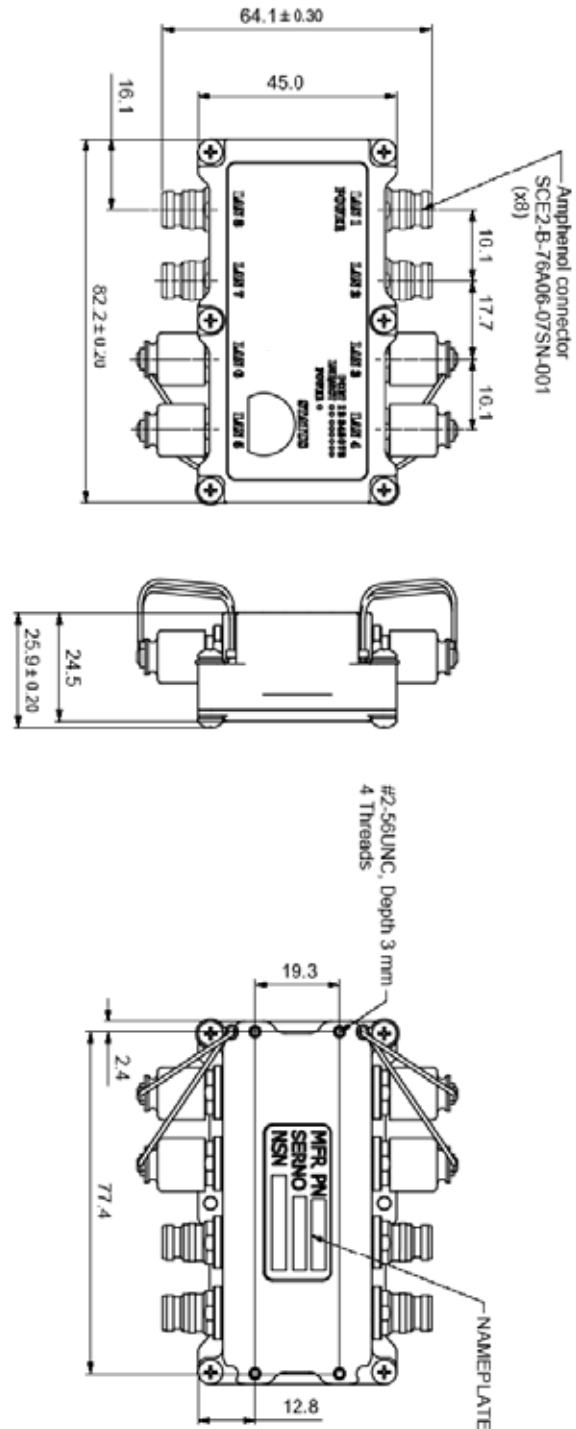
- -35°C to +75°C (-31°F to +167°F) / -35°C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



Part number code	Description
RES-SCE-AC-8BUS	MIL-STD Portable Unmanaged Ethernet switch with 8 ports 10/100TX
RES-SCE-8US-CBL-PWR-2M	Power cordset for RES-SCE-AC-8BUS, 1 side with SCE2B-L1K-0607-PN Latch release, 1 side with 1 USB civilian for power supply, cable 2m long
RES-SCE-8US-CBL-LAN-2M	LAN cordset for RES-SCE-AC-8BUS, valid for LAN 2 to 8, 1 side with SCE2B-L1K-0607-PN Latch release, 1 side with RJ45 civilian, cable RJ45FTP5E cat 5E, 2m long

► For specific cable harnesses, please consult us.



# RES-SCE-8MG

## Managed miniature portable Ethernet switch - 8 Gigabit ports

Military ethernet switch for harsh environment - Fully MIL-STD compliant

Amphenol's RES-SCE-8MG is a MIL-STD rugged, managed-military-grade Ethernet switch, offering 8 Gigabit Ethernet 10/100/1000 Ports. The portable rugged Ethernet switch is intended for unmanned vehicles or man packable command post.

Developed for SWaP (Size Weight and Power) and mobile portable military applications, the RES-SCE-8MG features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability. The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through sealed miniature circular connectors.

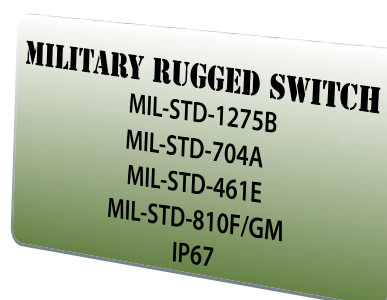
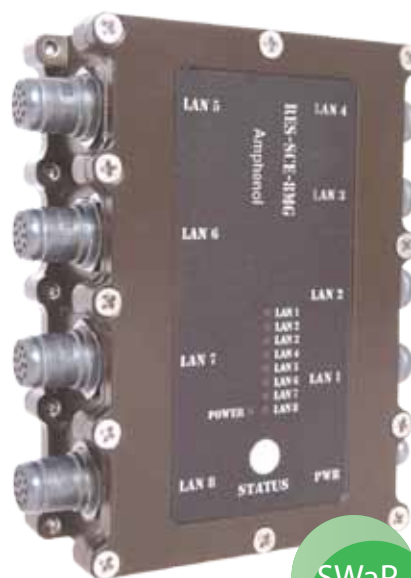
Leveraging best-in-class switching technology, the RES-SCE-8MG serves as a robust solution for providing local area network (LAN) connectivity to IP-enabled computing and net-centric devices. Compact in size, the RES-SCE-8MG is particularly useful for expanding port density in space-constrained airborne and ground vehicle environments.

### Military applications

- Unmanned Vehicles
- Battlefield communication C4ISR
- Mobile communications
- Avionic & shipboard systems

### Key features

- **Ethernet ports**
  - Managed 8 x switched 10/ 100/ 1000 ports
- **Networking**
  - Spanning Tree (802.1d), RSTP (802.1w) and multiple Spanning Tree (802.1S) for fast recovery rings
  - Security via Radius Authentication 802.1x, Port Security, Port Mirroring
  - Multicasting (IGMP Snooping), GARP, GMRP, and GVRP Broadcasting and flooding Control up to 8K Groups
  - 802.1q Tagged based VLAN up to 4K VLAN groups
  - QoS Multi-Layer Classifier, 802.1p, ToS/DSCP traffic classification. WFQ, Strict Queuing.
  - Bridge support for Q-in-Q
  - Link Aggregation 802.3AD
  - WEB, CLI, Telnet Management
- **Connectors**
  - Power connector type: SCE2-B-76A06-07SN
  - LAN connector type: SCE2-B-76A07-14SN-001
  - LED indication per port (speed, link/activity)
- **Chassis**
  - Low profile rugged aluminium extrusion
  - Conductively cooled w/ custom internal heat-sinks
  - Ingress protection against sand, dust and moisture
  - Epoxy-Polyamide Paint, Per MIL-C-83286, matt texture, color: Nato green
- **Standards**
  - MIL-STD-1275, MIL-STD-704A, MIL-STD-461E, MIL-STD-810F GM, IP67/68
- **Performance**
  - 26.8 Mpps wire speed forwarding rate
  - 20 Gbps maximum forwarding bandwidth
  - 8K MAC address
- **Activity status**
  - Indicators for Power and LAN activity (light off by default)
  - STATUS pushbutton to turn on the indicators



## Product specifications

### Standards compliance

- IEEE 802.1x MAC based Authentication
- IEEE 802.1Q Vlan Tagging
- IEEE 802.1P QoS
- IEEE 802.1S Multiple STP
- IEEE 802.1W Rapid STP
- IEEE 802.3 AD Link Aggregation

### Power

- Exceed MIL-STD-1275B Surge and Spike protection
- Voltage Input: 24Vdc Nominal (16-36 VDC)
- Power Consumption: 7.2W Max - 5W Typical
- Chassis grounding

### Electromagnetic

- MIL-STD-461E Electromagnetic compatibility
- CE-102, CS-114, CS-115, CS-116, RE-102, RS-103

### Environmental

- MIL-STD-810F/G/GM
- Random vibration (514.5I), Bench handling (516.6VI), High temp (501.5I, II), Low temp (502.5I), Humidity (507.5II), Air pressure (500.5I, II), Blowing rain (506.5I), Immersion (512.5I), Salt atmosphere (509.5I), Blowing dust (510.5I), Loose cargo vibration (514.6II), Wind analysis
- IP67/68
- RTCA/DO-160F, Low temperature 2 hours @ -55°C, operating, chap 4, cat B2
- RTCA/DO-160F, Vibrations, section 8, cat. S, curve M
- RTCA/DO-160F Shocks, cat. A, 6g, 11ms

### Physical

- Dimensions: 100mm (L) x 89 (W) x 36 (H), including connectors & hardware.
- Weight: 390g

### Installation

- Set of Four 4-40 threads on bottom for mounting to any flat surface

### Cooling

- No moving parts. Passive cooling.

### Operating temp

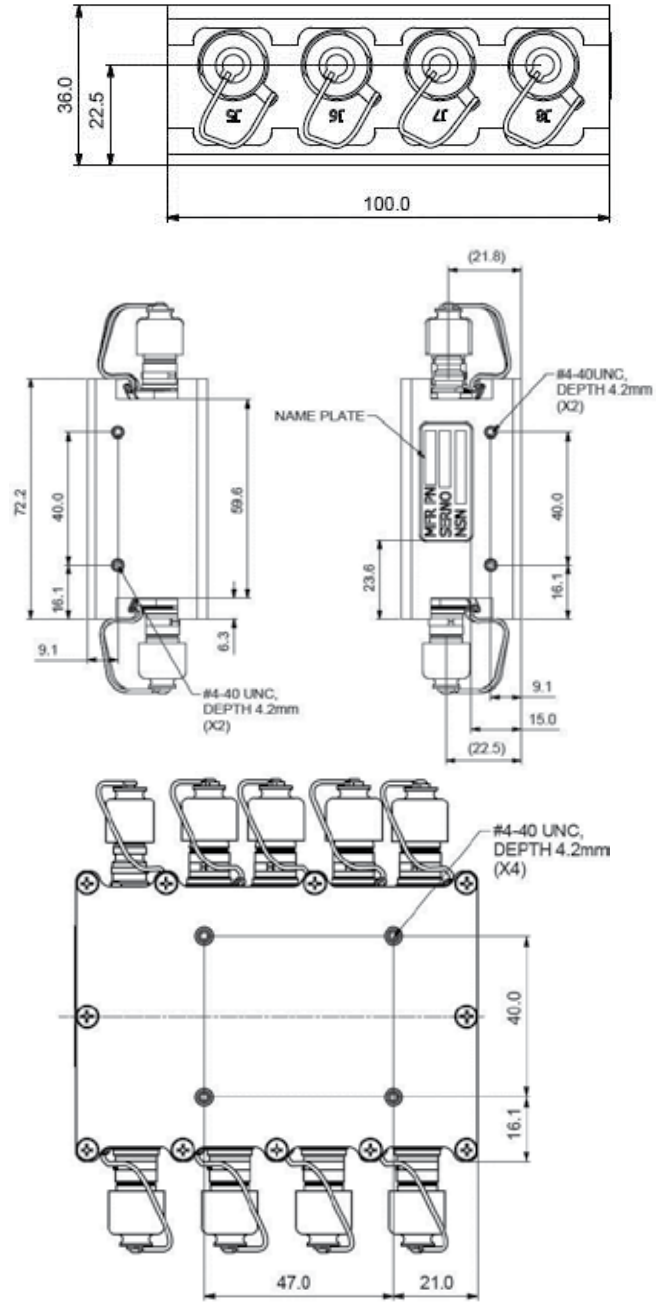
- -35°C to +75°C (-31°F to +167°F) / -35° C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



Part number code	Description
RES-SCE-8MG	MIL-STD Portable Managed Ethernet switch with 8 ports 10/100/1000TX
RES-SCE-8MG-CBL-PWR-2M	Power cordset for RES-SCE-8MG, 1 side with SCE2B-L1K-0607-PN Latch release, 1 side with 4mm plugs for power supply, cable 2m long
RES-SCE-8MG-CBL-LAN-2M	LAN cordset for RES-SCE-8MG, valid for LAN 1 to 8, 1 side with SCE2B-L1K-0714-PN Latch release, 1 side with RJ45 civilian, cable RJ45FTP5E cat 5E, 2m long

► For specific cable harnesses, please consult us.

# RESMLAC-8US-CAPS

## Unmanaged military Ethernet switch, MIL-DTL-38999 connectors 8 fast ports

Military ethernet switch for harsh environment - Fully MIL-STD compliant

Amphenol's RESMLAC-8US-CAPS is a MIL-STD rugged, unmanaged-military-grade Ethernet switch, offering 8 Fast Ethernet 10/100 Ports.

Developed for military and harsh environment applications, the RESMLAC-8US-CAPS features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability. The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through sealed MIL-D-38999 circular connectors.

Leveraging best-in-class switching technology, the RESMLAC-8US-CAPS serves as a robust solution for providing local area network (LAN) connectivity to IP-enabled computing and net-centric devices. Compact in size, the RESMLAC-8US-CAPS is particularly useful for expanding port density in space-constrained airborne and ground vehicle environments.

### Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Mobile communications
- Combat vehicles
- Avionic & shipboard systems



### Key features

- **Ethernet ports**
  - 8 x switched 10/100 (Fast Ethernet) ports
- **Networking**
  - Full wire-speed forwarding rate
  - Store-and-forward mechanism
  - Auto MDI-II, MDI-X
  - Auto-negotiation protocol
  - Address look-up
- **Connectors**
  - MIL-D-38999 (Power & Ethernet signals)
  - Power connector type: D38999/24WA98PA
  - LAN connector type: D38999/24WA35SN
- **Chassis**
  - Low profile rugged aluminium extrusion
  - Conductively cooled w/ custom internal heat-sinks
  - Ingress protection against sand, dust and moisture
  - Epoxy-Polyamide Paint, Per MIL-C-83286, matt texture, color: Nato green
- **Standards**
  - MIL-STD-1275, MIL-STD-704A, MIL-STD-461E, MIL-STD-810F GM, IP67/68
- **Voltage operation**
  - 24VDC (18VDC – 32VDC)

**MILITARY RUGGED SWITCH**  
MIL-STD-1275  
MIL-STD-704A  
MIL-STD-461E  
MIL-STD-810F/GM  
IP67  
STANAG 4370  
STANAG 2895

## Product specifications

### Performance

- 128K byte of SRAM for frame buffering
- 2.0 Gbps high-performance memory bandwidth
- 2 LED indication (speed, link/activity) per port
- Wire-speed reception and transmission
- Integrated address look-up engine
- Automatic address learning

### Standards compliance

- IEEE 802.3 10 Mbps 10BASE-T (Ethernet)
- IEEE 802.3u 100BASE-TX 100 Mbps (Fast Ethernet)
- IEEE 802.3x flow control

### Power

- MIL-STD-1275B & MIL-STD 704A surge and spike protection
- Voltage input: 24Vdc nominal (18-32V)
- Power consumption: 2.8W typical
- Chassis grounding

### Electromagnetic

- MIL-STD-461E electromagnetic compatibility
- CE-102, CS-114, CS-115, CS-116, RE-102, RS-103

### Environmental

- MIL-STD-810F, 501.4I, 501.4II, 502.4I, 502.4II, 507.4, 500.4II, 514, 516I, 516Vi, 514.5, 512.4
- IP67/68
- STANAG 4370, vibrations AECTP 400, method 401; cannon fire shocks, 6666 shocks up to 8.6g, half sine shape
- STANAG 2895, altitude 10.000m, temperature -21°C / 71°C

### Physical

- Dimensions: 269mm(L) x 133(W) x 65(H), including connectors & hardware
- Weight: 1.5 kg

### Installation

- Set of four 4x4.5 mounting holes on bottom for mounting to any flat surface.

### Cooling

- No moving parts. Passive cooling.

### Operating temp

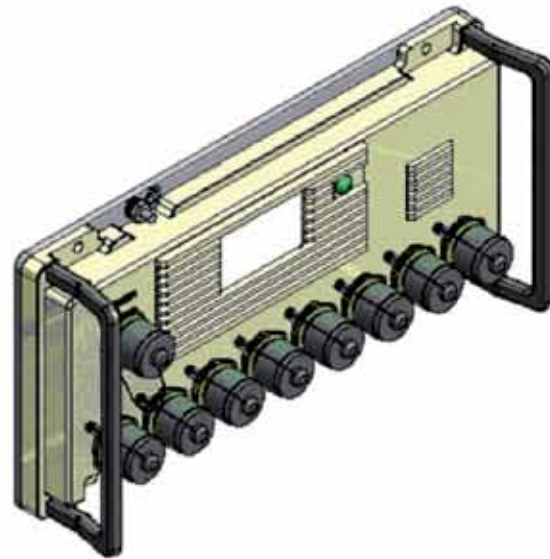
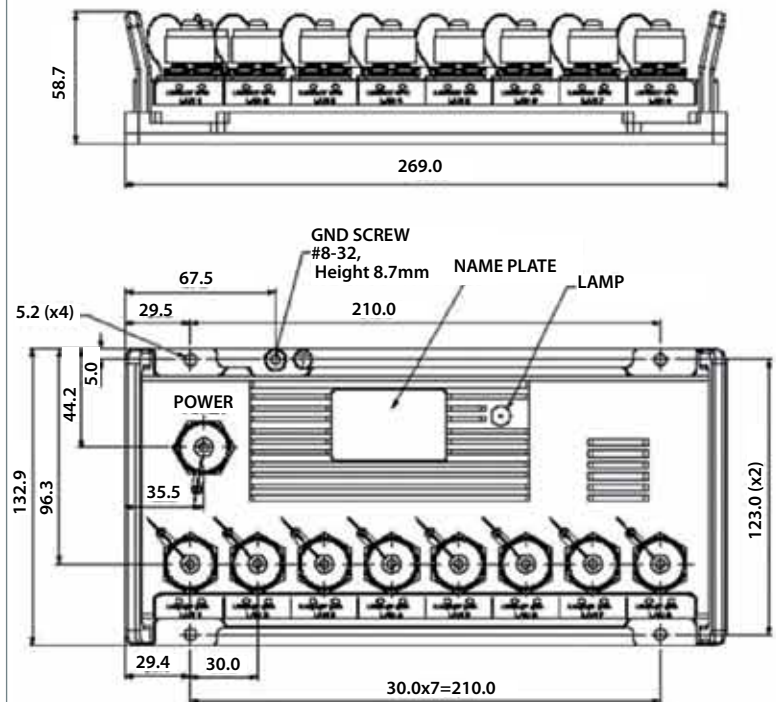
- -35°C to +75°C (-31°F to +167°F) / -35°C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



Part number code	Description
RESMLAC-8US-CAPS	MIL-STD Rugged Unmanaged Ethernet switch with 8 ports 10/100TX, color dark green
RESMLAC-8US-CAPS-SX	MIL-STD Rugged Unmanaged Ethernet switch with 8 ports 10/100TX, color black
RESMLAC-8US-CBL-PWR-2M	Power cordset for RESMLAC-8US-CAPS, 1 side with MIL-DTL-38999 plug, 1 side with 4mm plugs for power supply, cable 2m long
RESMLAC-8US-CBL-LAN-2M	LAN cordset for RESMLAC-8US-CAPS, valid for LAN 1 to 8, 1 side with MIL-DTL-38999 plug, 1 side with RJ45 civilian, cable RJFSFTP5E cat 5E, 2m long

► For specific cable harnesses, please consult us.



# RJSMLAC-8UG-CAPS

## Unmanaged military Ethernet switch, MIL-DTL-38999 connectors 8 Gigabit ports

Military ethernet switch for harsh environment - Fully MIL-STD compliant

Amphenol's RESMLAC-8UG-CAPS is a MIL-STD rugged, unmanaged-military-grade Ethernet switch, offering 8 triple speed Ethernet (10/100/1000) ports. Ethernet connectors are RJFTV, using RJField patented system that allows easy and quick assembly of any standard RJ45 cordset without any tool.

Developed for military and harsh environment applications, the RJSMLAC features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability. The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling.

Leveraging best-in-class switching technology, the RJSMLAC serves as a robust solution for providing local area network (LAN) connectivity to IP-enabled computing and net-centric devices. Compact in size, the RJSMLAC is particularly useful for expanding port density in space-constrained airborne and ground vehicle environments.

### Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Mobile communications
- Combat vehicles
- Avionic & shipboard systems



### Key features

- **Ethernet ports**
  - 8 x switched 10/100/1000 (Gigabit Ethernet) ports on RJFTV connectors
- **Networking**
  - Full wire-speed forwarding rate
  - Store-and-forward mechanism
  - Auto MDI-II, MDI-X
  - Auto-negotiation protocol
  - Address look-up
- **Connectors**
  - Power connector type: MIL-DTL-38999/24WA98PA
  - LAN connector type: RJFTV (coupling mechanism from MIL-DTL-38999)
  - LED indication per port (speed, link/activity)
- **Chassis**
  - Low profile rugged aluminium extrusion
  - Conductively cooled w/ custom internal heat-sinks
  - Ingress protection against sand, dust and moisture
  - Finish of epoxy-polyamide paint per MIL-C-83286, matt texture, color: Nato green
- **Standards**
  - MIL-STD-1275, MIL-STD-704A, MIL-STD-461E, MIL-STD-810F GM, IP67/68
- **Voltage operation**
  - 24VDC (18VDC – 32VDC)

**MILITARY RUGGED SWITCH**  
MIL-STD-1275  
MIL-STD-704A  
MIL-STD-461E  
MIL-STD-810F/GM  
IP67

## Product specifications

### Performance

- 128K byte of SRAM for frame buffering
- 2.0 Gbps high-performance memory bandwidth
- 2 LED indication (speed, link/activity) per port
- Wire-speed reception and transmission
- Integrated address look-up engine
- Automatic address learning

### Standards compliance

- IEEE 802.3 10BASE-T (Ethernet)
- IEEE 802.3u 100BASE-T (Fast Ethernet)
- IEEE 802.3ab 1000BASE-T (Gigabit Ethernet)
- IEEE 802.3x flow control

### Power

- MIL-STD-1275B & MIL-STD 704A surge and spike protection
- Voltage input: 24Vdc nominal (18-32V)
- Power consumption: 7W typical
- Chassis grounding

### Electromagnetic

- MIL-STD-461E electromagnetic compatibility
- CE-102, CS-114, CS-115, CS-116, RE-102, RS-103

### Environmental

- MIL-STD-810F, 501.4I, 501.4II, 502.4I, 502.4II, 507.4, 500.4II, 514, 516I, 516Vi, 514.5, 512.4
- IP67/68

### Physical

- Dimensions: 269mm(L) x 133(W) x 65(H), including connectors & hardware
- Weight: 1.8kg

### Installation

- Set of four 4x4.5 mounting holes on bottom for mounting to any flat surface.

### Cooling

- No moving parts. Passive cooling.

### Operating temp

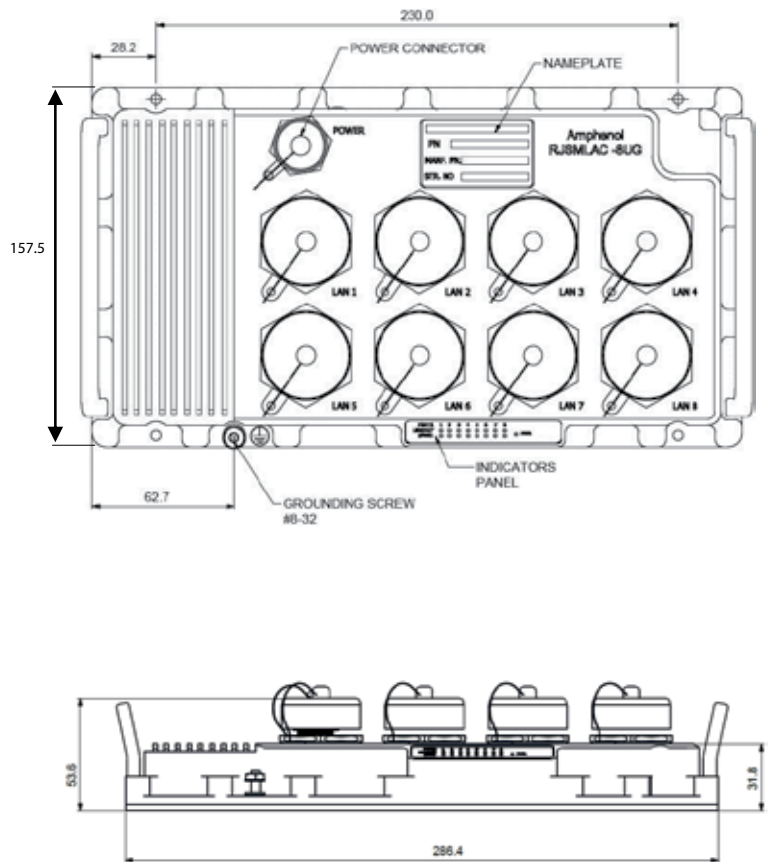
- -35°C to +75°C (-31°F to +167°F) / -35°C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



Part number code	Description
RJSMAC-8UG-CAPS	MIL-STD Rugged Unmanaged Ethernet switch with 8 ports 10/100/1000TX, powered with 18-32VDC
RJSMAC-8UG-CAPS-VAC	MIL-STD Rugged Unmanaged Ethernet switch with 8 ports 10/100/1000TX, powered with 90-265 VAC / 47-65 Hz
RJSMAC-8UG-CBL-PWR-2M	Power cordset for RJSMAC-8UG-CAPS, 1 side with MIL-DTL-38999 plug, 1 side with 4mm plugs for power supply, cable 2m long
RJSMAC-8UG-CBL-LAN-2M	LAN cordset for RJSMAC-8UG-CAPS, valid for LAN 1 to 8, 1 side with RJFTV6MG plug, 1 side with RJ45 civilian, cable RJFSFTP5E cat 5E, 2m long

► **For specific cable harnesses, please consult us.**

# RJSMLAC-8MG-CAPS

## Managed military Ethernet switch, RJFTV connectors - 8 Gigabit ports

Military ethernet switch for harsh environment - Fully MIL-STD compliant

Amphenol's RJSMLAC-8MG-CAPS is a MIL-STD Fully managed Military-grade network switch offering 8 triple speed (10/100/1000) ports. Ethernet connectors are RJFTV, using RJField patented system that allows easy and quick assembly of any standard RJ45 cordset without any tool.

Developed for military and harsh environment applications, the RJSMLAC-8MG-CAPS features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability. The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through sealed MIL-DTL-38999 circular connectors.

Leveraging best-in-class switching technology, the RJSMLAC-8MG-CAPS serves as a robust solution for providing local area network (LAN) connectivity to IP-enabled computing and net-centric devices. Compact in size, the RJSMLAC-8MG-CAPS is particularly useful for expanding port density in space-constrained airborne and ground vehicle environments.

### Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Industrial Rugged Networks
- Mobile communications
- Combat vehicles
- Avionic & shipboard systems



### Key features

- **Ethernet ports**
  - Managed 8 x switched 10/100/1000 ports on RJFTV connectors
- **Networking**
  - Spanning tree (802.1d), RSTP (802.1w) and multiple
  - Spanning tree (802.1S) for fast recovery rings
  - Security via Radius Authentication 802.1x, port security, port mirroring
  - Multicasting (IGMP Snooping), GARP, GMRP, and GVRP, Broadcasting and flooding control up to 8K groups.
  - 802.1q tagged based VLAN up to 4K VLAN groups.
  - QoS multi-layer classifier, 802.1p, ToS/DSCP traffic classification. WFQ, Strict Queuing.
  - Bridge support for Q-in-Q.
  - Link aggregation 802.3AD.
  - WEB, CLI, Telnet management.
- **Connectors**
  - Power connector type: MIL-DTL-38999/24WA98PA
  - LAN connector type: RJFTV (coupling mechanism from MIL-DTL-38999)
  - Management connector type: SCE2B 76 A 06 07 SN 001
  - LED indication per port (Speed, Link/Activity)
- **Chassis**
  - Low profile rugged aluminium extrusion
  - Conductively cooled w/custom internal heat-sinks
  - Ingress protection against sand, dust and moisture
  - Epoxy-Polyamide Paint, Per MIL-C-83286, matt texture, color: Nato green
- **Standards**
  - MIL-STD-1275, MIL-STD-704A, MIL-STD-461E,
  - MIL-STD-810F GM, IP67/68

**MILITARY RUGGED SWITCH**  
MIL-STD-1275  
MIL-STD-704A  
MIL-STD-461E  
MIL-STD-810F/GM  
IP68  
MIL-F-18870-E  
MIL-STD-167-1A  
MIL-S-901D

## Product specifications

### Voltage operation

- Standard model: 24VDC (18VDC ~ 32VDC)
- VAC model : 90-265 VAC / 47-65 Hz powered

### Performance

- 26.8 Mpps wire speed forwarding rate
- 20 Gbps maximum forwarding bandwidth
- 8K MAC address

### Standards compliance

- IEEE 802.1x MAC based authentication
- IEEE 802.1Q Vlan tagging
- IEEE 802.1P QoS
- IEEE 802.1S Multiple STP
- IEEE 802.1W Rapid STP
- IEEE 802.3AD Link aggregation

### Power

- Exceed MIL-STD-1275B surge and spike protection
- Power consumption: 7W typical
- Chassis grounding

### Electromagnetic

- MIL-STD-461E electromagnetic compatibility
- CE-102, CS-114, CS-115, CS-116, RE-102, RS-103

### Environmental : shock/vibration/humidity

- MIL-STD-810F, 501.4I, 501.4II, 502.4I, 502.4II, 507.4, 500.4II, 514, 516I, 516VI, 514.5, 512.4
- IP67/68
- MIL-F-18870-E, Temperature shock test 72 hours @ -55°C, Storage
- MIL-STD-167-1A Low frequencies Vibrations
- MIL-S-901D Lightweight shocks

### Physical

- Dimensions: 287mm(L) x 147(W) x 50(H), including connectors & hardware
- Weight: 1.8 kg

### Installation

- Set of four 4.5 mounting holes on bottom for mounting to any flat surface.
- Carrying handles

### Cooling

- No moving parts. Passive cooling.

### Operating temp

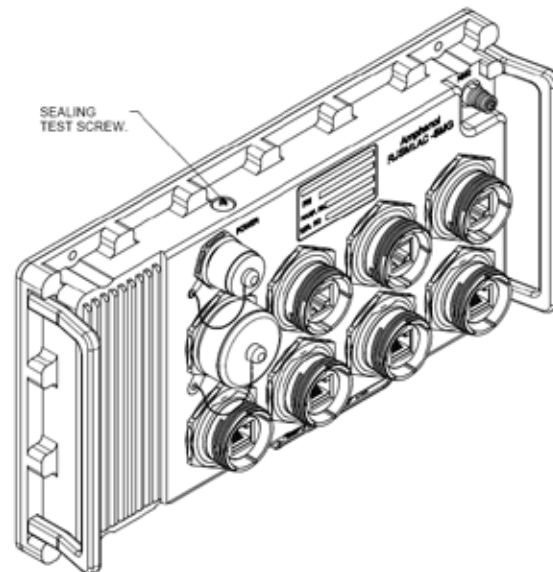
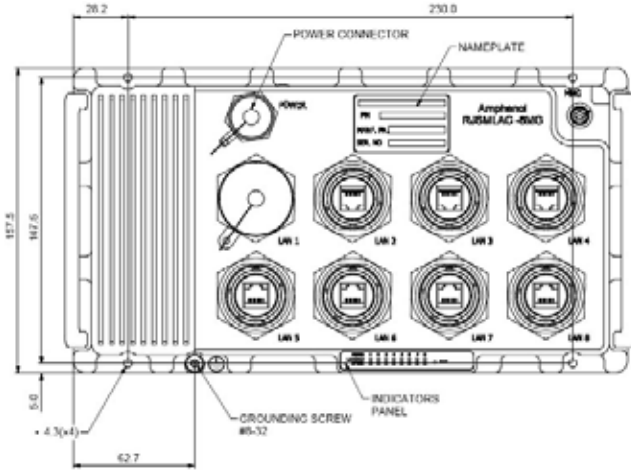
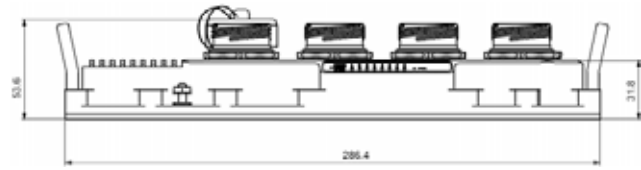
- -35°C to +75°C (-31°F to +167°F) / -35°C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



Part number code	Description
RJSMAC-8MG-CAPS	MIL-STD Rugged Managed Ethernet switch with 8 ports 10/100/1000TX, powered with 18-32VDC
RJSMAC-8MG-CAPS-VAC	MIL-STD Rugged Managed Ethernet switch with 8 ports 10/100/1000TX, powered with 90-265 VAC / 47-65 Hz
RJSMAC-8MG-CBL-PWR-2M	Power cordset for RJSMAC-8MG-CAPS, 1 side with MIL-DTL-38999 plug, 1 side with 4mm plugs for power supply, cable 2m long
RJSMAC-8MG-CBL-LAN-2M	LAN cordset for RJSMAC-8MG-CAPS, 1 side with RJFTV6MG plug, 1 side with RJ45 civilian, cable RJFSFTP5E cat 5E, 2m long
RJSMAC-8MG-CBL-MNG-2M	Management cordset for RJSMAC-8MG-CAPS, 1 side with SCE2BL1K0607PN plug, 1 side with DB-9 civilian, cable 2m long

► For specific cable harnesses, please consult us.



# RESMLAC-8MG-CAPS

## Managed military Ethernet switch, MIL-DTL-38999 connectors 8 Gigabit ports

Military ethernet switch for harsh environment - Fully MIL-STD-compliant

Amphenol's RESMLAC-8MG-CAPS is a MIL-STD fully managed Military-grade network switch offering 8 triple speed (10/100/1000) ports. Developed for military and harsh environment applications, the RESMLAC-8MG-CAPS features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability. The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through sealed MIL-DTL-38999 circular connectors.

Leveraging best-in-class switching technology from Amphenol, the RESMLAC-8MG-CAPS serves as a robust solution for providing local area network (LAN) connectivity to IP-enabled computing and net-centric devices. Compact in size, the RESMLAC-8MG-CAPS is particularly useful for expanding port density in space-constrained airborne and ground vehicle environments.

### Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Mobile communications
- Combat vehicles
- Avionic & shipboard systems



### Key features

- **Ethernet ports**
  - Managed 8 x switched 10/100/1000 ports
- **Networking**
  - Spanning tree (802.1d), RSTP (802.1w) and multiple
  - Spanning tree (802.1S) for fast recovery rings
  - Security via Radius authentication 802.1x, port security, port mirroring
  - Multicasting (IGMP Snooping), GARP, GMRP, and GVRP, Broadcasting and flooding control up to 8K groups.
  - 802.1q tagged based VLAN up to 4K VLAN groups.
  - QoS multi-layer classifier, 802.1p, ToS/DSCP traffic classification. WFQ, Strict Queuing.
  - Bridge support for Q-in-Q.
  - Link aggregation 802.3AD.
  - WEB, CLI, Telnet management.
- **Connectors**
  - Power connector type: MIL-DTL-38999/24WA98PA
  - LAN connector type: MIL-D-38999/24WB35SN
  - LED indication per port (Speed, Link/Activity)
- **Chassis**
  - Low profile rugged aluminium extrusion
  - Conductively cooled w/custom internal heat-sinks
  - Ingress protection against sand, dust and moisture
  - Epoxy-Polyamide Paint, Per MIL-C-83286, semi-gloss
- **Standards**
  - MIL-STD-1275, MIL-STD-704A, MIL-STD-461E,
  - MIL-STD-810F GM, IP67/68
- **Voltage operation**
  - 24VDC (18VDC ~ 32VDC)

**MILITARY RUGGED SWITCH**  
MIL-STD-1275  
MIL-STD-704A  
MIL-STD-461E  
MIL-STD-810F/GM  
IP67

## Product specifications

### Performance

- 26.8 Mpps wire speed forwarding rate
- 20 Gbps maximum forwarding bandwidth
- 8K MAC address

### Standards compliance

- IEEE 802.1x MAC based authentication
- IEEE 802.1Q Vlan Tagging
- IEEE 802.1P QoS
- IEEE 802.1S Multiple STP
- IEEE 802.1W Rapid STP
- IEEE 802.3AD Link aggregation

### Power

- Exceed MIL-STD-1275B surge and spike protection
- Voltage input: 24Vdc nominal (18-32V)
- Power consumption : 7W typical
- Chassis grounding

### Electromagnetic

- MIL-STD-461E electromagnetic compatibility
- CE-102, CS-114, CS-115, CS-116, RE-102, RS-103

### Environmental : shock/vibration/humidity

- MIL-STD-810F, 501.4I, 501.4II, 502.4I, 502.4II, 507.4, 500.4II, 514, 516I, 516VI, 514.5, 512.4
- IP67/68

### Physical

- Dimensions: 269mm(L) x 133(W) x 79(H), including connectors & hardware
- Weight: 1.5 kg

### Installation

- Set of four 4.5 mounting holes on bottom for mounting to any flat surface.
- Carrying handles

### Cooling

- No moving parts. Passive cooling.

### Operating temp

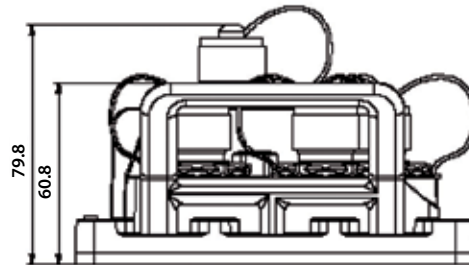
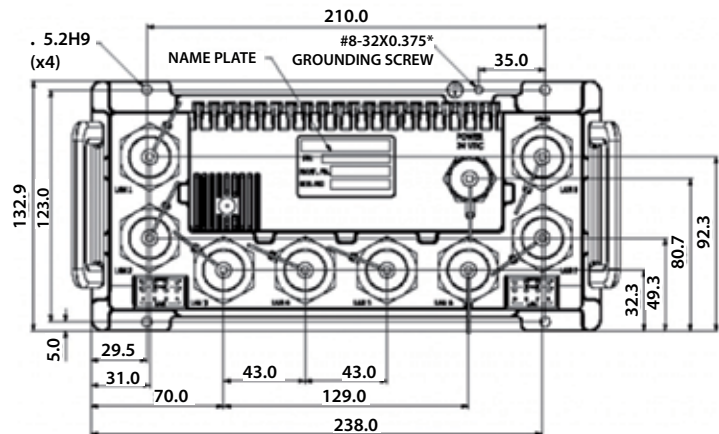
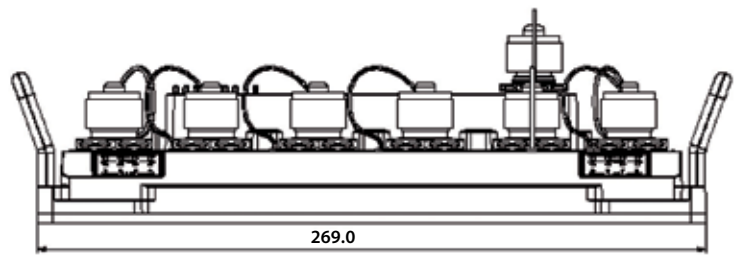
- -35°C to +75°C (-31°F to +167°F) / -35°C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



Part number code	Description
RESMLAC-8MG-CAPS	MIL-STD Rugged Managed Ethernet switch with 8 ports 10/100/1000TX, powered with 18-32VDC
RESMLAC-8MG-CBL-PWR-2M	Power cordset for RESMLAC-8MG-CAPS, 1 side with MIL-DTL-38999 plug, 1 side with 4mm plugs for power supply, cable 2m long
RESMLAC-8MG-CBL-LAN-2M	LAN cordset for RESMLAC-8MG-CAPS, 1 side with MIL-DTL-38999 plug, 1 side with RJ45 civilian, cable RJ45FTP5E cat 5E, 2m long
RESMLAC-8MG-CBL-MNG-2M	Management cordset for RESMLAC-8MG-CAPS, 1 side with MIL-DTL-38999 plug, 1 side with DB-9 civilian, cable 2m long

► For specific cable harnesses, please consult us.

# RESMLAC-8MG-CAPS-F35

## Managed military Ethernet switch, MIL-DTL-38999 connectors 8 Gigabit ports

Military ethernet switch for harsh environment - Fully MIL-STD-compliant

Amphenol's RESMLAC 8MG CAPS F35 is a MIL-STD fully managed Military-grade network switch offering 8 triple speed (10/100/1000) ports.

Developed for military and harsh avionic applications, the RESMLAC 8MG CAPS F35 features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability. The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through sealed MIL-DTL-38999 circular connectors.

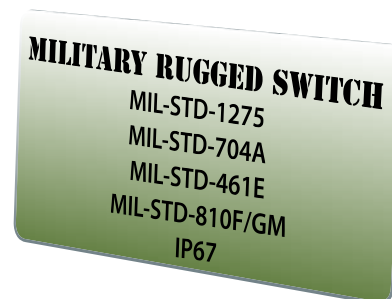
Leveraging best-in-class switching technology from Amphenol, the RESMLAC 8MG CAPS F35 serves as a robust COTS solution for providing local area network (LAN) connectivity to IP-enabled computing and net-centric devices. Compact in size, the RESMLAC 8MG CAPS F35 is particularly useful for expanding port density to tactical IP routers in space-constrained airborne and ground vehicle environments.

### Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Mobile communications
- Combat vehicles
- Avionic & shipboard systems

### Key features

- **Ethernet ports**
  - Managed 8 x switched 10/100/1000 ports
- **Networking**
  - Spanning tree (802.1d), RSTP (802.1w) and multiple
  - Spanning tree (802.1S) for fast recovery rings
  - Security via Radius authentication 802.1x, port mirroring
  - Multicasting (IGMP Snooping), GARP, GMRP, and GVRP, Broadcasting and flooding control up to 8K groups.
  - 802.1q tagged based VLAN up to 4K VLAN groups.
  - QoS multi-layer classifier, 802.1p, ToS/DSCP traffic classification. WFQ, Strict Queuing.
  - Bridge support for Q-in-Q.
  - Link aggregation 802.3AD.
  - WEB, CLI, Telnet management.
- **Connectors**
  - Power connector type: MIL-DTL-38999/24WB35PN
  - LAN connector type: MIL-D-38999/24WF35PN
  - LED indication per port (Speed, Link/Activity)
- **Chassis**
  - Low profile rugged aluminium extrusion
  - Conductively cooled w/custom internal heat-sinks
  - Ingress protection against sand, dust and moisture
  - Epoxy-Polyamide Paint, Per MIL-C-83286, semi-gloss
- **Standards**
  - MIL-STD-1275B, MIL-STD-704A, MIL-STD-461A,
  - MIL-STD-810F GM, IP67/68
- **Voltage operation**
  - Nominal 24VDC



## Product specifications

### Performance

- 26.8 Mpps wire speed forwarding rate
- 20 Gbps maximum forwarding bandwidth
- 8K MAC address

### Standards compliance

- IEEE 802.1x MAC based authentication
- IEEE 802.1Q Vlan Tagging
- IEEE 802.1P QoS
- IEEE 802.1S Multiple STP
- IEEE 802.1W Rapid STP
- IEEE 802.3AD Link aggregation

### Power

- Exceed MIL-STD-1275B surge and spike protection
- Voltage input: 24Vdc nominal (18-32V)
- Power consumption : 7W typical
- Chassis grounding

### Electromagnetic

- Exceed MIL-STD-461A electromagnetic compatibility
- RE-02, RS-03

### Environmental : shock/vibration/humidity

- MIL-STD-810F, 501.4I, 501.4II, 502.4I, 502.4II, 507.4, 500.4II, 514, 516I, 516VI, 514.5, 512.4

### Physical

- Dimensions: 209.6mm(L) x 136(W) x 44.4(H), including connectors
- Weight: 1.1 kg

### Installation

- Set of four #10-32 captive screws for mounting to any flat surface

### Cooling

- No moving parts. Passive cooling.

### Operating temp

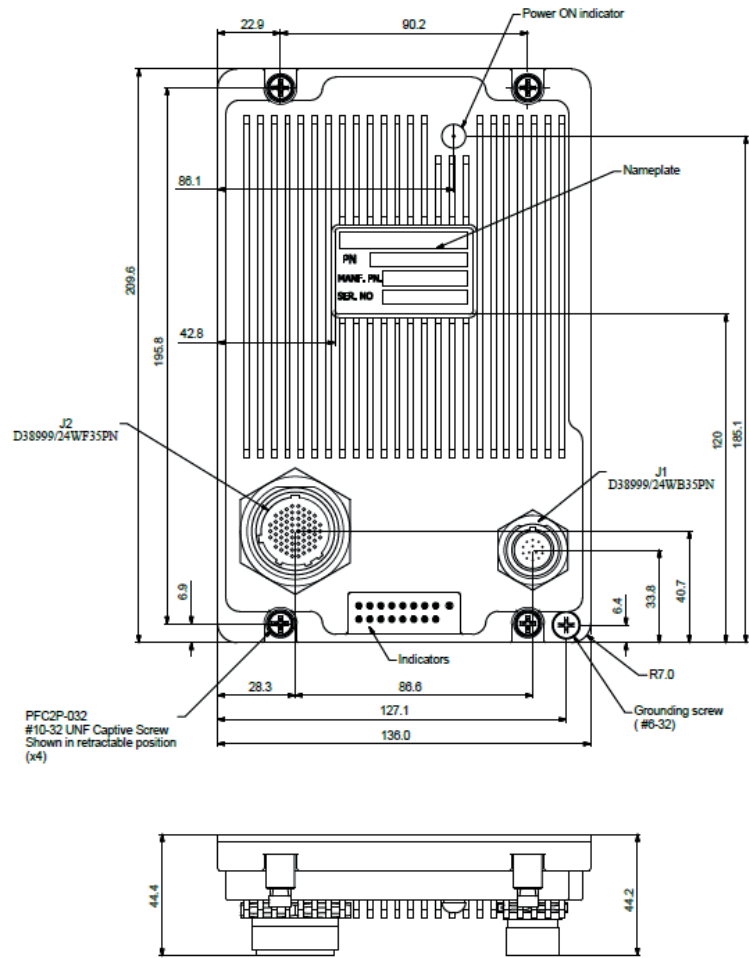
- -35°C to +75°C (-31°F to +167°F) / -35°C Cold start-up

### Storage temp

- -45°C to +85°C (-49°F to +185°F)

## Dimensional line drawing

All measurements are in millimeters



Part number code	Description
RESMLAC-8MG-CAPS-F35	MIL-STD Rugged Managed Ethernet switch with 8 ports 10/100/1000TX, powered with 18-32VDC
RESMLAC-F35-CBL-PWR-2M	Power cordset for RESMLAC-8MG-CAPS-F35, 1 side with MIL-DTL-38999 plug, 1 side with 4mm plugs for power supply, cable 2m long

► For specific cable harnesses, please consult us.

# RESMLAC-28MG

## Managed military Ethernet switch - 24 Gigabit + 4 combo 10G ports

Military ethernet switch for harsh environment - Fully MIL-STD compliant

The RESMLAC-28MG is a MIL-STD Fully managed Military-grade network switch offering 24 triple speed (10/100/1000) ports + 4 x 10G fiber ports.

The RESMLAC-28MG is compatible with all the newest military industry network protocols for redundant link topology, security, multi-cast and management requirements.

Developed specifically for military and harsh mobile applications, the RESMLAC-28MG features mechanical packaging enhancements designed for MIL-STD-810F airborne and ground environmental compliance and high reliability. The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through sealed MIL-D-38999 circular connectors and SCE.

Leveraging best-in-class switching technology, the RESMLAC-28MG serves as a robust COTS solution for providing local area network (LAN) connectivity to IP-enabled computing and net-centric devices. Compact in size, the RESMLAC-28MG is particularly useful for expanding port density to tactical IP routers in space-constrained airborne and ground vehicle environments.

### Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Mobile communications
- Combat vehicles
- Avionic & shipboard systems



### Features

#### ■ Ethernet ports

- Managed 24 x switched 10/100/1000 ports (including 4 Combo ports) + 4x10Gbps Fiber ports - Total of 28 ports.
- The 4 Combo ports provide alternative 4 ports 100/1000Base-FX ports

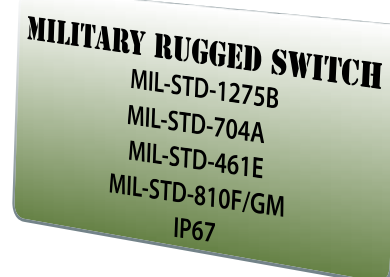
#### ■ Networking

##### General

- Wire-speed hardware-based 28 ports gigabit ethernet switch
- Multicasting (IGMP Snooping), GARP, GMRP, MLD and GVRP
- Multicast groups up to 8K for both IPv4 and IPv6
- Broadcasting and flooding control up to 8K groups
- 802.1q tagged based VLAN up to 4K VLAN groups
- Link Aggregation 802.3ad, up to 16 members in group
- Link Aggregation mechanism based on L2/ L3/ L4 parameters
- Jumbo Frame support up to 10K
- WEB, CLI, Telnet Management

##### Quality of service

- QoS Multi-Layer Classifier: 802.1p, EtherType, VLAN-ID, IPv4/ 6 DSCP/ ToS, and UDP/TCP ports & ranges traffic classification
- Per port WFQ and Strict Queuing scheduling
- DSCP remarking for both IPv4 and IPv6 frames
- Ingress policer and ingress shaper per port with 500Kbps granularity
- Egress shaper per port with 500Kbps granularity
- Full-duplex flow control (IEEE802.3X) and half-duplex backpressure, symmetric and asymmetric.





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### Security

- Security via Radius authentication 802.1x, Port/MAC access control
- Port security
- Per port ingress and egress port mirroring
- Mirroring per VLAN and per content awareness match
- Private VLAN support per VLAN (Isolated and Promiscuous ports)
- Content Aware Policers:
  - 128 Content Aware Policers
  - 16 Content Aware rate policers with rates from 1fps to 32 million fps
  - 8 UDP/TCP port range policers
  - Advanced ACL through hardware based match patterns
  - Content Aware Policers for generic MAC, ARP, IPv4, IPv6 protocols
  - No restriction on any mix of entries to Content Aware Policers
  - Content Aware Policers actions are permit/deny, police, count, snoop and mirror
  - Special support for IP fragments, UDP/TCP port ranges and ARP
  - Extensive CPU DoS prevention
  - Surveillance functions by Content Aware Policers counters
  - Multiple ACLs per port for optimal usage of Content Aware Policers
- Storm controllers for flooded broadcast, multicast and unicast

### Redundancy and ring protection

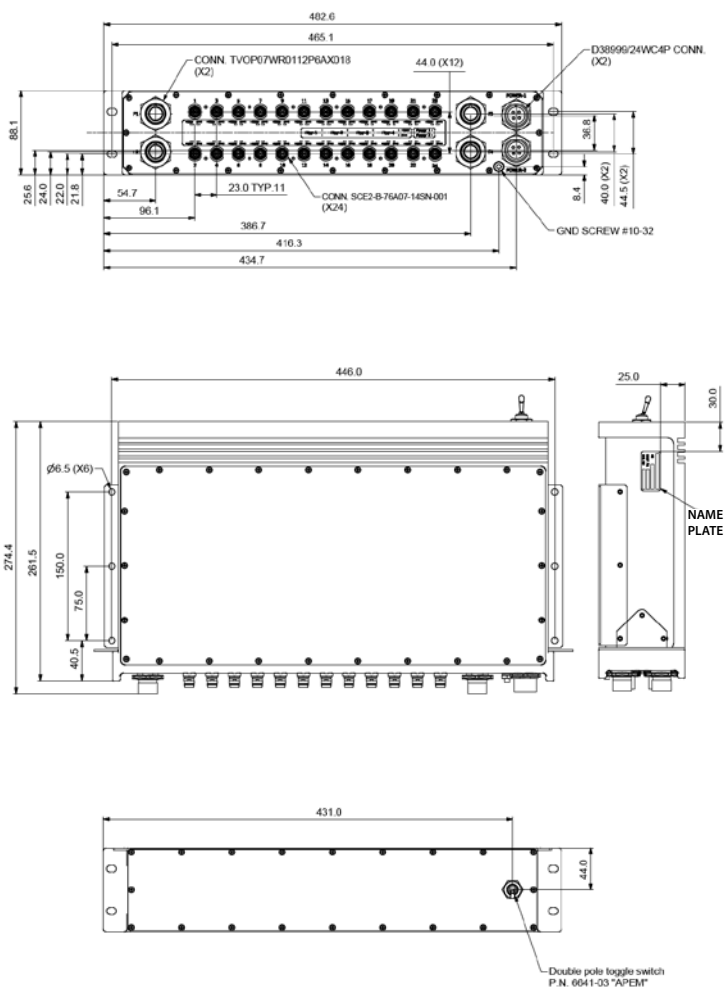
- Spanning tree (802.1d), RSTP (802.1w) and multiple Spanning tree (802.1s) for fast recovery rings
- RPR for up to 30 units per ring with recovery time <50ms hardware based
- RPR for up to 30 units per ring with recovery time <50ms hardware
- 20-Gbps bandwidth for ring topology
- QoS consistency across stack / ring
- Mirroring across stack / ring
- Link aggregation groups spanning multiple switches in stack/ring

### Connectors

- 2 x Power connector type: MIL-DTL-38999/24WC4P (1 optional)
- 24 x LAN connector type: SCE2-B-76A07-14SN-001 (4 ports are Gigabit Combo ports - 10/100/1000 or 1000FX fiber)
- Optional fiber optic connectors: TVOP (MIL-D-38999), or CTOS (STANAG 4290), or TACBEAM (M83526/20&21)
- 1 x Serial interface, shared with LAN port #1
- LED indication per Port (Speed, Link/Activity) per Unit (Power A, Power B)

### Dimensional line drawing

All measurements are in millimeters



#### ■ Chassis

- Low profile rugged aluminium extrusion
- Conductively cooled w/custom internal heat-sinks
- Ingress protection against sand, dust and moisture
- Epoxy-Polyamide Paint, Per MIL-C-83286, semi-gloss

#### ■ Standards

- MIL-STD-1275B, MIL-STD-704A, MIL-STD-461E, MIL-STD-810F GM, IP67
- Support up to 50ms holdup time, and 6VDC drops

#### ■ Performance

- 96.8 Mbps wire speed forwarding rate
- 56 Gbps maximum forwarding bandwidth
- 8K MAC address

#### ■ Power

- Exceed MIL-STD-1275B and MIL-STD-704A Surge and Spike protection with 50ms holdup time and 6VDC drops
- Voltage input:
  - VDC versions: 24VDC nominal (18-32VDC)
  - VAC versions: 90-265 VAC / 47-65 Hz
- Power consumption: 20W typical
- Chassis grounding

#### ■ Electromagnetic

- MIL-STD-461E Electromagnetic compatibility
- CE-102, CS-114, CS-115, CS-116, RE-102, RS-103

#### ■ Shock / Vibration / Humidity

- MIL-STD-810F, 501.4I, 501.4II, 502.4I, 502.4II, 507.4, 500.4II, 514, 516I, 516VI, 514.5, 512.4

#### ■ Physical

- Dimensions: 440mm (L) x 200mm (W) x 88(H), including connectors & hardware, 2U, 19" rack
- Weight: 5.6 kg

#### ■ Installation

- Set of four 4.5mm mounting holes on bottom for mounting to any flat surface
- 19" standard mounting ears

#### ■ Cooling

- No moving parts. Passive cooling.

#### ■ Operating temp

- -35°C to +75°C (-31°F to +167°F) / -35°C cold start-up

#### ■ Storage temp

- -45°C to +85°C (-49°F to +185°F)

#### Part number code

		RESMLAC-28MG	-	M	TVOP	10G	DC
<b>Fiber optic ports</b>							
(empty)	No fiber optic ports						
2	2 fiber optic ports						
4	4 fiber optic ports						
<b>Type of fiber optic</b>							
M	Multimode fiber optic, 2 ways, 50/125µm						
S	Singlemode fiber optic, 2 ways, 9/125µm						
WDM	WDM Singlemode fiber optic, 1 single way (10G only), 9/125µm						
<b>Fiber optic connectors</b>							
TVOP	TVOP connector with butt joint, MIL-D-38999						
CTOS	CTOS connector with expanded beam, for intensive use in harsh environments, STANAG 4290						
TACB	TACBEAM connector with expanded beam, M83526/20&21						
<b>Datarate for fiber optic ports</b>							
G	1000 Mbps						
10G	10G						
<b>Voltage input</b>							
DC	Unit powered with 18-36VDC						
VAC	Unit powered with 90-265 VAC / 47-65 Hz						

#### Part number code

#### Description

RESMLAC-28MG-CBL-PWR-2M	Power cordset for RESMLAC-28MG, 1 side with MIL-DTL-38999 plug, 1 side with 4mm plugs for power supply, cable 2m long
RESMLAC-28MG-CBL-MNG-2M	Management Cordset for RESMLAC-28MG, SCE2B-L1K-0714PN on one side, DB-9 female plug on the other side, length 2m
RESMLAC-28MG-CBL-LAN-2M	LAN Cordset for RESMLAC-28MG, 1 termination with SCE2B-L1K-0714PN, 1 termination with RJ45, RJFSFTP5E cat 5E cable 2m

► **For specific cable harnesses, please consult us.**

# RJSML-8US1 & RJSML-8UG1

## Unmanaged military Ethernet switch - Fast or Gigabit

Military ethernet switch for harsh environment with industrial EMI compliancy

### Sealed, rugged & unmanaged switch

Amphenol offers an unmanaged Ethernet switch with 8 gigabit ports RJSML-8UG1.

The switch can withstand a variety of extreme conditions. Whatever the situation - high temperatures, extreme shocks & vibrations, dust particles or even liquid immersion- there is a solution available.

The switch electronics are sealed within a waterproof IP68 metallic enclosure.

The conductive cadmium plating is suitable for most demanding EMI-RFI environments. Black paint is also offered when RoHS is required (other colors available).

The I/O interface includes redundant power inputs as well as waterproof rugged RJ45 connectors from the RJFTV FIELD threaded product series based on MIL-DTL-38999 (Series III) metallic shell size 19. This serie enables the transformation without tooling of any standard RJ45 cordset into a robust and waterproof connection system.

### Military applications

- Battlefield communication C4ISR
- Rugged Networks
- Mobile communications
- Avionic & shipboard systems

### Key features

- **Rugged environmental feature**
  - Rugged metal packaging with cadmium or paint protection
  - Mil-DTL-38999 III connectors for both power and Ethernet ports
  - IP65/IP68 rated when mated
  - Power filtering and protection (-704 option)
    - MIL-STD-461E (CE03) 600V spike suppressor
    - MIL-STD-704A
    - MIL-STD-1275A
    - RT CA/DO-160B
  - MIL-STD-810F shocks
  - RTCA/DO-160C Vibrations
  - Full-Duplex operation with flow control (no collisions!)
  - MIL STD 810F altitude 50,000 ft (15,000 m)
  - Auto-detecting, auto-crossover and auto-polarity
  - Broadcast storm protection
- **Models 8US1**
  - 8 ports 10/100-BaseT(X)
  - Wide operating temperature range of -40°C to 70°C
- **Models 8UG1**
  - 8 ports 10/100/1000-BaseT(X)
  - Wide operating temperature range of -10°C to 60°C
  - Supports Jumbo frame transmission up to 9kbytes
- **Models 8UG1-ET**
  - 8 ports 10/100/1000-BaseT(X)
  - Wide operating temperature range of -40°C to 70°C
  - Supports Jumbo frame transmission up to 9kbytes



**IEEE Ethernet standards**

Models	Features	802.3/u	802.3x	802.3ab
RJS XX 8US1 XX	Unmanaged - Fast	●	●	X
RJS XX 8UG1 XX	Unmanaged - Gigabit	●	●	●

IEEE 802.3/u 10 Mbps & 100 Mbps fast Ethernet

IEEE 802.3x Full-Duplex with flow control

IEEE 802.3ab 1000 Mbps Gigabit Ethernet

**Ethernet features**

**RJ45 Ports** 8 shielded RJ45 ports 10/100 BaseT(X) or 1000 Base T(X)

**Connectors for RJ45 ports** RJFTV: jam nut receptacle based on MIL-DTL-38999 III  
Olive drab cadmium or nickel plated

**RJ45 speed** 10, 100 or 1000 Mbps auto -negotiation

**Full / Half duplex** Automatic

**MDI/MDIX** Auto-crossover

**Environmental specifications**

**Safety** UL 60950-1, CAN/CSA-C22.2 No.60950

**EMI emissions** U.S.A.: FCC Part 15 CISPR 22

U.E. EN55011, EN61000-6-4, EN55022 Class A, EN61000-3-2/3, EN55024, IEC61000-4-2/3/4/5/6/8, EN61000-6-2

**Shocks** MIL-STD-810F: 40g, 11 ms, 18 saw tooth shocks

**Vibrations** RTCA/DO-160C sinusoidal vibrations 5-55 Hz: 0.01 inch; 55-500 Hz : 1.5 g

**Altitude** MIL-STD-810F: 50.000 ft - 15.000 m

**Temperature** Operating models 8UG1: -10°C to +60°C  
models 8US1: -40°C to +70°C  
models 8UG1-ET: -40°C to +70°C

Storage all models: -40°C to +85°C

**Weight** approx 2.8 kg

**Power supply**

**Input voltage** 8US1, 8UG1, & 8UG1-ET: 12-48 VDC, redundant power input (P1 and P2)

8US1-704 & 8UG1-704: 12-33 VDC, single power input (P1 only)

8US1-PSM & 8UG1-PSM: 85-264 VAC single power input

**Input power** 5 W max

**Connectors for power** MIL-DTL-38999 III jam nut receptacle, olive drab cadmium or nickel plated

1 connector TVx07xx0935P: 6 cts # 22D (wire 0.38 mm<sup>2</sup> maxi)

1 connector TVx07xx0935PA (for PSM option)

**"OK" contact output** Sourcing power ; maximum current: 1 A @ 24VDC

Not available for -704 and -PSM options

**Additional power protection for models MG7F3G-704 (option-704)**

MIL-STD-461E CE102 conducted emission

DEF-STAN-59-41 DCE01/DCE02

DEF-STAN-61-5 Pt 6

MIL-STD-704A 600V input transient, applied for 10us

MIL-STD-1275A Spikes: +/- 250 V for 100us  
Surges: 100 V for 50 ms at 0.5 mohm  
Ripple: 14VAC pk-pk

## Description

- 1 IP68 aluminium enclosure with cadmium conductive plating or black paint (RoHS)
- 2 Redundant power inputs
- 3 Balance pressure vent
- 4 8 rugged IP68 RJ45 Ethernet ports
- 5 Fixture for vertical mounting

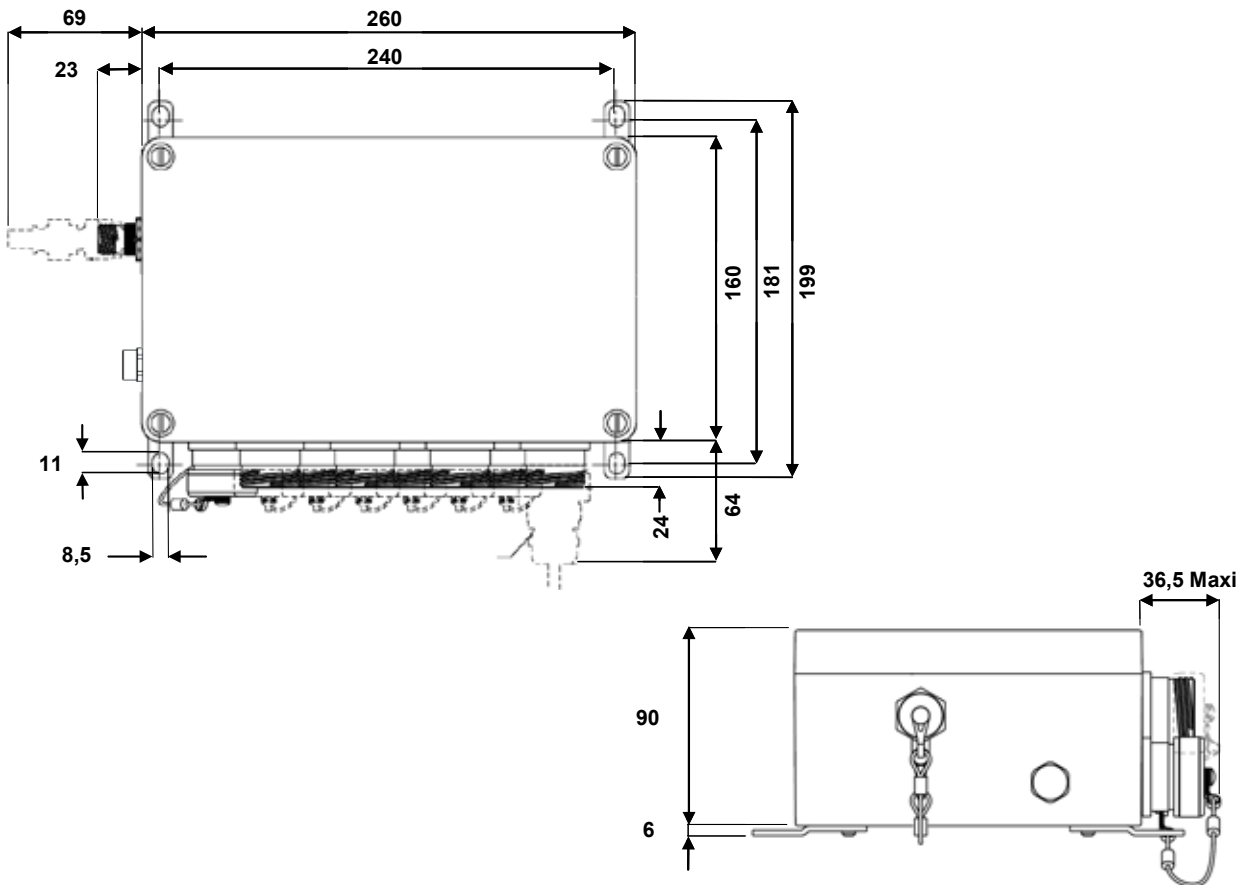
Optional caps available

### IMPORTANT NOTE

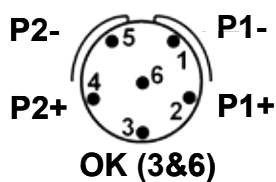
This model has no LED indicator.



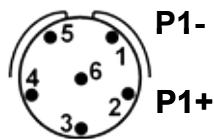
## Description (in mm)



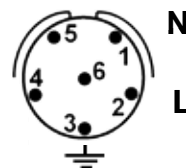
## Pin-out for the power connector



8US1, 8UG1, & 8UG1-ET  
P1 and/or P2: 12-48 VDC



8US1-704 & 8UG1-704  
P1: 12-33VDC  
3, 4, 5, 6: not connected



8US1-PSM & 8UG1-PSM  
L: 85-264 VAC  
4, 5, 6: not connected



## Part number code

Series	RJS	ML	8US1	-	-	-
<b>Type of Enclosure</b>						
<b>ML:</b> MIL-DTL-38999 (series III) Receptacles, OD Cadmium Plating						
<b>BKN:</b> RAL 9005 (Jet black) Paint on Aluminium box, Nickel plated 38999 (series III) Receptacles, ROHS compliant						
<b>Type of Electronics</b>						
<b>8US1:</b> unmanaged 8 ports 10/100 Base T(X), wide temperature range						
<b>8UG1:</b> unmanaged 8 ports 10/100/1000 Base T(X)						
<b>8UG1-ET:</b> unmanaged 8 ports 10/100/1000 Base T(X), wide temperature range						
<b>Optional: transient suppression module; 600V spike suppressor</b>						
<b>(Blank):</b> no transient suppression module						
<b>704:</b> switch equipped with additional transient suppression module						
<b>Optional: AC power supply</b>						
<b>(Blank):</b> DC powered						
<b>PSM:</b> switch powered with 85-264 VAC instead of DC power						
<b>Optional: Caps for receptacles fixed with cord directly to the receptacle</b>						
<b>(Blank):</b> no caps included. The Ethernet ports are still sealed but the contacts are not protected.						
<b>CAPS:</b> attached caps for both power and data included						

**Example:** RJS ML 8UG1 704 CAPS: unmanaged switch in an aluminum enclosure with olive drab green conductive cadmium plating, 8 gigabit ports, RJFTV threaded coupling receptacles, additional transient suppression module, caps are added to the switch

**Remark:** All BKN Ethernet switches and nickel plated accessories are RoHs compliant.

-704- and -PSM- options can not be selected together.

With the -704- option, a filter module is included inside the switch allowing to meet MIL-STD-461 and other aircraft standards.

With the -CAPS- option, all the receptacles come pre-equipped with a cap.

## Accessories

Plugs for Ethernet ports  
 RJF TV 6 M G: cadmium OD plating  
 RJF TV 6 M N: nickel plating  
 Based on MIL-DTL-38999  
 No tool required !!!



Caps for Ethernet ports  
 RJSML C7G: cadmium OD plating  
 RJSML C7N: nickel plating  
 A simple screwdriver is needed!



Plugs for I/O ports:  
 MIL-DTL-38999,  
 cadmium plated, crimp contacts  
 Two plugs (6 cts # 22D)  
 TV 06 RW 0935 S: cadmium OD plating  
 TV S06 RF 0935 S: nickel plating



Backshells for I/O plugs  
 We suggest to use MIL-DTL-38999 III backshells.  
 Consult the dedicated catalog (E118) for details.  
 Examples:  
 TVNSA 09 014 : shielding backshell, cadmium OD plating  
 TVNSA 09 023: shielding backshell, nickel plating  
 + 804221 straight heat shrink for sealing



**Example:** RJS ML 8UG1 704 CAPS

with an RJSML 8UG1 704 CAPS switch, we suggest to use hereafter accessories:

RJF TV 6 M G (up to 8) for Ethernet ports

TV 06 RW 0935 S + TVNSA 09 014 + 804221 for power port

# RJSML-8MF

## Managed military Ethernet switch - Fast

Military Ethernet switch for harsh environment with industrial EMI compliancy

### Sealed, rugged & managed switch

Amphenol offers a managed Ethernet switch with 8 fast ports RJSML-8MF1.

The switch can withstand a variety of extreme conditions. Whatever the situation - high temperatures, extreme shocks & vibrations, dust particles or even liquid immersion- there is a solution available.

The switch electronics are sealed within a waterproof IP68 metallic enclosure.

The conductive cadmium plating is suitable for most demanding EMI-RFI environments. Black paint is also offered when RoHS is required (other colors available).

The I/O interface includes redundant power inputs as well as waterproof rugged RJ45 connectors from the RJFTV FIELD threaded product series based on MIL-DTL-38999 (Series III) metallic shell size 19. This serie enables the transformation without tooling of any standard RJ45 cordset into a robust and waterproof connection system.

### Military applications

- Data Acquisition & Transmission
- Battlefield communication C4ISR
- Rugged Networks
- Mobile communications
- Test Equipment

### Key features

- 8 Fast Ethernet (10/100 Mbps) ports
- Rugged environmental feature
  - Rugged metal packaging with cadmium or paint protection
  - MIL-DTL-38999 III connectors for power
  - MIL-DTL-38999 III RJFTV connectors for Ethernet ports
  - IP65/IP68 rated when mated
- Power filtering and protection (-704 option only)
  - MIL-STD-461E (CE03) 600V spike suppression
  - MIL-STD-704A
  - MIL-STD-1275A
  - RTCA/DO-160B
- MIL-STD-810F shocks
- RTCA/DO-160C Vibrations
- Wide operating temperature range of -40°C to +70°C
- MIL-STD-810F Altitude 50,000 ft (15.000 m)

### Ethernet features

- Full-Duplex operation with flow control (no collisions!)
- Auto-detecting, auto-crossover and auto polarity
- RSTP redundant rings, Couple rings
- QoS and CoS priority queuing
- SNMP v1/V2C authentication
- IGMP for multicast filtering
- VLAN for traffic segregation
- And much more!



### IEEE Ethernet standards

- IEEE 802.3/u 10 Mbps & 100 Mbps Fast Ethernet
- IEEE 802.1p Priority queuing - QoS, CoS, ToS/DS
- IEEE 802.3x Full-Duplex with Flow Control
- IEEE 802.1D/w Rapid Spanning Tree for redundant rings
- IEEE 802.1Q VLAN for traffic segregation

### Ethernet features

- RJ45 Ports 8 shields RJ45 ports 10/100 BaseT(X)
- Connectors for RJ45 ports RJFTV: jam nut receptacle based on MIL-DTL-38999 III  
Olive drab cadmium or Nickel plated
- RJ45 speed 10 or 100 Mbps auto -negotiation
- Full / Half Duplex Automatic or Configurable
- RJ45 MDI/MDIX Auto-crossover
- RJ45 TD and RD polarity Auto-polarity
- Memory bandwidth 1.6 Gbps (backplane)
- Ethernet isolation 1500 Vrms 1 minute
- Ring features Advantech X-Ring Pro, Dual Homing, Couple Ring

### Environmental specifications

- EMI emissions EN55022 class A, FCC part 15, IC ES-003
- EMC immunity EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- Shocks MIL-STD-810F: 40g, 11ms, 18 saw tooth shocks
- Vibrations RTCA/DO-160C Sinusoidal vibrations 5-55 Hz: 0.01 inch ; 55-500 Hz: 1.5 g
- Altitude MIL-STD-810F: 50.000 ft - 15.000 m
- Temperature Operating -40°C to +70°C  
Storage -40°C to +85°C

### Weight

Approx 2.8 kg

### Power supply

- Input voltage 8MF1 12-48 VDC, redundant power input (P1 and P2)  
8MF1-704 12-33 VDC, single power input (P1 only)  
8MF1-PSM 85-264 VAC single power input
- Input power 7.6 W max
- Connectors for power MIL-DTL-38999 III jam nut receptacle, olive drab cadmium or nickel  
1 connector TVx07xx0935P: 6 cts # 22D (wire 0.38 mm<sup>2</sup> maxi)
- "OK" contact output Sourcing power ; Maximum current: 1 A @ 24VDC  
Not available for -704 and -PSM options

### Additional power protection for models 8MF1-704 (option-704)

- MIL-STD-461E CE102 Conducted emission
- DEF-STAN-59-41 DCE01/DCE02
- DEF-STAN-61-5 Pt 6
- MIL-STD-704A 600V input transient, applied for 10us
- MIL-STD-1275A Spikes: +/- 250 V for 100us  
Surges: 100 V for 50 ms at 0.5 mohm  
Ripple: 14VAC pk-pk

## Description

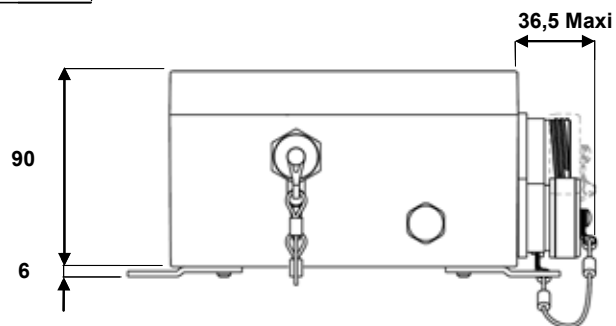
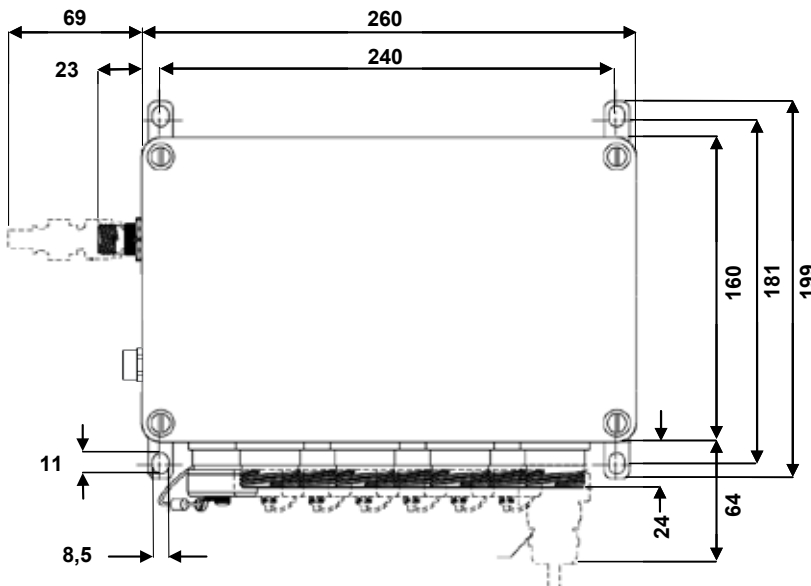
- ① IP68 Aluminum enclosure
- ② Redundant power inputs
- ③ Balance pressure vent
- ④ 8 Rugged IP68 RJ45 Ethernet ports
- ⑤ Fixture for vertical mounting
- ⑥ Optional caps available



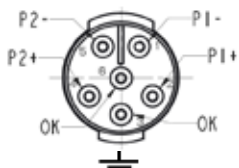
### IMPORTANT NOTE

This model has no LED indicator.  
Management is done through a web browser

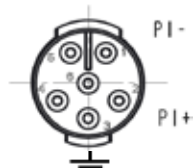
## Dimensions (in mm)



## Pin-out for the power connector



8MF1  
P1 and/or P2: 12-48VDC



8MF1-704  
P1: 12-48VDC  
3, 4, 5, 6: Not connected



8MF1-PSM  
L: 85-264 VAC  
4, 5, 6: Not connected

## Part number code

Series	RJS	ML	8MF1	-	-	CAPS
<b>Protection and color</b>						
<b>ML:</b> Olive Drab Cadmium Plating on enclosure and receptacles						
<b>BKN:</b> RAL 9005 (Jet Black) Paint on enclosure, Nickel plated receptacles, ROHS compliant						
<b>ML1019:</b> RAL 1019 (Sand) Paint on enclosure, Olive Drab Cadmium plated receptacles						
<b>BKN9010:</b> RAL 9010 (White) Paint on enclosure, Nickel plated receptacles, ROHS compliant						
<b>Type of Electronics</b>						
<b>8MF1:</b> managed 8 ports 10/100 BaseT(X) Ethernet switch						
<b>Optional: transient suppression module; 600V spike suppressor</b>						
<b>(Blank):</b> no transient suppression module (standard model)						
<b>704:</b> switch equipped with additional transient suppression module						
<b>Optional: AC power supply</b>						
<b>(Blank):</b> (standard model)						
<b>PSM:</b> switch powered with 85-264 VAC instead of DC power						
<b>Optional: Caps for receptacles fixed with cord directly to the receptacle</b>						
<b>(Blank):</b> no caps included. The Ethernet ports are still sealed but the contacts are not protected. Caps can be ordered separately.						
<b>CAPS:</b> attached caps for both power and Ethernet ports included (standard model)						

**Example:** RJS ML 8MF1 CAPS      Managed Ethernet switch in an aluminum enclosure with olive drab green conductive cadmium plating over enclosure and receptacles, 8 ports 10/100 BaseT(X) RJFTV threaded coupling receptacles, caps screwed to the switch.

### Remark:

All BKN and BKN9010 switches and nickel plated accessories are RoHS compliant.  
704 and PSM options can not be selected together.  
With the -704 option, a filter module is included inside the switch allowing to meet MIL-STD-461 and other airborne standards.  
With the -CAPS option, all the receptacles comes pre-equipped with a cap.

## Accessories

Plugs for Ethernet ports  
RJF TV 6 M G: cadmium OD plating  
RJF TV 6 M N: nickel plating  
Based on MIL-DTL-38999  
No tool required !!!



Caps for Ethernet ports  
RJSML C7G: cadmium OD plating  
RJSML C7N: Nickel plating  
A simple screwdriver is needed!



Plugs for I/O ports  
MIL-DTL-38999,  
cadmium plated, crimp contacts  
two plugs (6cts # 22D)  
TV 06 RW 0935 S: cadmium OD plating  
TV S06 RF 0935 S: nickel plating



Backshells for I/O plugs  
We suggest to use MIL-DTL-38999 III  
backshells  
Consult the dedicated catalog (E118) for  
details



**Examples:**  
TVNSA 09 014: shielding backshell, cadmium OD plating  
TVNSA 09 023: shielding backshell, nickel plating + 804221 straight heat shrink for sealing

**Example:** RJS ML 8MF1 CAPS      With a RJSML 8MF1 CAPS Ethernet switch, we suggest to use hereafter accessories:  
RJF TV 6 MG (up to 8) for Ethernet ports  
TV 06 RW 0935S + TVNSA 09 014 + 804221 heatshrink for power ports



# RJSML-MG7F3G

## Managed military Ethernet switch - 7 fast ports + 3 Gigabit ports

Military ethernet switch for harsh environment with industrial EMI compliancy

### Sealed, rugged & managed switch

Amphenol offers a 10 ports managed Ethernet switch RJSML-MG-7F3G.

Note: this model replaces the RJSML-9MG1 and the RJSML-9RG1.

The switch can withstand a variety of extreme conditions: whatever the situation - high temperatures, extreme shocks and vibrations, dust particles or even liquid immersion there is a solution available.

The switch electronics are sealed within a waterproof IP68 metallic enclosure.

The conductive cadmium plating is suitable for most demanding EMI-RFI environments. Black paint is also offered when RoHs is required (others colors available).

The I/O interface includes redundant power inputs as well as waterproof rugged RJ45 connectors from the RJF TV FIELD threaded product series based on MIL-DTL-38999 (Series III) metallic shell size 19.

This serie enables the transformation without tooling of any standard RJ45 cordset into a robust and waterproof connection system.

### Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Mobile communications
- Test equipment
- Avionic & shipboard systems

### Key features

- **Rugged environmental feature**
  - Rugged metal packaging with cadmium or paint protection
  - Mil-DTL-38999 III connectors for both power and Ethernet ports
  - IP65/IP68 rated when mated
  - Power filtering and protection (-704 option)
    - MIL-STD-461E (CE03) 600V spike suppressior
    - MIL-STD-704A
    - MIL-STD-1275A
    - RTCA/DO-160B
  - MIL-STD-810F shocks
  - RTCA/DO- 160C Vibrations
  - Wide operating temperature range of -40°C to 70°C
  - MIL-STD-810F Altitude 50,000 ft 15,000 m
- **Ethernet features**
  - 3 ports 10/100/1000-BaseT(X) + 7 ports 10/100-BaseT(X)
  - Full-Duplex operation with flow control (no collisions!)
  - Auto-detecting, auto-crossover and auto-polarity
  - MIL-STD-810F shocks
  - RSTP for redundant rings
  - QoS and CoS priority queuing
  - SNMPv3 authentication and encryption
  - IGMP for multicast filtering
  - VLAN for traffic segregation
  - And much more !



## IEEE Ethernet standards

Models	Features	802.3/u	802.3x	802.3z	802.1p	802.1D	802.1w	802.1Q
RJS XX MG 7F3G XX	Managed - Gigabit	●	●	●	●	●	●	●
IEEE 802.3/u	10 Mbps & 100 Mbps fast Ethernet			IEEE 802.1p	Priority queuing - QoS, CoS, ToS/DS			
IEEE 802.3x	Full-Duplex with flow control			IEEE 802.1D/w	Rapid spanning tree for redundant rings			
IEEE 802.3ab	1000 Mbps Gigabit Ethernet			IEEE 802.1Q	VLAN for traffic segregation			

### Ethernet features

<b>RJ45 ports</b>	10 shields RJ45 ports 10/100 BaseT(X) or 1000 Base T(X)
<b>Connectors for RJ45 ports</b>	RJFTV: jam nut receptacle based on MIL-DTL-38999 III Olive drab cadmium or Nickel plated
<b>RJ45 speed</b>	10 or 100 Mbps auto-negotiation
<b>Typical latency</b>	16 us + frame time @ 10 Mbps (varies on load and settings) 5 us + frame time @ 100 Mbps
<b>Full / Half Duplex</b>	Automatic or configurable
<b>RJ45 MDI/MDIX</b>	Auto-crossover
<b>RJ45 TD and RD polarity</b>	Auto-polarity
<b>MAC addresses supported</b>	8192
<b>Memory bandwidth</b>	32 Gbps (gigabit) ; 3.2 Gbps for all other models
<b>Ring features</b>	Link loss recovery time: 30 ms plus 5 ms per hop
<i>(for Ring model only)</i>	Maximum switches in ring: 50+ Dual Ring support

### Environmental specifications

<b>EMI emissions</b>	EN55022 class A, FCC part 15, IC ES-003
<b>EMC immunity</b>	IEC61326-1, IEEE C37.90
<b>Shocks</b>	MIL-STD-810F: 40g, 11ms, 18 saw tooth shocks
<b>Vibrations</b>	RTCA/DO-160C sinusoidal vibrations 5-55 Hz: 0.01 inch ; 55-500 Hz: 1.5 g
<b>Altitude</b>	MIL-STD-810F: 50.000 ft - 15.000 m
<b>Temperature</b>	Operating -40°C to +70°C Storage -40°C to +85°C

**Weight** approx 2.8 kg

### Power supply

<b>Input voltage</b>	MG7F3G: 10-30 VDC, redundant power input (P1 and P2) MG7F3G-704: 10-30 VDC, single power input (P1 only) MG7F3G-PSM: single power input AC or DC <ul style="list-style-type: none"> <li>- AC voltage: 85-264 VAC/Frequency 47-63 Hz</li> <li>- DC voltage: 120-370 VDC</li> </ul>
<b>Input power</b>	5 W typical (all ports active)
<b>Connectors for power</b>	MIL-DTL-38999 III jam nut receptacle, olive drab cadmium or nickel plated 1 connector TVx07xx0935P: 6 cts # 22D (wire 0.4 mm <sup>2</sup> maxi)
<b>"OK" contact output</b>	Sourcing power ; Maximum current : 0.5 A MG7F3G: ON if P1 and P2 have power and switch software is running MG7F3G-704: ON when software is running MG7F3G-PSM: ON when software is running; output power: 24VDC

### Additional power protection for models MG7F3G-704 (option-704)

MIL-STD-461E	CE102 Conducted emission
DEF-STAN-59-41	DCE01/DCE02
DEF-STAN-61-5	Pt 6
MIL-STD-704A	600V input transient, applied for 10us
MIL-STD-1275A	Spikes: +/- 250 V for 100us Surges: 100 V for 50 ms at 0.5 mohm Ripple: 14VAC pk-pk

## Description

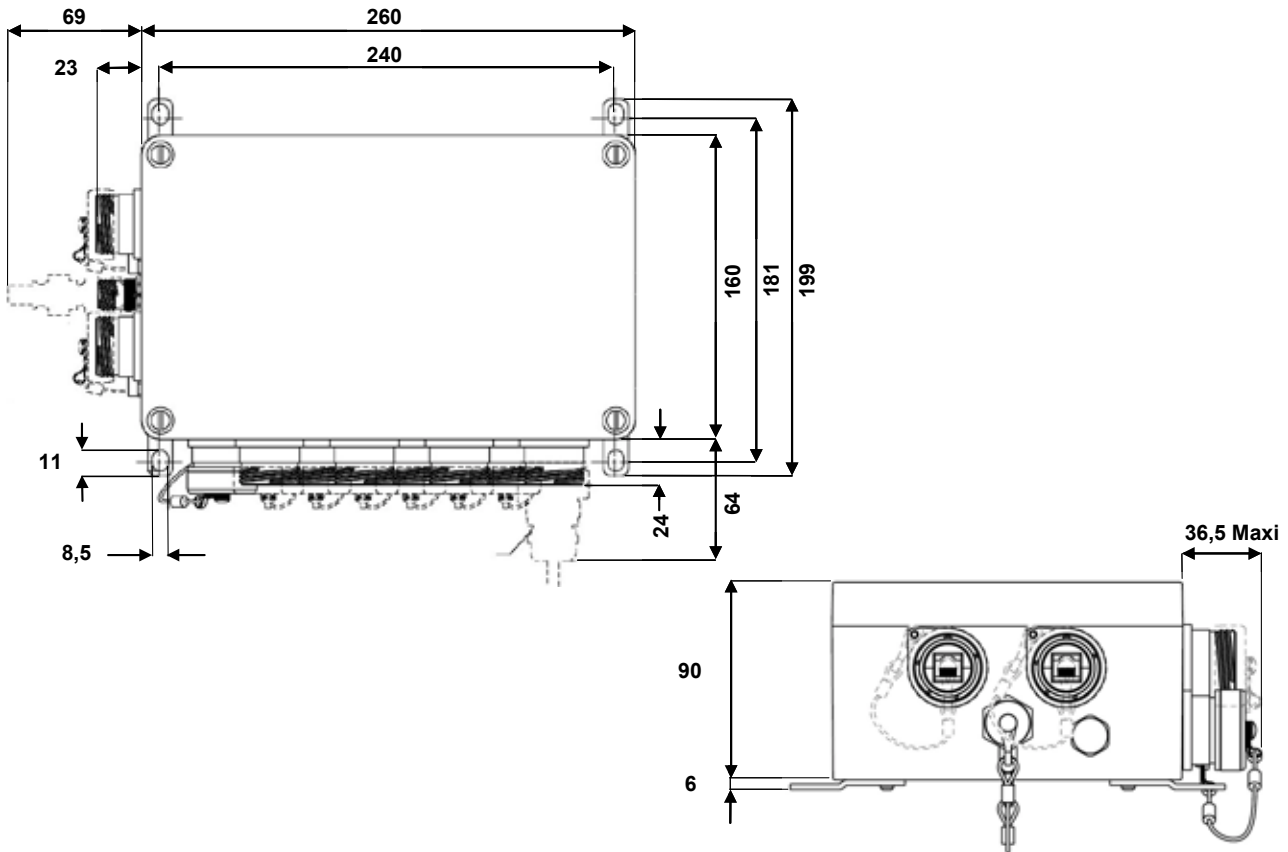
- 1 IP68 aluminium enclosure with cadmium conductive plating or black paint (RoHS)
- 2 Redundant power inputs
- 3 Balance pressure vent
- 4 10 rugged IP68 RJ45 Ethernet ports
- 5 Fixture for vertical mounting
- 6 Optional caps available



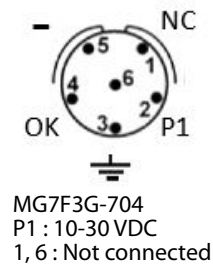
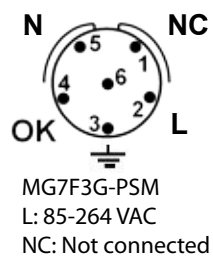
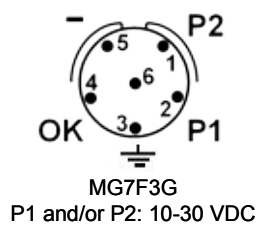
### IMPORTANT NOTE

This model has no LED indicator.  
Management is done through a web browser

## Description (in mm)



## Pin-out for the power connector



## Part number code

Series	RJS	ML	MG7F3G	-	-	-
<b>Type of Enclosure</b>						
<b>ML:</b> MIL-DTL-38999 (series III) receptacles, OD Cadmium plating						
<b>BKN:</b> RAL 9005 (jet black) paint on aluminium box, nickel plated 38999 (series III) receptacles, ROHS compliant						
<b>Type of Electronics</b>						
<b>MG7F3G:</b> managed 7 ports 10/100 Base T(X) + 3 ports 10/100/1000 BaseT(X)						
<b>Optional: transient suppression module; 600V spike suppressor</b>						
<b>(Blank):</b> no transient suppression module						
<b>704:</b> switch equipped with additional transient suppression module						
<b>Optional: AC power supply</b>						
<b>(Blank):</b> DC powered						
<b>PSM:</b> switch powered with 85-264 VAC instead of DC power						
<b>Optional: Caps for receptacles fixed with cord directly to the receptacle</b>						
<b>(Blank):</b> no caps included. The Ethernet ports are still sealed but the contacts are not protected.						
<b>CAPS:</b> attached caps for both power and data included						

**Example:** RJS ML MG7F3G 704 CAPS      Managed switch in an aluminium enclosure with olive drab green conductive cadmium plating, 7 ports 10/100 Base T(X) + 3 gigabit ports, RJF TV threaded coupling receptacles, additional transient suppression module, caps are added to the switch.

**Remark:** All BKN Ethernet switches and nickel plated accessories are RoHs compliants.  
 704 and PSM options can not be selected together.  
 With the -704 option, a filter module is included inside the switch allowing to meet MIL-STD-461 and other aircraft stan dards.  
 With the -CAPS option, all the receptacles comes pre-equipped with a cap.

## Accessories

Plugs for Ethernet ports  
 RJF TV 6 M G: cadmium OD plating  
 RJF TV 6 M N: nickel plating  
 Based on MIL-DTL-38999  
 No tool required !!!



Caps for Ethernet ports  
 RJSML C7G: cadmium OD plating  
 RJSML C7N: Nickel plating  
 A simple screwdriver is needed!



Plugs for I/O ports:  
 MIL-DTL-38999,  
 cadmium plated, crimp contacts  
 Two plugs (6 cts # 22D)  
 TV 06 RW 0935 S: cadmium OD plating  
 TV S06 RF 0935 S: nickel plating



Backshells for I/O plugs  
 We suggest to use MIL-DTL-38999 III backshells.  
 Consult the dedicated catalog (E118) for details.  
 Examples:  
 TVNSA 09 014 : shielding backshell,  
 cadmium OD plating  
 TVNSA 09 023: shielding backshell, nickel plating  
 + 804221 straight heat shrink for sealing



**Example:** RJS ML MG7F3G 704 CAPS      With a RJSML MG7F3G 704 CAPS switch, we suggest to use hereafter accessories :  
 RJF TV 6 M G (up to 10 ) for Ethernet ports  
 TV 06 RW 0935S + TVNSA 09 014 + 804221 for power ports

# Amphenol SOCAPEX



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