

# ET-8xG-MIL Industrial Ethernet Switch

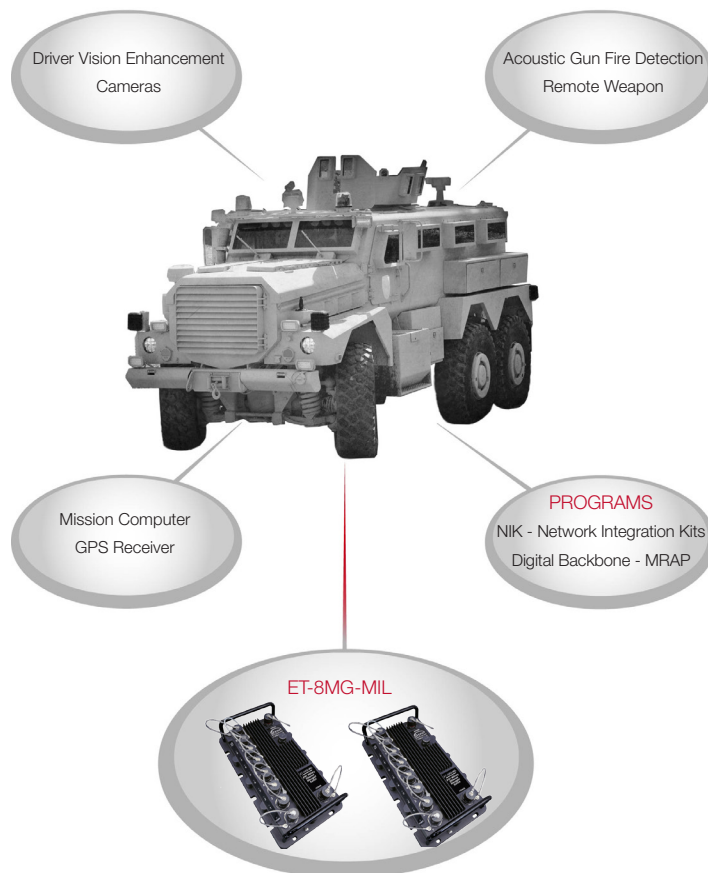
Sixnet Military Series



## ▶▶▶ Military-Rated Gigabit Industrial Connectivity

Sixnet's ET-8xG-MIL-1 is a fast (10/100/1000) managed or unmanaged Industrial Ethernet switch with military-style D38999 connectors.

These high-performance switches offer an ideal Commercial Off-The-Shelf (COTS) military solution for battlefield communications, combat vehicles and avionics shipboard as well as other industrial applications that require rugged reliability in extreme environments.



### APPLICATIONS

- > Industrial outdoors
- > Marine and maritime
- > Transportation
- > Military in-vehicle (per COTS)
- > Aerospace

### PRODUCT HIGHLIGHTS

- > 8 Gigabit Ethernet ports for 10/100/1000 Mbps links
- > IP67/NEMA 6 rated package protects against dust, water, oil, and debris
- > High-performance switch rated for MIL-STD-810F, MIL-STD-461F and MIL-STD-1275D
- > Military-rated MIL-DTL-38999 Series III connectors protect against vibration, shock and water
- > Tough corrosion-proof aluminum enclosure
- > Truly industrial -40 to +75° C operating range with conductive cooling

industrial  
networking

RoHS  
compliant



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# ▶▶▶ Military-Rated Gigabit Industrial Connectivity Features

## MILITARY STRENGTH

With military equipment subject to harsh climates, varying temperatures, shock and vibration, defense requirements are mission critical. Equipment has to be built to withstand extreme stresses without sacrificing performance. Sixnet's IP67 Ethernet switches are designed to reliably provide high-performance connectivity for the harshest defense applications. Military rated to support extreme defense conditions, our products link in-vehicle communication systems to support a host of military applications on the land, in the air and on sea. These include land vehicles, ground support facilities, missile delivery systems, bombers, aircraft, UAVs and naval vessels.

## Ultra Rugged & Compact

- Meets extreme military standards
- Provides proven reliability under field conditions
  - Fully certified MIL-STD performance
  - -40 to 75° C operating temperature
  - Tough corrosion proof aluminum case
  - Conductive cooling — no moving parts
  - Over 1,000,000 (MTBF) of trouble-free service

## Industrial COTS Solution

- Reduces time and cost for development and maintenance
- Simplifies procurement
  - Pre-tested for vibration and harsh conditions
  - Ready to ship

## Flexible Deployment Options

- Reduces crew workload
- Improves task performance
  - Direct-mounting — no need for additional enclosures and wiring
  - IP67 (NEMA 6) water-tight case enables mounting into a vehicle or an exposed wall in harsh applications
  - Low-profile chassis fits into tight spaces

## Real-Time Ethernet Performance

- Helps optimize vehicle networks
- Protects mission-critical communications
  - Fast wire-speed switching
  - Auto-speed/duplex, auto-crossover and auto-polarity
  - RSTP, SNMP, QoS/CoS, IGMR, VLAN and security options

## Ethernet Performance

- 8 Gigabit Ethernet ports for 10/100/1000 Mbps links
- Store and forward wire-speed non-blocking switching
- Managed or unmanaged models available
- All IEEE802.3 Ethernet protocols supported
- Auto-negotiation for Ethernet speed and duplex
- Auto-crossover for Ethernet MDI/MDIX wiring
- Auto-polarity for Ethernet TD and RD polarity
- Full or half-duplex operation (auto or configurable)
- 8192 MAC addresses supported
- 32 Gbps memory bandwidth
- Ethernet isolation 1500 VRMS 1 minute
- Connector: MIL-DTL-38999 series III receptacle with shell/insert style 9-9, 8 socket contacts & N keying

## Ethernet Compliance

- IEEE 802.3 (Original Ethernet 10Mbps)
- IEEE 802.3u (Fast Ethernet 100Mbps)
- IEEE 802.3z (Gigabit Ethernet 1000Mbps)
- IEEE 802.3x (Full-duplex with flow control)

## Power Input

- Connector: MIL-STD-38999 Series III receptacle with shell size A, style 98, 3 pin contacts and A keying
- Input voltage range: 18-30 VDC (continuous)
- Input power: 17 W (max. under full load)
- Reverse polarity protection
- Exceeds MIL-STD-1275 for power protection
- Surge protection: 100 volts for 1 second
- Transient protection: 15,000 watts peak
- Spike protection: 5,000 watts (10x for 10 uS) or 250 volts (50x for 100 uS)

## Environmental

- Operating temperature: -40 to +75° C (cold startup at -40° C)
- Storage temperature: -40 to +85° C
- Humidity (non-condensing) 5 to 95% RH
- Vibration, shock and freefall per MIL-STD-810F and IEC60068-2-6, -27 and -32
- Vent plug for high-altitude operation

## Physical

- Dimensions (L x W x H): 11 x 6 x 2.85" (279 x 152 x 72 mm)
- Weight (including caps): 4.25 lbs (1.9 Kg)
- IP67 dust, oil and water-tight package protection

## Standards & Compliance

- UL508/CSA C22.2/14 for electrical safety
- UL1604/CSA C22.2/213 for hazardous locations
- MIL-STD-461F for EMC performance
- MIL-STD-810F for environmental performance
- MIL-STD-1275D for power protection
- MTBF per MIL-HNDBK-217F2
  - 8EG: >1MM hours GB or 176,157 GM @ 40° C
  - 8MG: >1MM hours GB or 142,787 GM @ 40° C

## Managed Models

- USB/RS232 console port via MIL-STD-38999 series III connector with shell size A, style 35, 6 socket contacts & A keying
- Real-Time Ring™ or Rapid Spanning Tree (RSTP) for fast redundant ring or mesh networks
- Priority queuing for real-time performance
- SNMP v1 and v2 for network management
- SNMP v3 for authentication and encryption
- SNMP notifications (traps) for report on event
- IGMP v1 & v2 for IP multicast filtering
- VLAN (port & tag based) for traffic segregation
- Message filtering to stop broadcast/multicast storms
- RMON and port mirroring for diagnostics
- Configuration via secure (HTTPS) web interface, Telnet/SSH (network), terminal (RS232) or SNMP (v1, v2, v3)

## Recommended Interface Plugs

- Ethernet Plug: Aero AE90-365-BN9-9PN or Amphenol TV06RW9-9PN (without center pin)
- Power Plug: D38999/26WA98SA
- USB/RS232 Plug: D38999/26WA35PA

*All specifications are subject to change. Contact Red Lion to learn more*

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# ▶▶▶ Military-Rated Gigabit Industrial Connectivity Specifications

## ORDERING GUIDE

PART NUMBER	DESCRIPTION
ET-8EG-MIL-1	8 port unmanaged IP67 switch
ET-8MG-MIL-1	8 port managed IP67 switch
ET-CAT6M-xCG	Cordset, military-style plug to RJ45, x=meters See separate datasheet for cable specs Note: contact Sixnet for other cordset and cable options
ET-MILPWR-C2	Cordset, power plug to leads, 2 meters
ET-MIL232-C2NU	Cordset, military-style plug to 232/USB, 2 meters

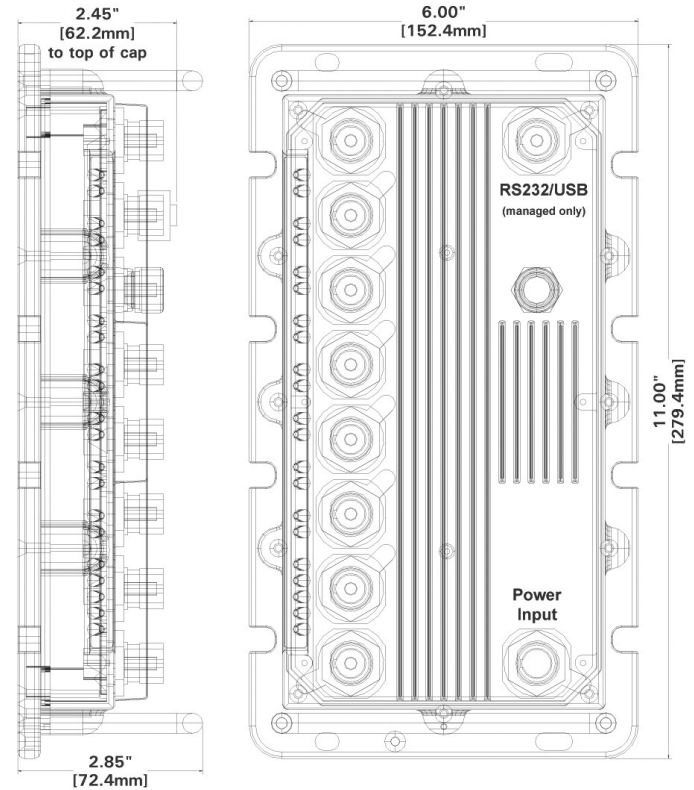
## EMI & EMC

TEST	STANDARD	SPECIFICATION
Conducted Emissions	MIL-ST-461F	CD101: Power Leads, 30Hz to 10Hz
Conducted Emissions	MIL-ST-461F	CE102: Power Leads, 10 kHz to 10 MHz
Radiated Emissions	MIL-ST-461F	RE102: Electric Field, 2 MHz to 18 GHz
Conducted Susceptibility	MIL-ST-461F	CS101: Power Leads, 30 Hz to 150 kHz
Conducted Susceptibility	MIL-ST-461F	CS114: Bulk Cable Injection, 10 kHz to 200 MHz
Conducted Susceptibility	MIL-ST-461F	CS115: Bulk Cable Injection, Impulse Excitation
Conducted Susceptibility	MIL-ST-461F	CS116: Damped Sinusoidal Transients, Cables and Power Leads, 10 kHz to 100 MHz
Radiated Susceptibility	MIL-ST-461F	RS101: Electric Field, 30 Hz to 100 kHz
Radiated Susceptibility	MIL-ST-461F	RS103: Electric Field, 2 MHz to 40 GHz (50V/m)
Ripple Test	MIL-STD-1275D	2 V Peak and 7 V Peak Ripple Test
Spike Test (Imported)	MIL-STD-1275D	+/- 250 Volt Imported Spike Test
Spike Test (Exported)	MIL-STD-1275D	Voltage Spike Exported from the EUT
Surge Test	MIL-STD-1275D	40 V and 100 V Surges

## ENVIRONMENTAL

TEST	STANDARD	SPECIFICATION
Operating Temperature	MIL-STD-810F	Methods 501.4 and 502.4: Operating Temperature
Temperature Shock	MIL-STD-810F	Method 503.4: Temperature Shock
Humidity	MIL-STD-810F	Method 507.4: Humidity
Elevation	MIL-STD-810F	Method 500.4: Elevation
Functional Shock	MIL-STD-810F	Method 516.5: Functional Shock
General Vibration	MIL-STD-810F	Method 514.5, Proc. 1: General Vibration
Steam and Water Jet	MIL-STD-108E	Paragraph 4.10 Table II: Steam and Water Jet
Leakage (Immersion)	MIL-STD-810F	Method 512.4: Leakage (Immersion)
Salt and Fog	MIL-STD-810F	Method 509.4
Sand and Dust	MIL-STD-810F	Method 510.4 Proc. 1
Explosive Atmosphere	MIL-STD-810F	Method 511.4
Acceleration Test	MIL-STD-810F	Method 513.5 Proc. 1,2,3

## DIMENSIONS



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