SIXNET®

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18-Port Industrial Ethernet Managed Switch

Ultra-Reliable and Rugged with High Density Ports plus Gigabit

2 Gigabit Ports for Copper or Fiber Connections

- Each gigabit port supports both copper and fiber links
- Auto-detecting 10/100/1000 RJ45 ports
- Gigabit fiber (SFP) connections up to 70+ km
- Plus 16 auto-detecting 10/100 RJ45 ports

Real-time Secure Performance

- Rapid Spanning Tree (RSTP) for fast redundant rings
- SNMPv1 and v2 network management
- SNMPv3 authentication & encryption for security
- SNMP notifications (traps) for report on event
- Priority Queuing (QoS/CoS) for real-time operation
- IGMP for Multicast filtering (snooping & querying)
- VLAN for convenient traffic segregation
- Open-source programming for ultimate flexibility
- Broadcast & multicast storm protection
- RMON & port mirroring for advanced diagnostics
- Security with HTTPS, SSL, SSH, SNMPv3 & more

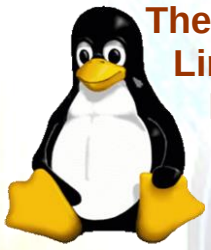
Trouble Free Operation

- Over 1,000,000 hours Mean Time Between Failures
- Twenty year support and service policy
- Free field-installable upgrades forever
- -40 to +75 °C operation – no fans or moving parts!
- Marine, offshore and hazardous locations rated
- UL, CSA (CUL), and CE certified
- Superior surge and spike protection
- Dual (redundant) power inputs
- Self-test/alarm output contact

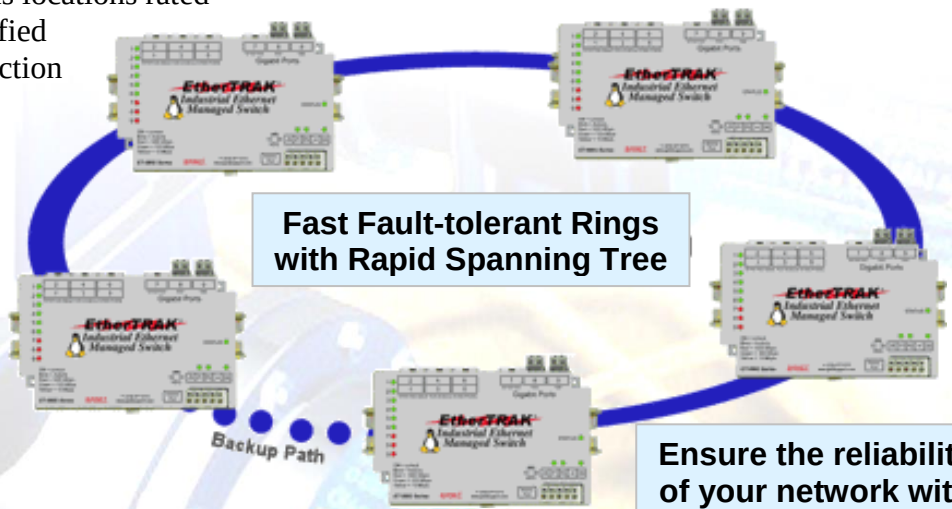
18 Ports with both Gigabit RJ45 and Fiber

Flexible Combination Gigabit Ports

Your choice – RJ45 (10/100/1000) or Fiber Optic (100 or 1000) in one product! Start with a RJ45 gigabit connection and upgrade to fiber at any time just by plugging in a fiber optic transceiver. These advanced gigabit ports make your job easier plus save you time and money!



The Power of Linux IPm Inside



Fast Fault-tolerant Rings with Rapid Spanning Tree

Ensure the reliability of your network with fast automatic switchover on a segment failure.

Certified to Perform:

- ISO9001 Certified
- Class 1, Div II & Cenelec Zone 2
- Marine & Offshore
- European Community
- UL508 for Safety
- USA/Canada Emissions
- Lead & Hazardous Substance Free

SIXNET Industrial Switches Make Your Job Easier

Why an Industrial Ethernet Switch

SIXNET switches are designed for industrial environments. Their rugged packaging and protected circuitry keep them working under conditions that will likely cause other switches to fail. Industrial applications are demanding – it gets hot, it gets cold – the power browns out or spikes wildly. You need a reliable industrial switch that can keep on going.

Enhanced Network Reliability and Performance

SIXNET managed switches detect and report network irregularities before serious problems can occur. These switches support SNMP (Simple Network Management Protocol) that allows you to monitor Ethernet and RMON statistics, and SNMP Notifications (traps) to report possible problems as they occur. Then the detailed information from these reliability-enhancing switches can point you to the source of the errors and eliminate hours of frustration while hunting down problems. These ultra-reliable switches will improve the overall performance of your network.

Fast Fault-Tolerant Redundancy

SIXNET managed switches ensure that your system stays running even after a break in a communications pathway. This is possible due to the Rapid Spanning Tree Protocol (RSTP) which lets you wire fault-tolerant loops or redundant rings within your Ethernet network. When a communications path is lost, the switches will automatically and quickly re-route messages through backup or alternate pathways.

Real-time Performance Ensures Deterministic Results

SIXNET managed switches intelligently route messages to eliminate collisions, and use priority queuing (QoS & CoS) to ensure that higher priority messages are delivered first and in real-time. This automatic capability maximizes your network performance by making sure that priority traffic such as I/O control messages are delivered without delay, giving your deterministic software the open communication channels it needs. These switches also support IGMP for IP Multicast filtering for use with industrial protocols like Ethernet/IP. Plus they support VLANs for convenient network segregation, and they automatically limit the number of broadcast and multicast messages to protect you from undesirable "broadcast storms" that can cripple your network.

Ultra-Reliability and True Industrial Performance

SIXNET managed switches are likely to provide maintenance free service for the life of your equipment. Reliability data reported from field installed units proves the amazing track record of these rugged industrial switches. On average, you will enjoy over 1,000,000 hours of trouble free operation before service is required on even one unit!

Advanced Security without Holes or Back Doors

The reality is that security is measured by its weaknesses, not its strengths. Unless your Ethernet switches have every aspect of security adequately protected, access to your network management is not secure. SIXNET managed switches make sure that you are completely secure, with no holes or “back doors” for hackers to sneak into. They include SSH (Secure Shell) for secure and encrypted terminal access, HTTPS protected web server (the same protocol used to manage many e-commerce sites), authenticated communications (user name and password), plus SNMP v3 which provides authenticated and encrypted SNMP messaging.

The LINUX Advantage - Free Industrial Computer with each SIXNET Managed Switch

The powerful IPm embedded-Linux engine is inside each SIXNET managed switch. The IPm engine provides a Linux computer with plenty of horsepower to run your own application programs. Save the expense of a separate computer and enhance the reliability of your systems through this cost-saving combination. Contact SIXNET for details.

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Performance Specifications

General	18 Ethernet ports including Gigabit	
Ethernet switch type	Fully managed	
Ethernet protocols supported	All IEEE 802.3	
RJ45 ports 1 – 16 (shielded)	10/100BaseTX	
RJ45 port 17 - 18 (shielded)	10/100/1000BaseTX	
RJ45 port speed	Auto-negotiation	
RJ45 MDI/MDIX	Auto-crossover	
RJ45 TD and RD polarity	Auto-polarity	
Ports 17 and 18 are combination gigabit ports that have both a RJ45 connector and SFP Fiber connector. For each of these ports, only one of the connectors can be used at a time.		
SFP ports 17 and 18 (pluggable)	Accepts mini-GBIC transceivers	
Fiber optic port speed	100 Mbps or 1000 Mbps	
Fiber multimode (mm) typical	50-62.5/125 um (LC connector)	
Fiber singlemode (sm) typical	9-10/125 um (LC connector)	
Fiber optic port wavelength	850 nm (mm), 1310 nm (sm) or 1550 nm (long haul sm) center	
Fiber typ. distance (full duplex) (Contact SIXNET for details)	0.55 - 1.1 km (mm); 10+ km (sm); up to 70+ km (long haul sm)	
Typical latency for 10 Mbps ports	16 us + frame time	Varies on load & settings
Typ. latency for 100 Mbps ports	5 us + frame time	
Full or half duplex operation	Configurable per port	
MAC addresses supported	8192	
Memory bandwidth	32 Gbps	
"OK" Output	Power & operational status	
Voltage	Same as switch input voltage	
Maximum current output	0.5 Amp	
Environmental	DIN rail or direct panel mounting	
Power input	Redundant input terminals	
Input power @ 24 VDC (typical with all ports active)	8 W (w/ no SFP xcvrs plugged in) 10 W (w/ 2 SFP xcvrs plugged in)	
Power input voltage	10-30 VDC	
Transient protection	15,000 watts peak	
Spike Protection	5,000 watts (10x for 10 uS)	
Ethernet isolation	1500 VRMS 1 minute	
Operating temperature range	-40 to +75 °C	
Storage temperature range	-40 to +85 °C	
Humidity (non-condensing)	5 to 95% RH	
Vibration	IEC68-2-6	
Electrical safety	UL508/CSA C22, EN61010-1	
EMI emissions	FCC part 15, ICES-003, EN55022	
EMC immunity	IEC61326-1	
Hazardous locations	UL1604, CSA C22.2/213 (Class 1, Div. 2), Cenelec EN50021 (Zone 2)	
Marine and off-shore	DNV (Det Norske Veritas)	
Eye safety (fiber models)	IEC60825-1, Class 1; FDA 21 CFR 1040.10 and 1040.11	
Packaging (high temp. Lexan & rust-free aluminum case)	IP30 protection; UL 94V-0 flame resistant packaging	
Dimensions (L x W x H)	See next page	

Specifications are subject to change. Consult factory for latest information.

Ethernet Compliance:

- IEEE 802.3z (Gigabit 1000 Mbps Ethernet connections)
- IEEE 802.3u (Fast Ethernet 100Mbps for newer devices)
- IEEE 802.3 (10Mbps Ethernet supports legacy devices)
- IEEE 802.3x (Full-Duplex with Flow Control)
- IEEE 802.1D/w (Rapid Spanning Tree for redundant rings and Spanning Tree for interoperability)
- IEEE 802.1p (Priority Queuing – QoS, CoS, ToS/DS)
- IEEE 802.1Q (VLAN for traffic segregation)

Hardware Highlights:

- 18 port truly industrial Ethernet switch with Gigabit
- Two combination Gigabit ports that support both copper and fiber for connections up to 70 km or more
- Output for reporting power and operational status
- Redundant power inputs with surge/spike protection
- Industrial rated for -40 to +75 °C operation (no fans!)
- UL/CSA, CE and Zone 2 rated for hazardous locations
- DNV tested for marine and off-shore use
- DIN rail or direct panel mounting (no extra kits required)

Networking Features:

- Auto-detecting, auto-crossover and auto-polarity
- Store and forward wire speed switching
- 32 Gbps high throughput for max speed on all ports
- Support for up to 8192 MAC addresses
- Full-Duplex operation with flow control (no collisions!)
- Rapid Spanning Tree (RSTP) for fault-tolerant loops
- 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)

Additional features are in the works and are provided through FREE Firmware Upgrades. Contact SIXNET for the latest information.

Ordering Guide

ET-18MG-1	Switch with all RJ45 copper ports (no fiber transceivers populated)
ET-18MG-MX	Switch with 1 multimode fiber transceiver populated (Up to 1.1 km; 850 nm wavelength)
ET-18MG-MM	Switch with 2 multimode fiber transceivers populated (Up to 1.1 km; 850 nm wavelength)
ET-18MG-SX	Switch with 1 singlemode fiber transceiver populated (10+ km; 1310 nm wavelength)
ET-18MG-SS	Switch with 2 singlemode fiber transceivers populated (10+ km; 1310 nm wavelength)
Note: 100Mbps, special use and long haul transceivers are available as special order. Please contact SIXNET for details.	
Accessories:	
ET-PS-024-02	Power supply – AC to 24VDC, 2A
SP-ETH-2	Dual port Ethernet surge & lightning protector for the 10/100 ports only

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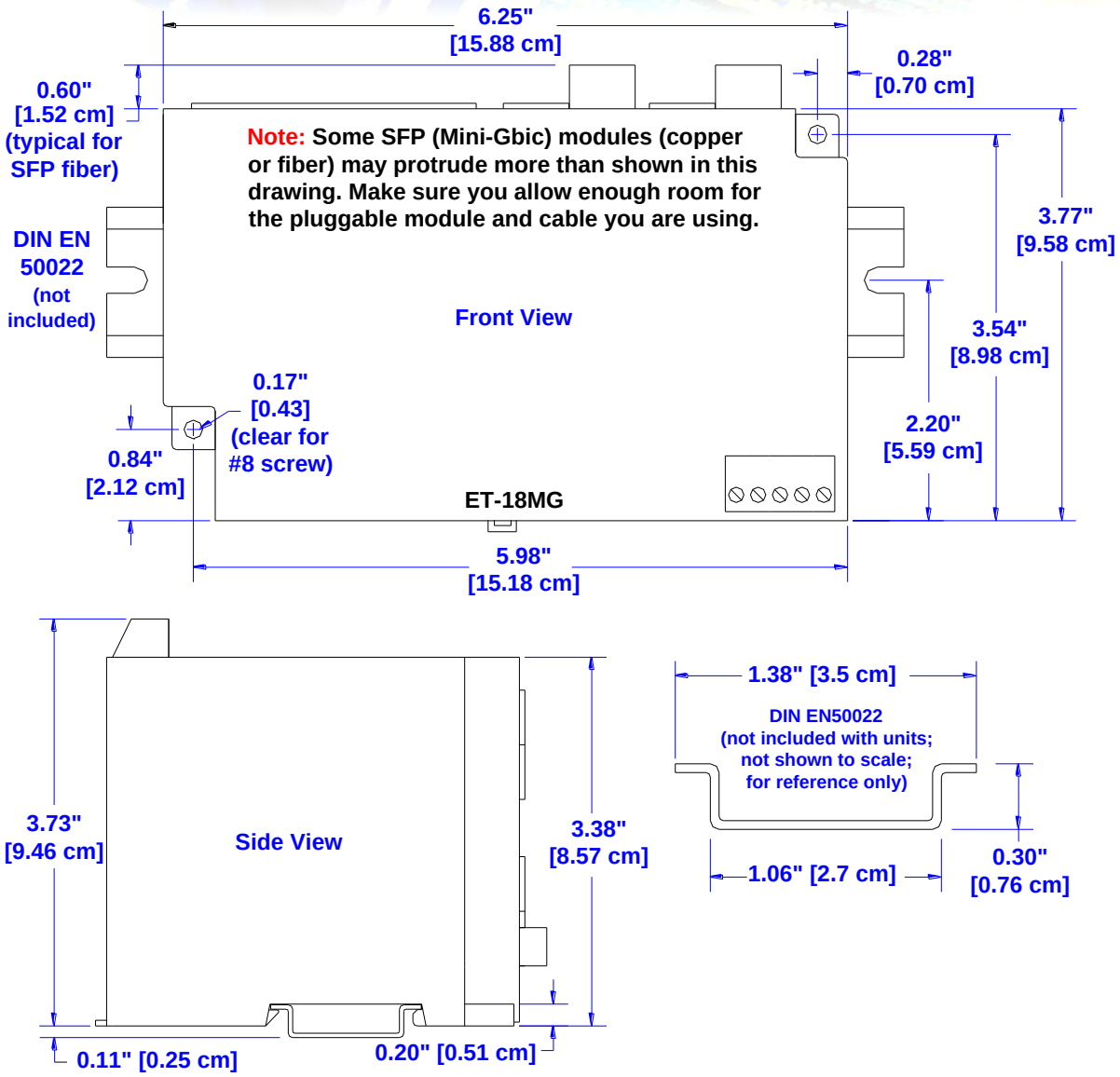
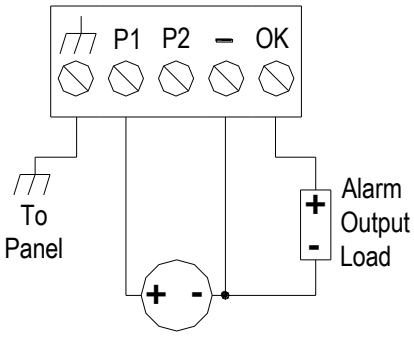
Mechanical Dimensions



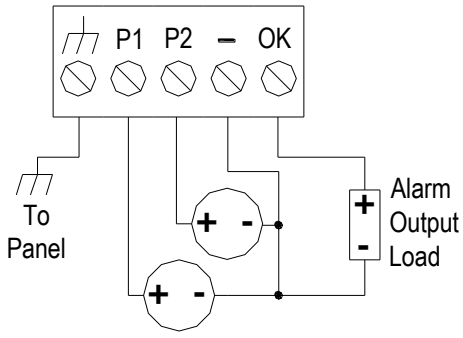
Power and Alarm Connections

Single DC Power



One DC Supply

Redundant DC Power



Dual DC Supplies

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