

# EtherDevice™ Switch EDS-518A Series

## 16+2G-Port Gigabit Managed Redundant Ethernet Switch



### Highlights

- 2 Gigabit plus 16 fast Ethernet ports for copper and fiber
- Gigabit Turbo Ring (Recovery time < 300 ms), RSTP/STP (IEEE802.1W/D) for Ethernet redundancy
- QoS, IGMP snooping/GMRP, VLAN, LACP, SNMP V1/V2c/V3, RMON supported
- Rate Limiting for bandwidth management, and broadcast storm protection
- IEEE802.1X and https/SSL to enhance network security



### Features

#### Industrial Networking Capability

- Redundant Gigabit Ethernet Ring (recovery time < 300 ms at full load) and RSTP/STP (IEEE802.1W/D)
- IGMP Snooping and GMRP for filtering multicast traffic from industrial Ethernet Protocols
- Supports IEEE802.1Q VLAN and GVRP protocol to ease network planning
- Supports QoS-IEEE802.1p/1Q and TOS/DiffServ to increase determinism
- Supports 802.3ad, LACP for optimum bandwidth utilization
- Supports IEEE802.1X and https/SSL to enhance network security
- SNMP V1/V2c/V3 for different levels of network management
- RMON for efficient network monitoring and proactive capability

#### Designed for Industrial Applications

- Bandwidth management prevents unpredictable network status
- Supports ABC-01 (Automatic Backup Configurator) for system configuration back up
- Lock port for authorized only MAC address access

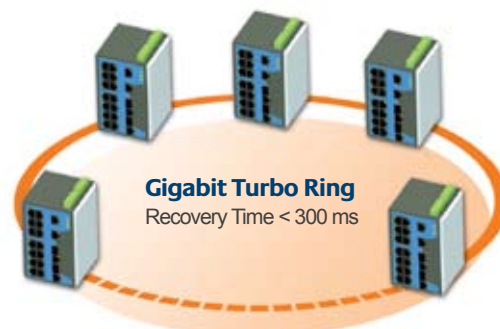
- Port mirroring for online debugging
- Automatic warning by exception through email, relay output
- Digital inputs to integrate sensors and alarms with IP networks
- Automatic recovery of connected device's IP addresses
- Line-swap fast recovery (Patented)
- Redundant, dual DC power inputs
- IP30, rugged high-strength case
- Long-haul transmit distance of 40 km or 80 km
- DIN-Rail or panel mounting capability
- Send ping commands to identify network segment integrity
- Redundant 12-45 VDC power inputs and over current protection

#### Recommended Software and Accessories

- EDS-SNMP OPC Server Pro
- DR-4524, DR-75-24, DR-120-24 DIN-Rail 24 VDC Power Supply Series

### Gigabit Ethernet Redundant Ring and Ring Coupling Capability (< 300 ms)

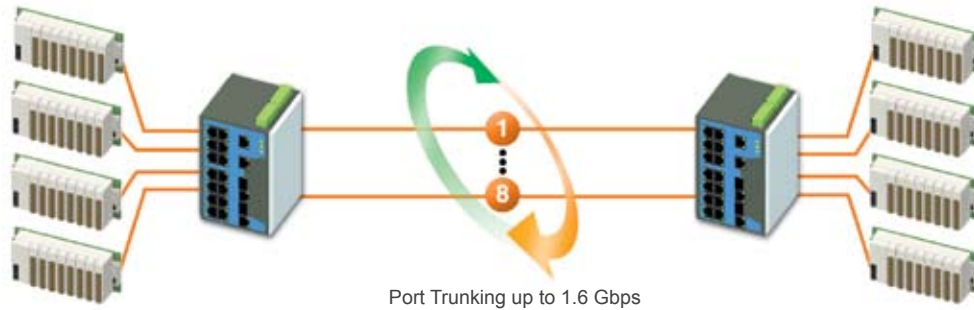
Ethernet has become the default data communications medium for industrial automation applications. In fact, it's not uncommon for video, voice, and high-rate industrial application data transfers to be integrated into one network. MOXA EDS-518A, which comes equipped with a redundant Gigabit Ethernet protocol called Gigabit Turbo Ring, gives system maintainers a convenient means of setting up a versatile yet stable Gigabit Ethernet network. With Gigabit Turbo Ring, if any segment of the network is disconnected, your automation system will be back to normal in under 300 ms.



### LACP for Flexible Network Connections

IEEE802.3ad (LACP, Link Aggregation Control Protocol), provides flexible network connections and a redundant path for critical devices. EDS-518A allows devices to communicate by

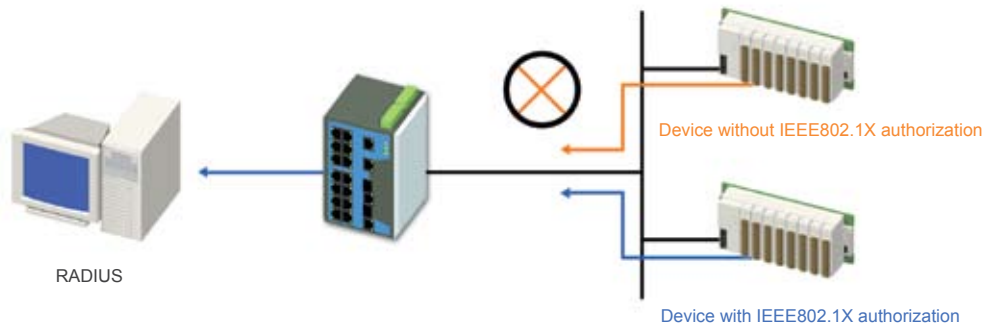
aggregating up to three links in parallel, with a maximum of 8 ports for each link for an optimal and flexible network.



### IEEE802.1X Enhances User Authentication

EDS-518A supports IEEE802.1X (Port-Based Network Access Control) to enhance user authentication. Only authorized users

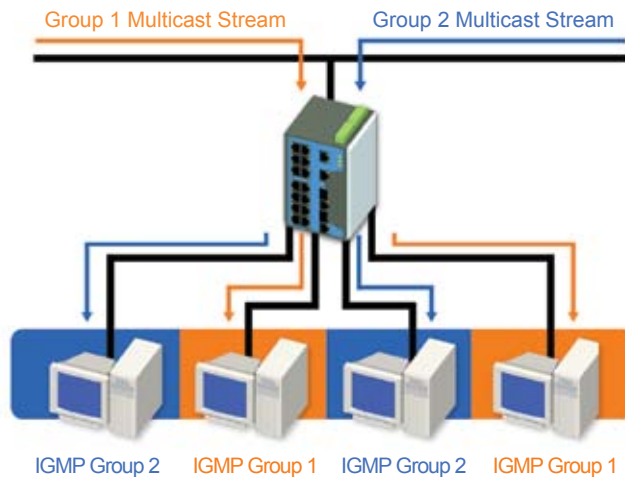
can access the port. Authentication is done using the local user database or an external RADIUS server.



### IGMP Snooping and GMRP for Filtering Multicast Traffic

EDS-518A supports IEEE802.1D-1998 GMRP (GARP Multicast Registration Protocol) and IGMP Snooping provides the ability to prune multicast traffic so that it travels only to

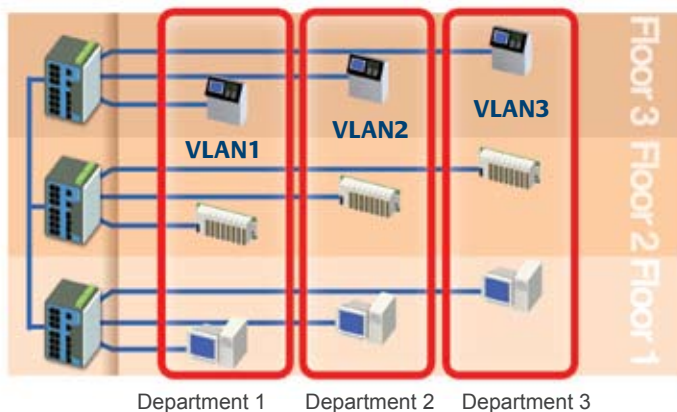
those end destinations that require this kind of traffic, reducing the amount of traffic on the Ethernet LAN.



## VLAN Eases Network Planning

VLANs can be used to segment your network without being restricted by physical connections, a limitation imposed by traditional network design. If devices belong to different VLANs, they cannot communicate with each other, providing extra

security and protection from unwanted invasion or traffic. EDS-518A supports the IEEE802.1Q standard and GVRP protocol, which can exchange the same interoperable parameters to keep consistent VLAN settings over the entire network.



## QoS Increases Determinism

Quality of Service (QoS) provides a traffic prioritization capability to ensure that important data is delivered consistently and predictably. EDS-518A Series can inspect IEEE802.1p/1Q layer 2 CoS tags, and even layer 3 TOS

information, to provide a consistent classification of the entire network. EDS-518A Series' QoS capability improves your industrial network's performance and determinism for mission critical applications.

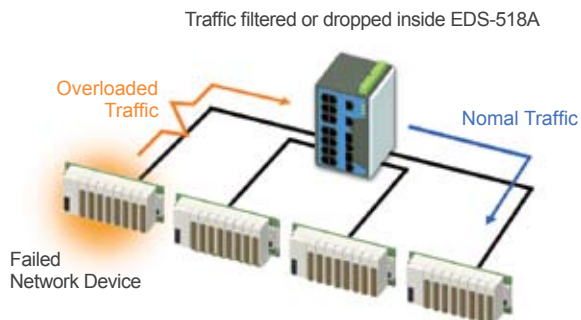
## RMON for Efficient Network Monitoring and Proactive Capability

RMON, Remote Network Monitoring, is an Internet Engineering Task Force (IETF) standard monitoring specification that allows various network agents and console systems to exchange network monitoring data. RMON provides you with comprehensive network-fault diagnosis, planning, and

performance-tuning information. It helps you manage your network in a more proactive manner. If configured correctly, RMON probes deliver information before problems occur. This means that you can take action before the problems affect users.

## Bandwidth Management Prevents Unpredictable Network Status

The EDS-518A series not only prevents broadcast storms, but also configures the ingress/egress rate of unicast/multicast/broadcast packets, and in this way gives administrators full control of limited bandwidth to prevent unpredictable faults.



## Port Mirroring for Online Monitoring

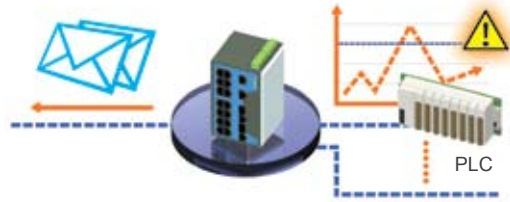
In some cases, a network is so large that it is difficult to achieve the expected communications level. Industrial communications applications use more of a command-response style than the file-transfer style used in office network environments. This means that when first setting up

an industrial Ethernet network, control engineers may need to use a second port to monitor the actual activity between their devices and computer host. EDS-518A Series' mirroring port function helps to ensure that the system behaves as expected.

### Automatic Warning by Event

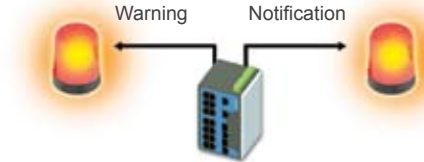
#### Warning by e-mail

The EDS-518A Series can send out a warning e-mail when an exception is detected, providing system managers with realtime alarm messages.



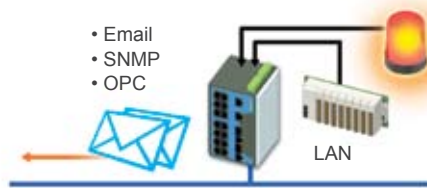
#### Warning by Relay Output

The EDS-518A Series provides two relay outputs that can be set up to indicate events with different importance to notify or warn engineers in the field, so the engineer can use the appropriate emergency maintenance procedures to respond quickly to higher priority messages.



#### DI to Integrate Other Important Sensors

With two digital inputs, the EDS-518A Series can integrate sensors into its automatic alarm mechanism, sending warning messages to an IP network by e-mail, SNMP trap, or OPC.



### Easy Browser-based Configuration

The EDS-518A series is easily configured over the network by web browser, Telnet console, or a Moxa provided Windows utility. In addition, Moxa's Batch Configurator can also be used

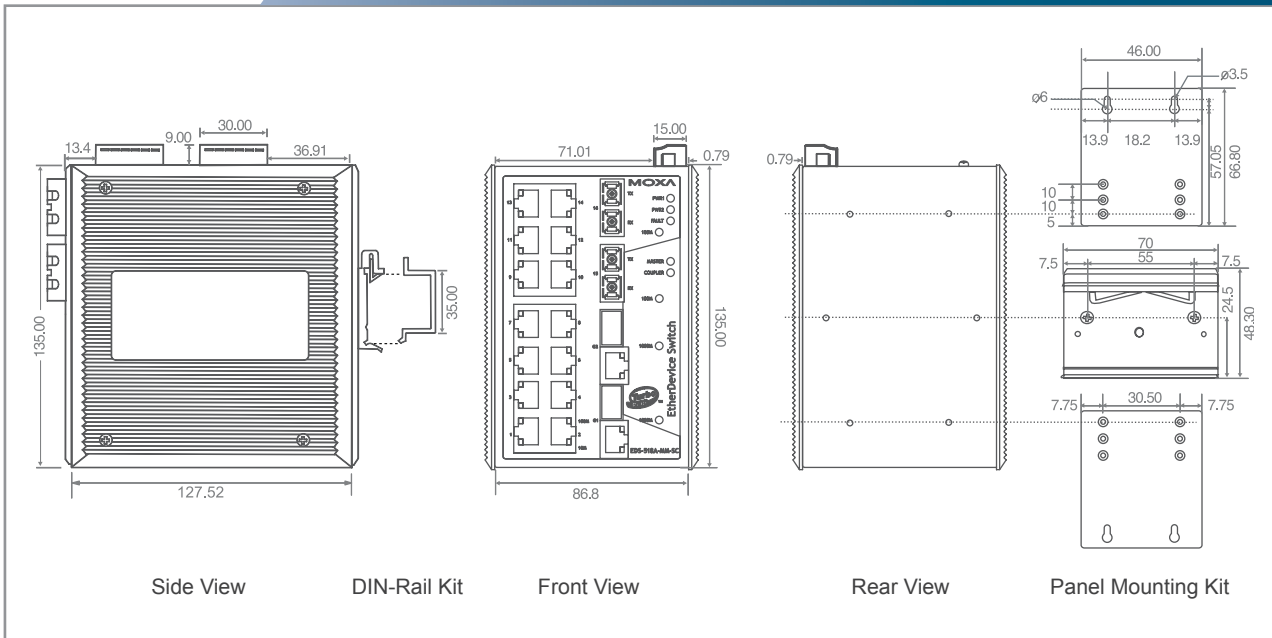
to store and copy configuration parameters to multiple EDS-518A units simultaneously.

### Network Management with EDS-SNMP OPC Server Pro

The SNMP OPC Server Pro software package can convert SNMP into OPC format. The vertical integration of SNMPManagement Information into existing OPC-based

SCADA packages gives the customer the ability to establish an Ethernet Network Management Application that is integrated with existing Visualization and Control applications.

## Dimensions (unit = mm)



## Specifications

### Technology

**Standards:** IEEE802.3, 802.3u, 802.3x, 802.1D, 802.1W, 802.1Q, 802.1p, 802.1X, 802.3ad, 802.3z

**Protocols:** IGMP V1/ V2/ V3 device, GMRP, GVRP, SNMP V1/V2c/V3, DHCP Server/Client, BootP, TFTP, SNTP, SMTP, RARP, RMON and EDS-SNMP OPC Server Pro (Optional)

**MIB:** MIB-II, Ethernet-Like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1,2,3,9

**Flow Control:** IEEE802.3x flow control, back pressure flow control

### Interface

**RJ45 Ports:** 10/100/1000BaseT(X) auto negotiation speed

**Fiber Ports:** 1000BaseFX(SC/ST connector), and optional 1000BaseSX/LX/LHX/ZX (LC connector)

**Console:** RS-232 (RJ45)

**LED Indicators:** PWR1, PWR2, FAULT, 10/100M (TP port), 100M (Fiber port), MASTER, COUPLER

**Alarm Contact:** Two relay outputs with current carrying capacity of 1A @ 24 VDC

**Digital Inputs:** Two inputs with the same ground, but electrically isolated from the electronics.

- +13 to +30V for state "1"
- -30 to +3V for state "0"
- Max. input current: 8 mA

### Optical Fiber

#### 100BaseFX

##### Distance:

Multi mode: 0 to 5 km, 1300 nm (50/125  $\mu$ m, 800 MHz\*km)  
0 to 4 km, 1300 nm (62.5/125  $\mu$ m, 500 MHz\*km)

Single mode: 0 to 40 km, 1310 nm (9/125  $\mu$ m, 3.5 PS/(nm\*km))  
0 to 80 km, 1550 nm (9/125  $\mu$ m, 19 PS/(nm\*km))

##### Min. TX Output:

Multi mode : -20 dBm

Single mode: 0 to 40 km, -5 dBm  
0 to 80 km, -5 dBm

##### Max. TX Output:

Multi mode : -14 dBm

Single mode: 0 to 40 km, 0 dBm  
0 to 80 km, 0 dBm

**Sensitivity:** -36 to -32 dBm (Single mode),  
-34 to -30 dBm (Multi mode)

#### 1000BaseSX/LX/LHX/ZX

##### Distance:

Multi mode:

- 1000BaseSX  
0 to 500 m, 850 nm (50/125  $\mu$ m, 400 MHz\*km)  
0 to 275 m, 850 nm (62.5/125  $\mu$ m, 200 MHz\*km)

- 1000BaseLX  
0 to 1100 m, 1310 nm (50/125  $\mu$ m, 800 MHz\*km)  
0 to 550 m, 1310 nm (62.5.125  $\mu$ m, 500 MHz\*km)

Single mode:

- 1000BaseLX  
0 to 10 km, 1310 nm (9/125  $\mu$ m, 3.5 PS/(nm\*km))

- 1000BaseLHX  
0 to 40 km, 1310 nm ((9/125  $\mu$ m, 3.5 PS/(nm\*km)))
- 1000BaseZX  
0 to 80 km, 1550 nm ((9/125  $\mu$ m, 19 PS/(nm\*km))

### Power

**Input Voltage:** 24 VDC (12 to 45 VDC), redundant dual inputs

**Input Current (@24V):** 0.67A (EDS-518A), 0.78A (EDS-518A-MM, EDS-518A-SS)

**Connection:** Two removable 6-pin terminal blocks

**Overload Current Protection:** Present

**Reverse Polarity Protection:** Present

### Mechanical

**Casing:** IP30 protection

**Dimensions (W x H x D):** 95 x 135 x 140 mm  
3.74 x 5.31 x 5.51 in.

**Weight:** 1630 g

**Installation:** DIN-Rail, Wall Mounting (optional kit)

### Environmental

**Operating Temperature:** 0 to 60°C (32 to 140°F)

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

**Ambient Relative Humidity:** 5 to 95% (non-condensing)

### Regulatory Approvals

**Safety:** UL60950, UL 508, CSA C22.2 No. 60950, EN60950 (Pending)

#### Hazardous location:

UL/cUL Class I, Division 2, Groups A, B, C and D  
ATEX Class I, Zone 2, EEx nC IIC (Pending)

**EMI:** FCC Part 15, CISPR (EN55022) class A,

**EMS:** EN61000-4-2 (ESD), level 3  
EN61000-4-3 (RS), level 3  
EN61000-4-4 (EFT), level 2  
EN61000-4-5 (Surge), level 3  
EN61000-4-6 (CS), level 3  
EN61000-4-8  
EN61000-4-11  
EN61000-4-12

**Shock:** IEC60068-2-27

**Freefall:** IEC60068-2-32

**Vibration:** IEC60068-2-6

### Warranty

5 years

## Ordering Information

EDS-518A-AA-BB-CC-E

Ordering Code Definition	Fiber Port	FO Connector	Single Mode Distance	Operating Temperature
	<b>MM:</b> Two Multi Mode <b>SS:</b> Two Single Mode	<b>SC:</b> SC Connector <b>ST:</b> ST Connector	<b>80:</b> 80 km	<b>T:</b> Operating Temp. -40 to 75°C * Standard Models: 0 to 60°C
Available Models	<b>Standard:</b> <ul style="list-style-type: none"> <li>• EDS-518A</li> <li>• EDS-518A-MM-SC</li> <li>• EDS-518A-MM-ST</li> <li>• EDS-518A-SS-SC</li> </ul>		<b>Long-Haul:</b> <ul style="list-style-type: none"> <li>• EDS-518A-SS-SC-80</li> </ul>	
Optional Accessories	<ul style="list-style-type: none"> <li>• <b>DR-4524:</b> 45W/2A DIN-Rail 24 VDC Power Supply, 85 to 264 VAC input</li> <li>• <b>DR-75-24:</b> 75W/3.2A DIN-Rail 24 VDC Power Supply, 85 to 264 VAC input</li> <li>• <b>DR-120-24:</b> 120W/5A DIN-Rail 24 VDC Power Supply, 88 to 132 VAC/176 to 264 VAC input by switch</li> <li>• <b>WK-46:</b> Wall Mounting Kit</li> </ul>			

\* For detailed information, check the above specifications.

### Gigabit Ethernet Modules for EDS-518A, SFP-1G Series

SFP-AAGBBCC

Ordering Code Definition	Number of Ports	Fiber Ports	FO Connector
	<b>1:</b> One fiber port	<b>SX:</b> 1000BaseSX port, 0.5 km <b>LX:</b> 1000BaseLX port, 10 km <b>LHX:</b> 1000BaseLHX port, 40 km <b>ZX:</b> 1000BaseZX port, 80 km	<b>LC:</b> LC Connector
Available Models	<b>Standard:</b> <ul style="list-style-type: none"> <li>• SFP-1GSXLC</li> <li>• SFP-1GLXLC</li> </ul>	<b>Long-Haul (40 km):</b> <ul style="list-style-type: none"> <li>• SFP-1GLHXLC</li> </ul>	<b>Long-Haul (80 km):</b> <ul style="list-style-type: none"> <li>• SFP-1GZXLC</li> </ul>
* For detailed information, check the above specifications.			