

EtherDevice™ Switch EDS-508A/505A Series

Industrial 8- and 5-Port Advanced Managed Ethernet Switches



Highlights

- Plug-n-play 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
- Customer configured e-mail notification by exception
- User-friendly web-based configuration and management
- -40 to 75°C operating temperature (-T models)



Features

Advanced Industrial Networking Capability

- Plug-n-Play, Redundant 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
- Supports port-based VLAN, 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
- Port Trunking for optimum bandwidth utilization
- RMON for efficient network monitoring and proactive capability
- SNMP V1/V2c/V3 for different levels of network management security
- Supports IEEE802.1X and https/SSL to enhance network security

Designed for Industrial Applications

- Bandwidth management prevents unpredictable network status
- Supports ABC-01 (Automatic Backup Configurator) for system configuration back up.

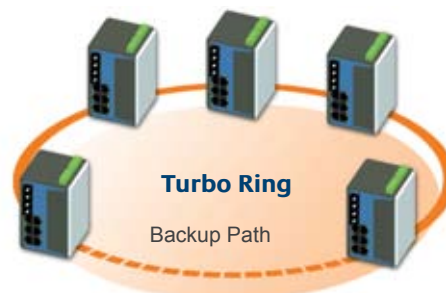
Easy Browser-based Configuration

For industrial automation applications, redundancy is an important issue to help increase the reliability of your system. MOXA EtherDevice™ Redundant Switch EDS-508A/505A comes equipped with a redundant network protocol called Turbo Ring that was developed by Moxa. Turbo Ring gives users an easy way to establish a redundant Ethernet network, and with its ultra high-speed recovery time, once any segment of your network is disconnected, your automation system will be back to normal in less than 300 ms.

- 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
- -40 to 75°C operating temperature range
- IP30, rugged high-strength case
- Long-haul transmit distance of 40 km or 80 km
- DIN-Rail or panel mounting ability
- Configurable by Web browser, Telnet/Serial console, Windows utility
- Send ping commands to identify network segment integrity

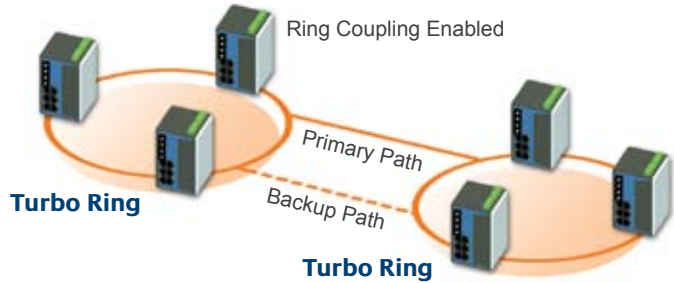
Recommended Software and Accessories

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



Couple several Turbo Rings for Distributed Applications

For some systems, it may not be convenient to connect all devices in the system to create one BIG redundant ring, since some devices could be located at a remote site. Turbo Ring’s “Ring Coupling” function helps you separate those distributed devices into different smaller redundant rings, but in such a way that they can still communicate with each other.



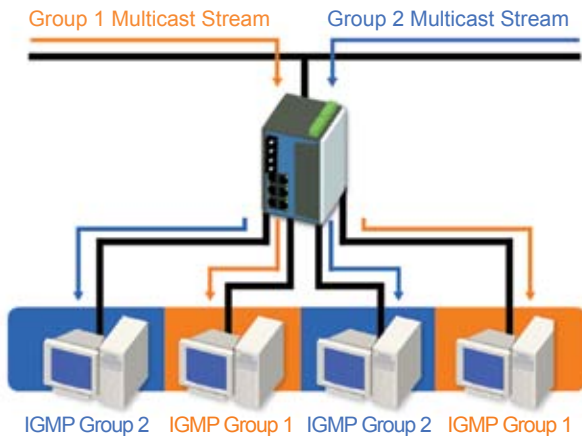
IEEE 802.1X Enhances User Authentication

EDS-508A/505A 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

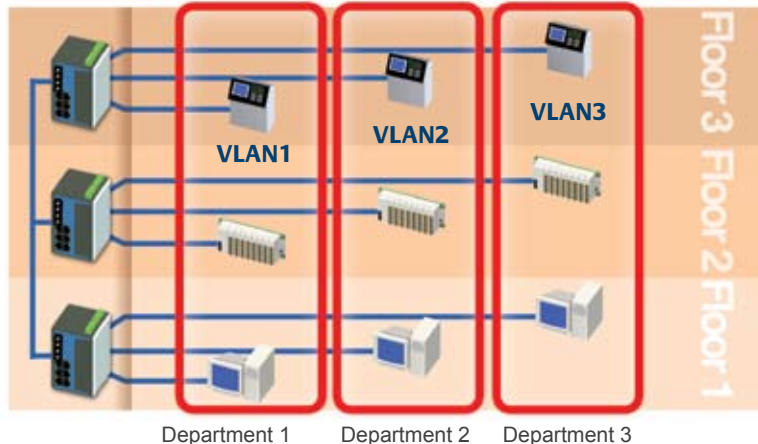
EDS-508A/505A supports IEEE802.1D-1998 GMRP (GARP Multicast Registration Protocol) and IGMP Snooping provides the ability to prune multicast traffic so that it travels only to those end destinations that require this kind of traffic, reducing the amount of traffic on the Ethernet LAN.



VLAN Eases Network Planning

A VLAN is a group of devices that can be located anywhere on a network, but which communicate as if they are on the same physical segment. VLANs can be used to segment your network without being restricted by physical connections—a limitation imposed by traditional network design. Besides, since all automation systems incorporate sensitive devices that must be protected from unauthorized access, it is very important

to have some type of authentication system set up that only allows authorized users to access the system. If devices belong to different VLANs, they cannot communicate with each other, providing extra security and protection from unwanted invasion or traffic. The IEEE802.1Q standard and GVRP protocol 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-508A/505A 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-508A/505A series' QoS capability improves your industrial network's performance and determinism for mission critical applications.



RMON for Efficient Network Monitoring and Proactive Capability (available soon)

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.

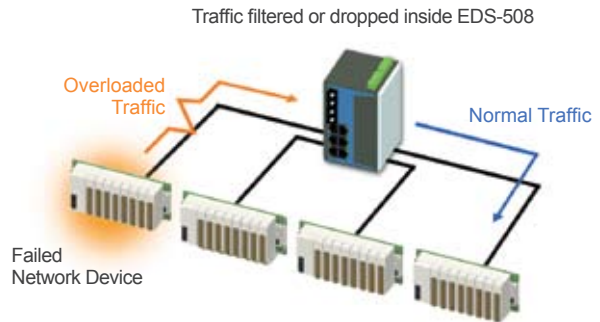
Port Trunking for Flexible Network Connections

Port Trunking allows devices to communicate by aggregating up to four links in parallel with a maximum of 4 ports for each link. That means users could connect one EDS to another EDS by port trunking to double, triple, or quadruple the bandwidth of the connection.



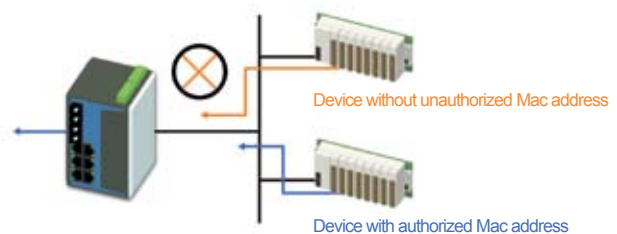
Bandwidth Management Prevents Unpredictable Network Status

Any single device on a network should not have unlimited bandwidth, particularly when it malfunctions. The most well-known problem is the broadcast storms caused by setting up the wrong topology, or by devices that malfunction. The EDS-508A/505A series not only prevents broadcast storms, but also can configure the ingress/egress rate of unicast/multicast/broadcast packets, and in this way give administrators full control of limited bandwidth to prevent unpredictable faults.



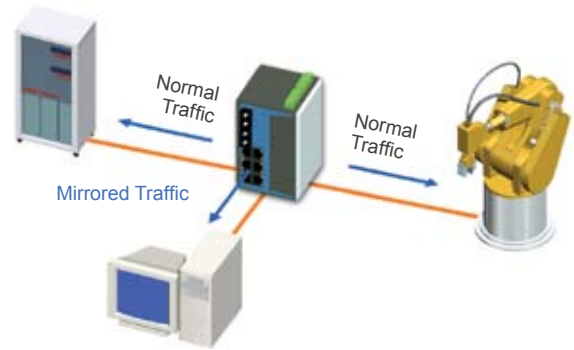
Port Lock to Allow Authorized Access by Specific MAC Addresses

The EDS-508A/505A series can assign protected static MAC addresses to specific ports. By using the Port Lock function, locked ports will not be able to learn other addresses but only allow the traffic that comes from the preset static MAC address, helping to block unwanted invasion and usage.



Port Mirroring for Online Monitoring

In some cases, a network is so large that it is difficult to achieve the expected level of communications. 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-508A/505A series' mirroring port function helps to ensure that the system behaves as expected.



Automatic Warning by Event

Since industrial Ethernet devices are often located at the endpoints of a system, such devices cannot always know what's happening elsewhere on the network. This means that industrial Ethernet switches that connect these devices must take responsibility for providing system maintainers with real-time alarm messages. Even when control engineers are out of the control room for an extended period of time, they can still

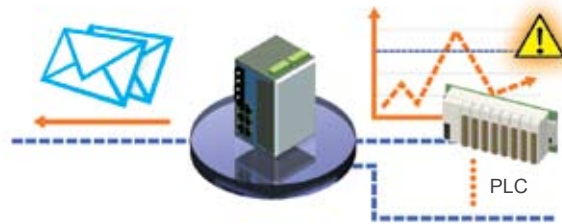
be informed of the status of devices almost instantaneously when exceptions occur.

The traditional way of determining device status is to poll devices periodically, but this is not "real-time" enough, and is not very efficient. Warning messages must be actively triggered by events. To take care of these requirements, industrial Ethernet Switches need features such as:

Warning by e-mail

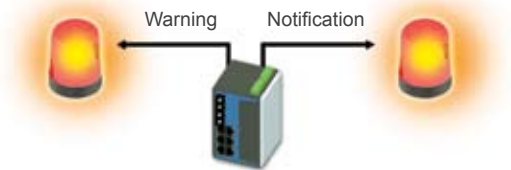
The EDS-508A/505A series can send out a warning e-mail when an exception is detected, providing system managers with real-time alarm messages.

Switch Events		Port Events
Cold Start	Warm Start	Link On
Power On/Off	Authentication failure	Link Off
Topology Change	Configuration Change	Traffic Overload



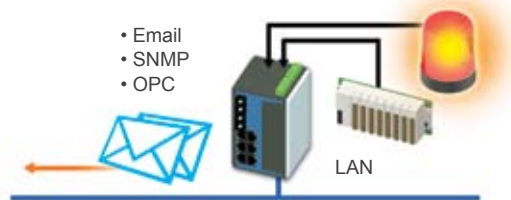
Warning by Relay Output

The EDS-508A/505A 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.



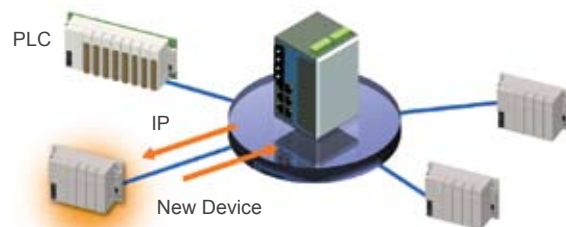
DI to Integrate Other Important Sensors

With two digital inputs, the EDS-508A/505A series can integrate sensors into its automatic alarm mechanism, by redirecting warning messages to an IP network by e-mail, SNMP trap, or OPC.



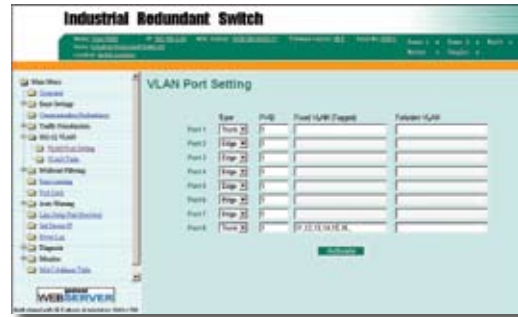
Replace Faulty Devices

To reduce the effort required to configure IP addresses repeatedly, the EDS-508A/505A series comes equipped with DHCP/BootP server and RARP protocol to set up IP addresses of Ethernet-enabled devices automatically.

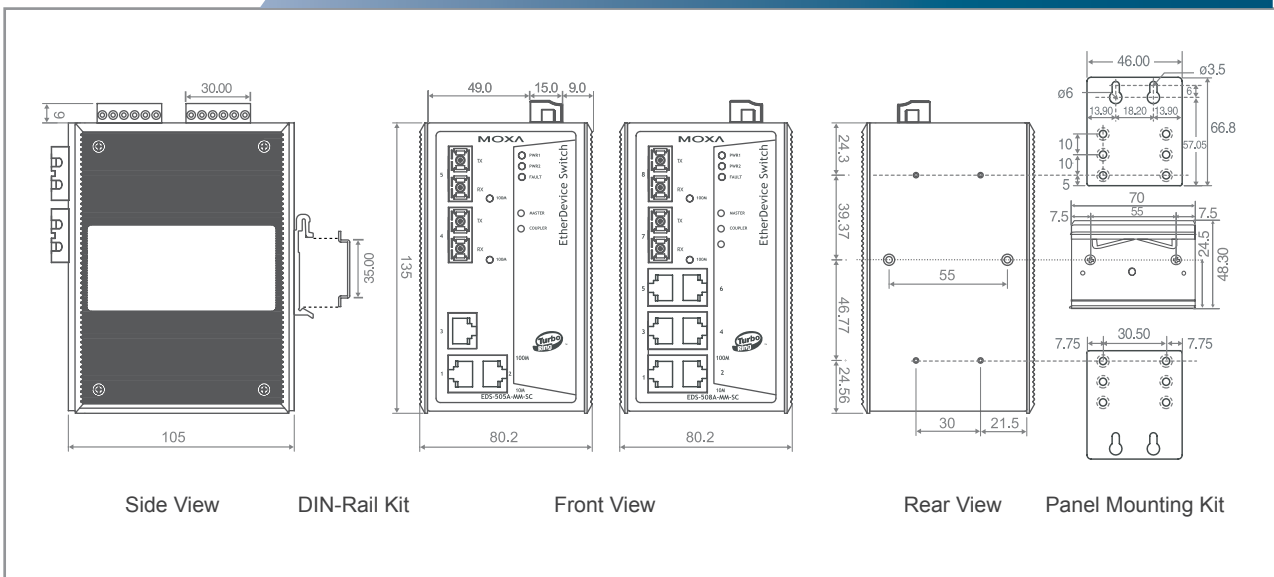


Easy Browser-based Configuration

The EDS-508A/505A 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-508A/505A units simultaneously.



Dimensions (unit = mm)



Specifications

Technology

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

Protocols: IGMP V1/V2/V3 device, GVRP, SNMP V1/V2c/V3, DHCP Server/Client, BootP, TFTP, SNTP, SMTP, RARP, GMRP, LACP, 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 Group 1, 2, 3, 9

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

Interface

RJ45 Ports: 10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection

Fiber Ports: 100BaseFX ports (SC/ ST connector)
Console: RS-232 (RJ45)

LED Indicators: PWR1, PWR2, FAULT, MASTER, COUPLER, 10/100M

DIP Switch: Turbo Ring, Master, Coupler, Reserve

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

Digital Input: 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

Distance:

- Multi mode: 0 to 5 km, 1300 nm (50/125 μ m, 800 MHz*km)
0 to 4 km, 1300 nm (62.5/125 μ m, 500 MHz*km)
- Single mode: 0 to 40 km, 1310 nm (9/125 μ m, 3.5 PS/(nm*km))
0 to 80 km, 1550 nm (9/125 μ m, 19 PS/(nm*km))

- 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), -34 to -30 dBm (Multi)

Power

Input Voltage: 24 VDC (12 to 45 VDC), redundant dual inputs
Connection: Two removable 6-pin terminal blocks
Overload Current Protection: Present, can withstand 1.6A
Reverse Polarity Protection: Present

Mechanical

Casing: IP30 protection, aluminum case
Dimensions (W x H x D): 80.5 x 135 x 105 mm
 3.17 x 5.31 x 4.13 in.

Weight: 1040 g
Installation: DIN-Rail, Wall Mounting (optional kit)

Environmental

Operating Temperature:
 0 to 60°C (32 to 140°F)
 -40 to 75°C (-40 to 167°F) for -T models
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 (Pending)
 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 4
 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
 *Preliminary Specifications are subject to change without notice.

Ordering Information

EDS-508A/505A-AA-BB-CC-E

Ordering Code Definition	Fiber Port	FO Connector	Single Mode Distance	Operating Temperature
	M: One Multi mode S: One Single Mode MM: Two Multi Mode SS: Two Single Mode	SC: SC Connector ST: ST Connector	80: 80 km	T: Operating Temp. -40 to 75°C * Standard Models: 0 to 60°C
Available Models	EDS-508A Series			
	Standard: • EDS-508A • EDS-508A-MM-SC • EDS-508A-MM-ST • EDS-508A-SS-SC		Long-Haul: • EDS-508A-SS-SC-80	Wide Temperature: • EDS-508A-T • EDS-508A-MM-SC-T • EDS-508A-MM-ST-T • EDS-508A-SS-SC-T • EDS-508A-SS-SC-80-T
Optional Accessories	EDS-505A Series			
	• EDS-505A • EDS-505A-MM-SC • EDS-505A-MM-ST • EDS-505A-SS-SC		• EDS-505A-SS-SC-80	• EDS-505A-T • EDS-505A-MM-SC-T • EDS-505A-MM-ST-T • EDS-505A-SS-SC-T • EDS-505A-SS-SC-80-T
	* For detailed information, check the above specifications.			
	• DR-4524: 45W/2A DIN-Rail 24 VDC Power Supply, 85 to 264 VAC input • DR-75-24: 75W/3.2A DIN-Rail 24 VDC Power Supply, 85 to 264 VAC input • DR-120-24: 120W/5A DIN-Rail 24 VDC Power Supply, 88 to 132 VAC/176 to 264 VAC input by switch • EDS-SNMP OPC Server Pro: Software CD and Manual • WK-46: Wall Mounting Kit			