EtherDevice™ Switch EDS-408A/405A Series

Industrial 8- and 5-Port Entry-Level Managed Ethernet Switches

Highlights

- Plug-n-Play Turbo Ring with fast recovery time within 300 ms
- QoS, port-based VLAN, SNMP V1/V2c/V3, RMON supported
- Automatic warning by exception through email, relay output
- User-friendly web-based configuration and management
- -40 to 75˚C operating temperature (-T models)

CE FC

Features

Advanced Industrial Networking Capability

- Plug-n-Play, Redundant Fast Ethernet Ring and RSTP (IEEE802.1W) Capability (recovery time < 300 ms at full load)
- Supports Port-Based VLAN to ease network planning
- Supports QoS-IEEE 802.1p/1Q and TOS/DiffServ to increase determinism
- RMON for efficient network monitoring and proactive capability
- SNMP V1/V2c/V3 for different levels of network management security

Designed for Industrial Applications

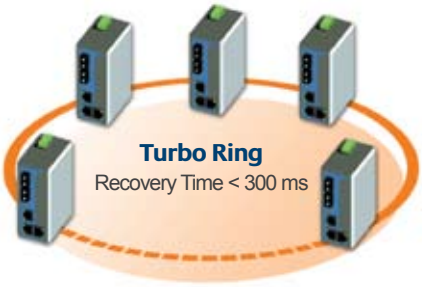
- Bandwidth management prevents unpredictable network status
- Supports ABC-01 (Automatic Backup Configurator) for system configuration back up
- Port mirroring for online debugging
- Automatic warning by exception through email, relay output
- Automatic recovery of connected device's IP addresses
- 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

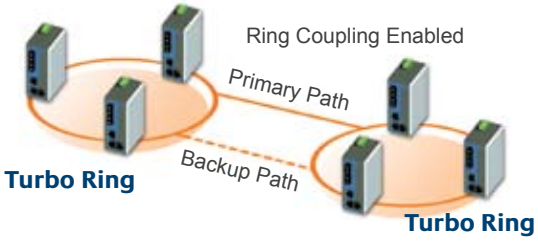
Plug-n-Play, Fast Ethernet Redundant Ring Capability (< 300 ms)

For industrial automation applications, redundancy is an important issue to help increase the reliability of your system. MOXA EtherDevice™ Redundant Switch EDS-408A/405A 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.



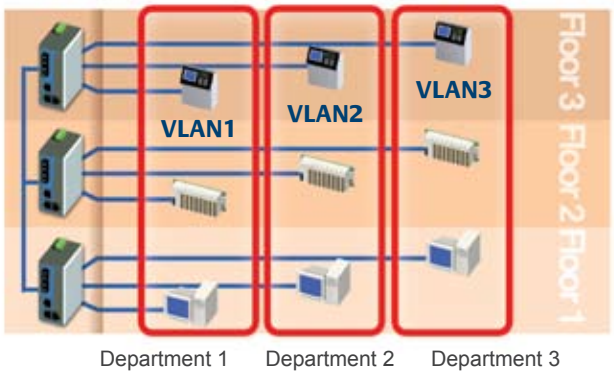
Couple Several Turbo Rings for Distributed Applications

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.



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.

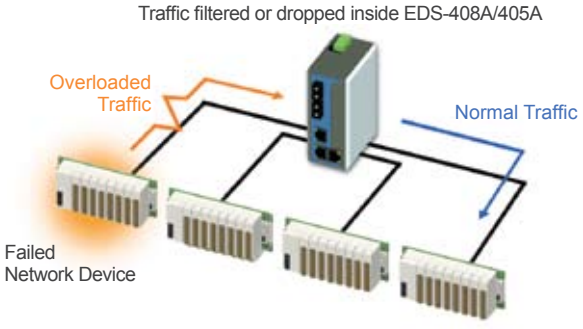


QoS Increases Determinism

Quality of Service (QoS) provides a traffic prioritization capability to ensure that important data is delievered consistently and predictably. EDS-408A/405A 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-408A/405A series' QoS capability improves your industrial network's performance and determinism for mission critical applications.

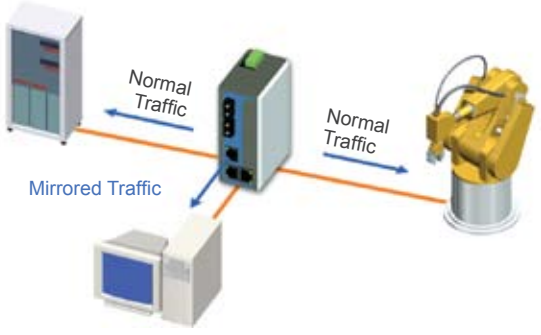
Bandwidth Management Prevents Unpredictable Network Status

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-408A/405A 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 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-408A/405A series' mirroring port function helps to ensure that the system behaves as expected.



Automatic Warning by Event

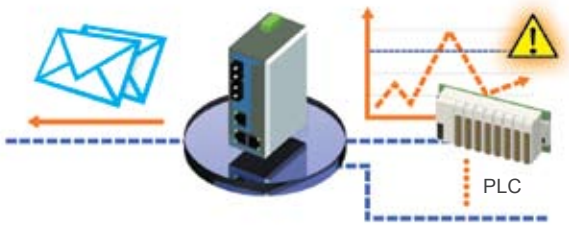
Since industrial Ethernet devices are often located at the endpoints of a system, such devices cannot always know what's happening elsewhere on the network. This means that industrial Ethernet switches that connect these devices must take responsibility for providing system maintainers with real-time 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

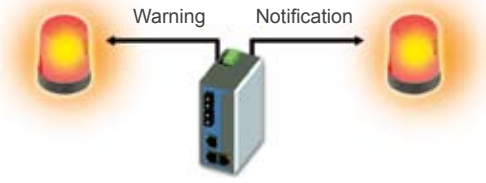
The EDS-408A/405A series can send out a warning e-mail when an exception is detected, providing system managers with real-time alarm messages.

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



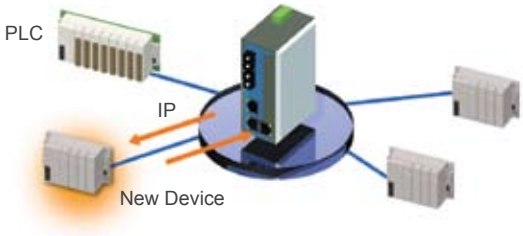
Warning by Relay Output

The EDS-408A/405A series can send out a warning e-mail when an exception is detected, providing system managers with real-time alarm messages.



Replace Faulty Devices

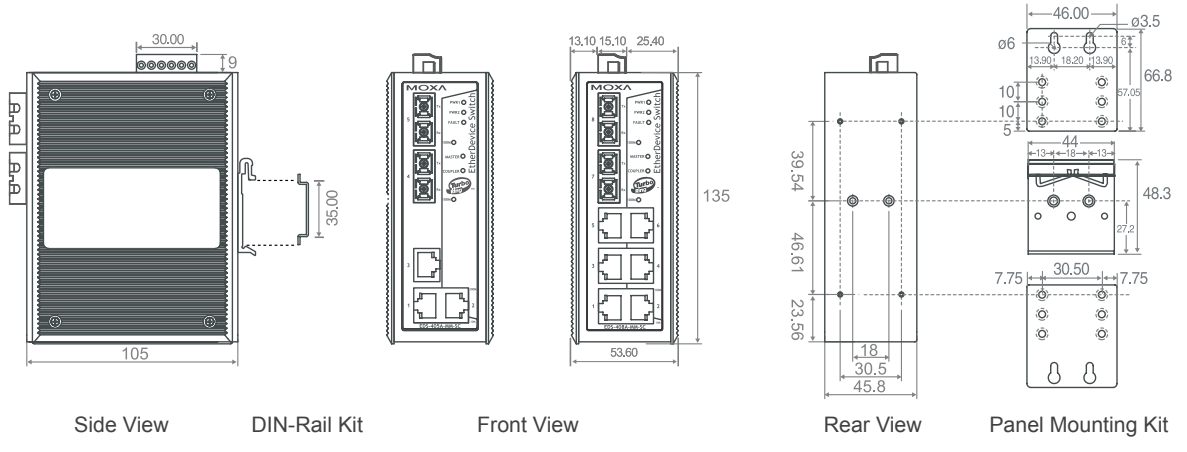
To reduce the effort required to configure IP addresses repeatedly, the EDS-408A/405A series comes equipped with DHCP/BootP server and RARP protocol to set up IP addresses of Ethernet-enabled devices automatically.



Easy Browser-based Configuration

The EDS-408A/405A 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-408A/405A units simultaneously.

Dimensions (unit = mm)



Specifications

Technology

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

Protocols: 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 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: One relay output with current carrying capacity of 1A @ 24 VDC

Optical Fiber

Distance:

Multi mode: 0 to 5 km, 1310 nm (50/125 μm, 800 MHz*km)
0 to 4 km, 1310 nm (62.5/125 μm, 500 MHz*km)

Single mode: 0 to 40 km, 1310 nm (9/125 μm, 3.5 PS/(nm*km))
0 to 80 km, 1550 nm (9/125 μm, 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: One 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): 53.6 x 135 x 105 mm
2.11 x 5.31 x 4.33 in.

Weight: 650 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 (E212360), UL 508, CSA C22.2 No. 60950, EN60950 (pending)

Hazardous location:

UL/cUL Class I, Division 2,

Groups A, B, C and D (E238559) (pending)

ATEX Class I, Zone 2, EEx nC IIC (03CA24537) (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-408A/405A-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	Standard:	Wide Temperature:
EDS-408A Series		
	• EDS-408A	• EDS-408A-T
	• EDS-408A-MM-SC	• EDS-408A-MM-SC-T
	• EDS-408A-MM-ST	• EDS-408A-MM-ST-T
	• EDS-408A-SS-SC	• EDS-408A-SS-SC-T
EDS-405A Series		
	• EDS-405A	• EDS-405A-T
	• EDS-405A-MM-SC	• EDS-405A-MM-SC-T
	• EDS-405A-MM-ST	• EDS-405A-MM-ST-T
	• EDS-405A-SS-SC	• EDS-405A-SS-SC-T

* For detailed information, check the above specifications.

Optional Accessories

- **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