

Your Industrial Ethernet Solutions for Control and Automation

Product
Catalog

Gigabit Ethernet

Video / Audio
Ethernet I/O
DCS / PLC / PAC
HMI



 MTL
Instruments

MOXA®

Modular Managed Ethernet Switches



Modular Managed Ethernet Switches

Solution Tutorial		1-2
EDS-828	24+4G-port Layer 3 Gigabit modular managed Ethernet switch	1-7
EDS-728	24+4G-port Gigabit modular managed Ethernet switch	1-9
IM Series	Gigabit Ethernet and fast Ethernet interface modules	1-11

1

**Modular
Managed
Ethernet
Switches**

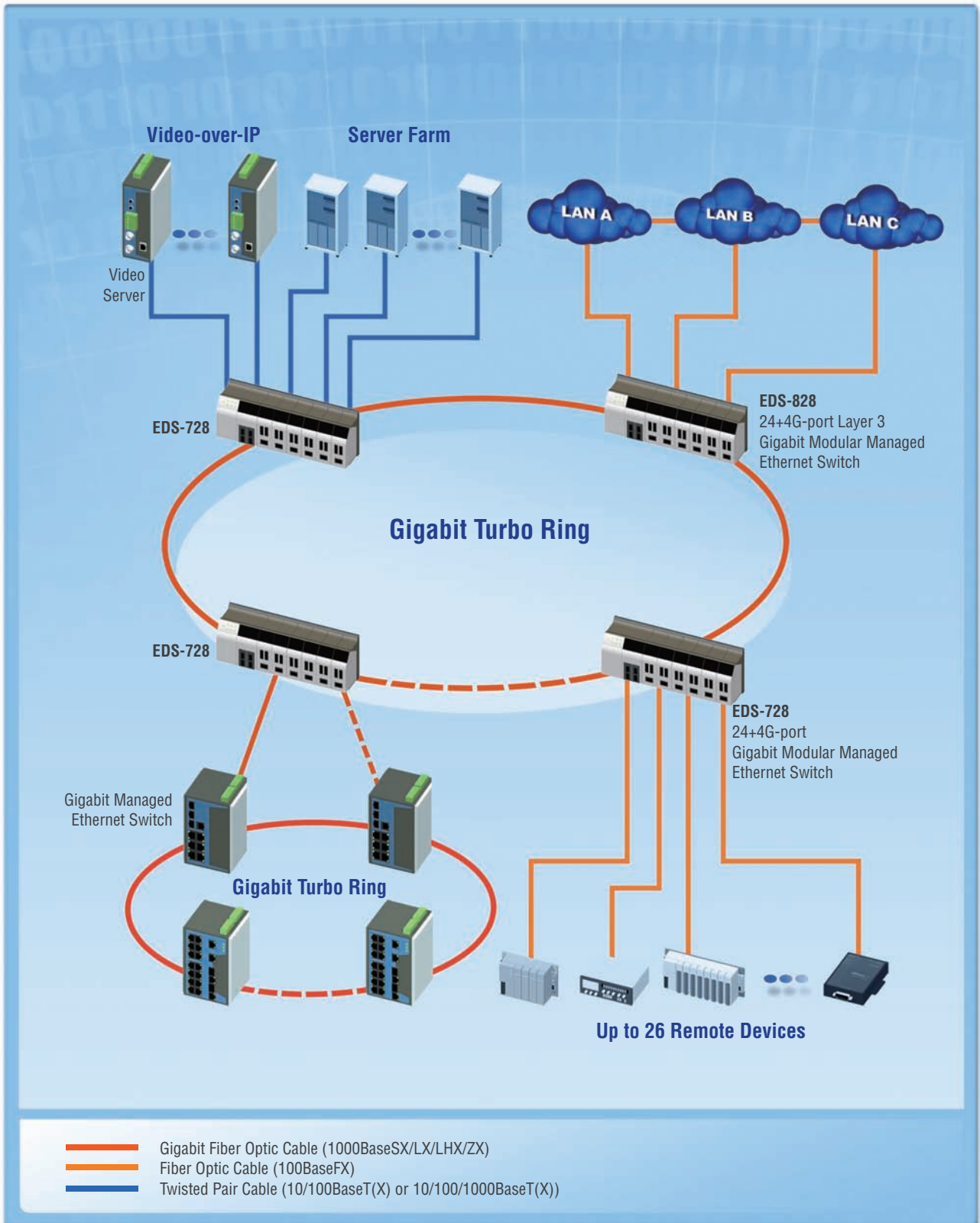
Scalable Gigabit Modular Platform

: Delivers Flexible Mixtures of Media and Bandwidth

1

Modular Managed Ethernet Switches

Solution Tutorial

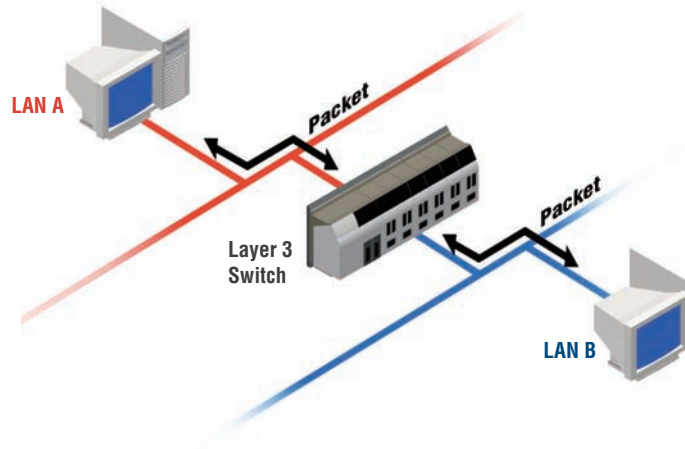


Intelligent Layer 3 Network Control

What is a Layer 3 Switch?

Layer 3 switches have optimized hardware to pass data as fast as Layer 2 switches, yet they use the IP address for making a switching decision at Layer 3, just like a router. The 802.1Q VLAN of a Layer 2 switch allows network operators to configure and maintain the network more effectively, but cross VLAN communication still relies on traditional Layer 3 routers. Both routers and Layer 3 switches use a routing protocol and routing table to determine the best path. However, compared to router

that is usually software-based, Layer 3 switches are relatively faster and less expensive due to built-in switching hardware with optimized chips and full-wire speed IP frame forwarding performance suitable for VLAN interconnection. Moxa's Layer 3 switch can be used to partition a large-scale LAN into multiple subnets for better network performance.



Static Routing

Instead of using a Layer 2 Ethernet switch MAC table, the EDS-828 series has a built-in IP routing table to support forwarding IP frames. Network administrators need to configure and maintain this IP routing

table totally manually. Any change in the network topology will also require the network administrator to reconfigure the routing table.

Routing Information Protocol (RIP)

In addition to static routing, the EDS-828 has a built-in IP routing table that can be set up and updated dynamically by routing protocol. RIP is an often used routing protocol that uses the Bellman-Ford algorithm

and “hop count” measurement to determine how packets should be routed from one network to another.

Open Shortest Path First (OSPF)

The EDS-828 series also supports OSPF, which uses “Link State” instead of “hop count” to determine the network route. OSPF is more complicated than RIP. However, compared to RIP, OSPF has faster

network convergence and less network traffic. Both RIP and OSPF are usually referred to as Interior Gateway Protocols (IGP).

Static versus Dynamic

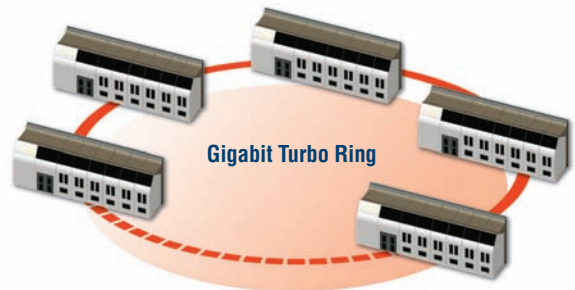
The EDS-828 built-in IP routing table can be updated and maintained both statically and dynamically. If the network is small and fixed, the network administrator may configure the IP routing table manually. However, any network topology change will require the network administrator to reconfigure the settings manually. If the network is extended or the network topology is changed frequently, using

dynamic routing can efficiently enhance network stability and reduce the time it takes to effect network convergence. Dynamic routing protocol allows devices to detect and respond to network changes automatically. In this case, network administrators do not need to reconfigure the settings after the network changes.

Advanced Layer 2 Network Management

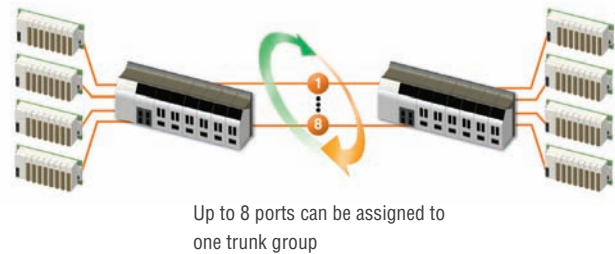
Gigabit Ethernet Redundant Ring and Ring Coupling Capability

Ethernet has become the default data communications medium for industrial automation applications. In fact, it's not uncommon for the transfer of video, voice, and high-rate industrial application data to be integrated into one network. Moxa's EDS-828/728 series Ethernet switches, which come equipped with a redundant Gigabit Ethernet protocol called Gigabit Turbo Ring, give system maintainers a convenient means of setting up a versatile yet stable Gigabit Ethernet network.



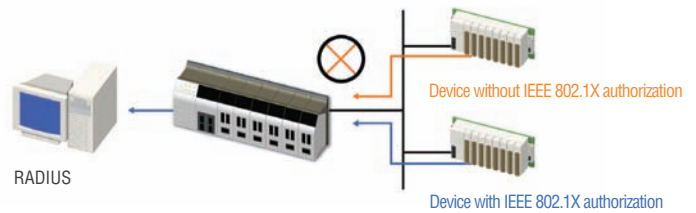
Port Trunking for Flexible Network Connections

IEEE 802.3ad (LACP, Link Aggregation Control Protocol) provides flexible network connections and a redundant path for critical devices. The EDS-828/728 Ethernet switches allow users to set up a wider communication path by aggregating up to four trunk groups in parallel. A maximum of eight ports can be assigned to one trunk group to optimize your network connection and redundant paths. When selected ports are grouped for trunking, LACP will exchange information to determine whether or not the ports selected in a group can be trunked together.



IEEE 802.1X Enhances User Authentication

The EDS-828/728 series Ethernet switches support IEEE 802.1X (Port-based Network Access Control) to enhance user authentication. When IEEE 802.1X is activated, only authorized users can access the port. Authentication is done using the local user database or an external RADIUS server.



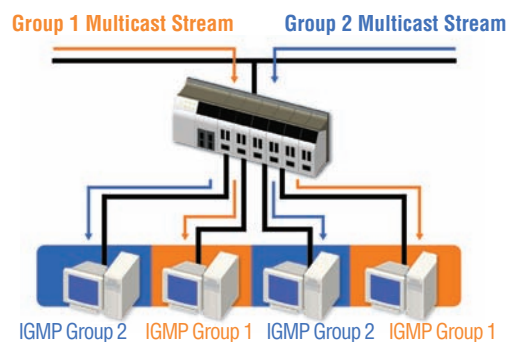
HTTPS and SSH Enhance Network Security

In order to protect data from being intercepted, the EDS-828/728 Ethernet switches support the HTTPS and SSH protocols for transferring data over the Internet in an encrypted form. If you are changing the configuration of an Ethernet switch online, please make sure that it is done over HTTPS and SSH so that the data remains secure.



IGMP Snooping and GMRP for Filtering Multicast Traffic

The EDS-828/728 Ethernet switches support IEEE 802.1D-1998 GMRP (GARP Multicast Registration Protocol) and IGMP snooping to provide the ability to prune multicast traffic so that the traffic only travels to those end destinations that require this kind of traffic. As a result, the amount of traffic on the Ethernet LAN is reduced.



VLAN Eases Network Planning

VLANs can be used to overcome restrictions imposed by the physical network connections. In one respect, devices connected to different physical networks can be allowed to communicate easily by assigning them to the same VLAN. In addition, devices assigned to different VLANs will not be able to communicate with each other, providing

extra security and protection from unwanted invasion or traffic. The EDS-828/728 Ethernet switches support 802.1Q VLAN 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. The EDS-828/728 series Ethernet switches can inspect IEEE 802.1p/1Q Layer 2 CoS tags, and even Layer 3 TOS information, to provide a

consistent classification of the entire network. The QoS capability of the EDS-828/728 Ethernet switches improve your industrial network's performance, and increase determinism for mission-critical applications.

RMON for Efficient Network Monitoring and Proactive Capability

RMON (Remote Network Monitoring) is an IETF (Internet Engineering Task Force) 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, and helps you manage your network in a more proactive manner. If configured correctly, RMON probes deliver information before problems occur, allowing you to take action before the problems affect users.

Bandwidth Management Prevents Unpredictable Network Status

The EDS-828/728 series Ethernet switches not only prevent broadcast storms, but can also configure the rate limiting 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. The EDS-828/728 series' mirroring port function helps ensure that the system behaves as expected.

Automatic Warning by Event

Warning by e-mail or SNMP Trap

The EDS-828/728 series Ethernet switches can send out a warning e-mail or SNMP trap when an exception is detected, providing system managers with real-time alarm messages.

or warn engineers in the field, so the engineer can use the appropriate emergency maintenance procedures to respond quickly to higher priority messages.

Warning by Relay Output

The EDS-828/728 series Ethernet switches provide two relay outputs that can be set up to indicate events with different importance to notify

DI to Integrate Other Important Sensors

With two digital inputs, the EDS-828/728 series Ethernet switches can integrate sensors into its automatic alarm mechanism, sending warning messages to an IP network by e-mail notification.

Network Management with Moxa SNMP OPC Server Software

The Moxa SNMP OPC Server Pro software package can convert SNMP into OPC format. The vertical integration of SNMP management information into existing OPC-based SCADA-packages gives

customers the ability to establish an Ethernet network management application that is integrated with existing visualization and control applications.

Modular Design, Maximum Flexibility

User Friendly LED Display

Angled LED Display provides clear viewing from all vertical angles, making it easy to check the status of the switch and each port.

Separate LEDs for the system and interface modules show clearly the current status of the system and each port.

The Mode Switch shows the modes selected for the interface module, giving you an easy way to view the status of all the ports at one glance.

Innovative Modular Design

Scalable Gigabit Modular Solution

100 Mbps of bandwidth is not enough to meet the requirements posed by industrial Ethernet applications that involve transmitting both voice and video. The EDS-828/728 series Ethernet switches, with their four Gigabit ports and Gigabit Turbo Ring, can give you a reliable and high performance backbone. Select from two different 2-port Gigabit modules to meet current needs or prepare for future demands.

Flexible Fast Ethernet Module

The EDS-828/728 series Ethernet switches let you install up to 24 fast Ethernet ports. Select from eight 4-port fast Ethernet modules with a combination of 10/100BaseT(X) (RJ45 connectors) and 100BaseFX (Single/Multi mode, SC/ST connectors). Long-haul single mode optical fiber can be used to provide 100 Mbps transmission over a distance of 40 km or 80 km.



Easy and Flexible Installation

DIN-Rail Mounting Kit

The rugged and user-friendly DIN-Rail kit, which is easily installed with a flat-head screw driver, has passed stringent industrial vibration, freefall, and shock tests.

Wall Mounting Kit

The wall mounting kit provides users with a handy option that meets the requirements of many different industrial applications.



Comparison Chart for Modular Ethernet switches

Model	Port Interface				Features									
	Total Number of Ports	Gigabit Ethernet (10/100/1000 Mbps)	Fast Ethernet (10/100 Mbps)	Routing (Static, RIP V1/V2)	Turbo Ring	RSTP/STP	IGMP snooping/GMRP	Port Trunking/LACP	IEEE 802.1X/HTTPS/SSH	Port Lock	SNMP/RMON	802.1Q VLAN	QoS	ABC-01*
EDS-828	28	4	24	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EDS-728	28	4	24		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

*ABC-01 is an RS-232 RJ45-based automatic backup configurator for Moxa's managed Ethernet switches. Please check page 11-1 for detailed information.

EDS-828 Series

24+4G-port Layer 3 Gigabit modular managed Ethernet switch



- > Layer 3 routing interconnects multiple LAN segments
- > Static routing and RIP V1/V2 supported
- > 4 Gigabit plus 24 fast Ethernet ports for copper and fiber
- > Gigabit Turbo Ring and RSTP/STP (IEEE 802.1w/D) for Ethernet redundancy
- > QoS, IGMP snooping/GMRP, VLAN, LACP, SNMPv1/v2c/v3, RMON supported
- > IEEE 802.1X, HTTPS, and SSH to enhance network security



Introduction

The EDS-828 is a high-performance Layer 3 Ethernet switch designed for network routing, and the improved hardware technology built into the EDS-828 replaces the software logic used by traditional routers, offering better performance, and making the switch ideal for large-scale local area networks (LANs). In addition to Layer 3 features, the EDS-828 also supports Layer 2 management features, including

QoS, IGMP snooping/GMRP, VLAN, LACP, SNMPv1/v2c/v3, RMON, IEEE 802.1X, HTTPS, and SSH. In order to meet the demands of any industrial application, the EDS-828 uses a modular design that allows users to install up to 4 Gigabit Ethernet ports and 24 fast Ethernet ports, providing a high degree of flexibility for network expansion.

Features and Benefits

- Static routing and RIP V1/V2 to move data and information across networks
- Redundant Gigabit Turbo Ring and RSTP/STP (IEEE 802.1w/D)
- IGMP snooping and GMRP for filtering multicast traffic from industrial Ethernet protocols
- IEEE 802.1Q VLAN and GVRP protocol to ease network planning
- QoS-IEEE 802.1p/1Q and TOS/DiffServ to increase determinism
- Port Trunking for optimum bandwidth utilization
- IEEE 802.1X, HTTPS, and SSH to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability

- Bandwidth management prevents unpredictable network status
- Lock port function for blocking unauthorized access based on MAC address
- Port mirroring for online debugging
- Automatic warning by exception through e-mail, relay output
- Digital inputs for integrating sensors and alarms with IP networks
- Redundant, dual DC power inputs
- IP30, rugged high-strength case
- DIN-Rail or panel mounting capability
- Configurable by Web browser, Telnet/Serial console, Windows utility, and ABC-01 automatic backup configurator

Specifications

Layer 3 Modular Managed Ethernet Switch System, EDS-82810G



- IEEE 802.1w for Rapid STP,
- IEEE 802.1Q for VLAN Tagging,
- IEEE 802.1p for Class of Service,
- IEEE 802.1X for Authentication,
- IEEE 802.3ad for Port Trunk with LACP

Protocols: IGMPv1/v2 device, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNTp, SMTP, RARP, RMON, RIP V1/V2, HTTP, HTTPS, Telnet, SSH, Syslog

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: IEEE 802.3x flow control, back pressure flow control

Switch Properties

Priority Queues: 4

Max. Number of Available VLANs: 64

VLAN ID Range: VID 1 to 4094

IGMP Groups: 256

Technology

- Standards:** IEEE 802.3 for 10BaseT,
 IEEE 802.3u for 100BaseT(X) and 100Base FX,
 IEEE 802.3ab for 1000BaseT(X),
 IEEE 802.3z for 1000BaseSX/LX/LHX/ZX,
 IEEE 802.3x for Flow Control,
 IEEE 802.1D for Spanning Tree Protocol,

Interface

Fast Ethernet: 6 slots for any combination of 4-port interface module with 10/100BaseT(X) or 100BaseFX

Gigabit Ethernet: 2 slots for any combination of 2-port interface module with 10/100/1000BaseT(X) or 1000BaseSFP slot

Console: RS-232 (RJ45)

System LED Indicators: STAT, PWR1, PWR2, FAULT, MASTER, COUPLER, T.RING

Module LED Indicators: LNK/ACT, FDX/HDX, RING PORT, COUPLER PORT, SPEED

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

Power Requirements

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

Input Current (@ 24 V): 0.96A

Connection: Two removable 6-pin terminal blocks

Overload Current Protection: Present

Reverse Polarity Protection: Present

Physical Characteristics

Casing: IP30 protection

Dimensions (W x H x D): 362.4 x 142.47 x 128 mm (14.27 x 5.61 x 5.04 in.)

Weight: 1950 g

Installation: DIN-Rail mounting, wall mounting (optional kit)

Environmental Limits

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: UL508 (Pending), UL60950-1, CSA C22.2 No. 60950-1, EN60950-1 (Pending)

Hazardous Location: UL/cUL Class I, Division 2, Groups A, B, C, and D (Pending); ATEX Class I, Zone 2, Ex nC IIC (Pending)

Maritime: DNV (Pending), GL (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 3
 EN61000-4-5 (Surge), level 3
 EN61000-4-6 (CS), level 3
 EN61000-4-8
 EN61000-4-11
 EN61000-4-12

Shock: IEC 60068-2-27

Freefall: IEC 60068-2-32

Vibration: IEC 60068-2-6

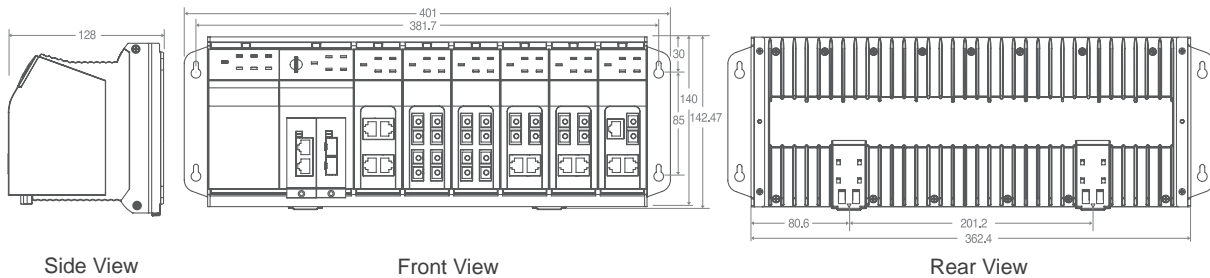
MTBF: 160,000 hrs
 Database: Telcordia (Bellcore), GB

**Please check Moxa's website for the most up-to-date certification status.*

Warranty

5 years (see www.moxa.com/warranty for details)

Dimensions (unit = mm)



Ordering Information

Step 1: Select Ethernet switch system

EDS-82810G

Step 2: Select interface modules

IM series
(Gigabit or fast Ethernet)

** The EDS-82810G switch system is delivered without interface module. Please see page 1-11 for product information of IM series Gigabit and fast Ethernet interface modules.*

Layer 3 Modular Managed Ethernet Switch System, EDS-82810G

Layer 3 modular managed Ethernet switch system with 6 slots for 4-port fast Ethernet interface modules and 2 slots for 2-port Gigabit interface modules, up to 24+4G ports.

Optional Accessories

- **ABC-01:** Industrial RS-232, RJ45-based, automatic backup configurator
- **EDS-SNMP OPC Server Pro:** CD with EDS-SNMP OPC server software and manual
- **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
- **WK-32:** Wall mounting kit for EDS-828/728 series
- **RK-4U:** 4U-high 19" rack mounting kit

EDS-728 Series

24+4G-port Gigabit modular managed Ethernet switch



reddot design award
honourable mention 2008

- > 4 Gigabit plus 24 fast Ethernet ports for copper and fiber
- > Gigabit Turbo Ring and RSTP/STP (IEEE 802.1w/D) for Ethernet redundancy
- > QoS, IGMP snooping/GMRP, VLAN, LACP, SNMPv1/v2c/v3, RMON supported
- > IEEE 802.1X, HTTPS, and SSH enhance network security
- > ABC-01 (Automatic Backup Configurator) for system configuration backup



Introduction

The EDS-728 modular Gigabit Ethernet switch features a versatile modular design that allows different combinations of fiber and copper modules, creating a wide array of connection options ideal for any automation network. The modular design lets you install up to 4 Gigabit ports and 24 fast Ethernet ports. The EDS-728 is specially designed for redundant Gigabit network backbones and uses a modular configuration to provide a high degree of flexibility for network

expansion. Top network performance, security, and reliability is assured through the EDS-728's advanced management features, including QoS, IGMP snooping/GMRP, VLAN, LACP, SNMPv1/v2c/v3, RMON, IEEE 802.1X, HTTPS, and SSH. The EDS-728 also features industrial-grade construction, a console port for automatic configuration backup, and an angled LED troubleshooting panel that can be conveniently viewed from both horizontal and vertical orientations.

Features and Benefits

- Redundant Gigabit Turbo Ring and RSTP/STP (IEEE 802.1w/D)
- IGMP snooping and GMRP for filtering multicast traffic from industrial Ethernet protocols
- IEEE 802.1Q VLAN and GVRP protocol to ease network planning
- QoS-IEEE 802.1p/1Q and TOS/DiffServ to increase determinism
- Port Trunking for optimum bandwidth utilization
- IEEE 802.1X, HTTPS, and SSH to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability
- Bandwidth management prevents unpredictable network status

- Lock port for only authorized MAC address access
- Port mirroring for online debugging
- Automatic warning by exception through e-mail, relay output
- Digital inputs to integrate sensors and alarms with IP networks
- Redundant, dual DC power inputs
- IP30, rugged high-strength case
- DIN-Rail or panel mounting capability
- Configurable by Web browser, Telnet/Serial console, Windows utility, and ABC-01 automatic backup configurator

Specifications

Modular Managed Ethernet Switch System, EDS-72810G



IEEE 802.1w for Rapid STP,
IEEE 802.1Q for VLAN Tagging,
IEEE 802.1p for Class of Service,
IEEE 802.1X for Authentication,
IEEE 802.3ad for Port Trunk with LACP

Protocols: IGMPv1/v2 device, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNMP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog

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: IEEE 802.3x flow control, back pressure flow control

Switch Properties

Priority Queues: 4

Max. Number of Available VLANs: 64

VLAN ID Range: VID 1 to 4094

IGMP Groups: 256

Technology

Standards: IEEE 802.3 for 10BaseT,
IEEE 802.3u for 100BaseT(X) and 100Base FX,
IEEE 802.3ab for 1000BaseT(X),
IEEE 802.3z for 1000BaseSX/LX/LHX/ZX,
IEEE 802.3x for Flow Control,
IEEE 802.1D for Spanning Tree Protocol,

Interface

Fast Ethernet: 6 slots for any combination of 4-port interface module with 10/100BaseT(X) or 100BaseFX

Gigabit Ethernet: 2 slots for any combination of 2-port interface module with 10/100/1000BaseT(X) or 1000BaseSFP slot

System LED Indicators: STAT, PWR1, PWR2, FAULT, MASTER, COUPLER, T.RING

Module LED Indicators: LNK/ACT, FDX/HDX, RING PORT, COUPLER PORT, SPEED

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

Power Requirements

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

Input Current (@ 24 V): 0.96A

Connection: Two removable 6-pin terminal blocks

Overload Current Protection: Present

Reverse Polarity Protection: Present

Physical Characteristics

Casing: IP30 protection

Dimensions (W x H x D): 362.4 x 142.47 x 128 mm (14.27 x 5.61 x 5.04 in.)

Weight: 1950 g

Installation: DIN-Rail mounting, wall mounting (optional kit)

Environmental Limits

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: UL508 (Pending), UL60950-1, CSA C22.2 No. 60950-1, EN60950-1 (Pending)

Hazardous Location: UL/cUL Class I, Division 2, Groups A, B, C, and D (Pending); ATEX Class I, Zone 2, Ex nC IIC (Pending)

Maritime: DNV (Pending), GL (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 3

EN61000-4-5 (Surge), level 3

EN61000-4-6 (CS), level 3

EN61000-4-8

EN61000-4-11

EN61000-4-12

Shock: IEC 60068-2-27

Freefall: IEC 60068-2-32

Vibration: IEC 60068-2-6

MTBF: 160,000 hrs

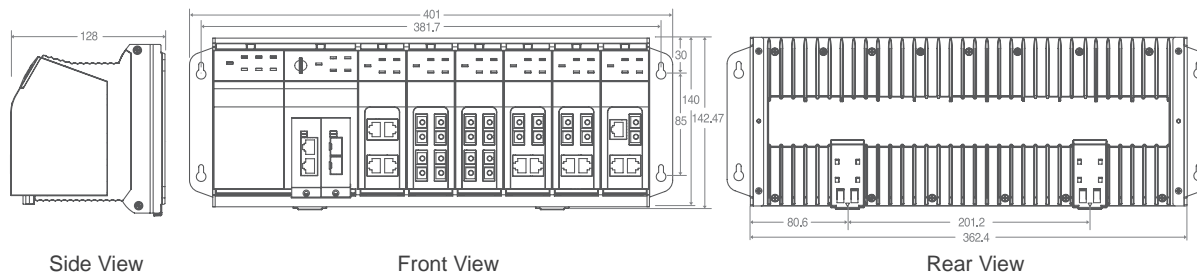
Database: Telcordia (Bellcore), GB

*Please check Moxa's website for the most up-to-date certification status.

Warranty

5 years (see www.moxa.com/warranty for details)

Dimensions (unit = mm)



: Ordering Information

Step 1: Select Ethernet switch system

EDS-72810G



Step 2: Select interface modules

IM series
(Gigabit or fast Ethernet)

* The EDS-72810G switch system is delivered without interface module. Please see page 1-11 for product information of IM series Gigabit and fast Ethernet interface modules.

Modular Managed Ethernet Switch System, EDS-72810G

Modular managed Ethernet switch system with 6 slots for 4-port fast Ethernet interface modules and 2 slots for 2-port Gigabit interface modules, up to 24+4G ports.

Optional Accessories

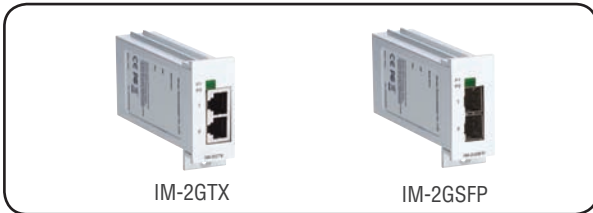
- **ABC-01:** Industrial RS-232, RJ45-based, automatic backup configurator
- **EDS-SNMP OPC Server Pro:** CD with EDS-SNMP OPC server software and manual
- **DR-4524:** 45W/2A DIN-Rail 24 VDC power supply, 85 to 264 VAC input
- **DR-75-24:** 75W/3.2A DIN-Rail 24 VDC power supply, 85 to 264 VAC input
- **DR-120-24:** 120W/5A DIN-Rail 24 VDC power supply, 88 to 132 VAC/176 to 264 VAC input by switch
- **WK-32:** Wall mounting kit for EDS-828/728 series
- **RK-4U:** 4U-high 19" rack mounting kit

IM Series

2-port Gigabit Ethernet and 4-port fast Ethernet interface modules for EDS-828/728 series Ethernet switches

Specifications

Gigabit Ethernet Interface Modules, IM-2G Series



IM-2GTX

IM-2GSFP

Fiber Ports: 1000BaseSFP slot

* Please see page 2-23 for the product information of SFP-1G series Gigabit Ethernet SFP modules.

Power Requirements

Power Consumption: IM-2GTX: 2.96W

IM-2GSFP: 3.042W

Physical Characteristics

Dimensions (W x H x D): 24 x 65.9 x 101.1 mm (0.94 x 2.59 x 3.98 in.)

Weight: IM-2GTX: 150 g

IM-2GSFP: 148 g

Interface

LED Indicators: Port status

RJ45 Ports: 10/100/1000BaseT(X) auto negotiation speed and auto MDI/MDI-X connection

Fast Ethernet Interface Modules, IM Series



IM-4TX

IM-2MSC/2TX
IM-2SSC/2TX

IM-2MST/2TX

IM-1LSC/3TX

IM-4MSC
IM-4SSC

IM-4MST

Interface

LED Indicators: PWR, P1, P2, P3, P4 port status

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)

Optical Fiber

	100BaseFX		
	Multi Mode	Single Mode	Single Mode, 80 km
Wavelength	1300 nm	1310 nm	1550 nm
Max. TX	-10 dBm	0 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm	-34 dBm
Link Budget	12 dB	29 dB	29 dB
Typical Distance	5 km ^a 4 km ^b	40 km ^c	80 km ^d
Saturation	-6 dBm	-3 dBm	-3 dBm

- a. 50/125 μm, 800 MHz*km fiber optic cable
- b. 62.5/125 μm, 500 MHz*km fiber optic cable
- c. 9/125 μm, 3.5 PS/(nm*km) fiber optic cable
- d. 9/125 μm, 19 PS/(nm*km) fiber optic cable

Power Requirements

Power Consumption:

IM-4TX: 2.5W

IM-2MSC/2TX: 5W

IM-2MST/2TX: 5W

IM-2SSC/2TX: 5W

IM-1LSC/3TX: 4W

IM-4MSC: 7.2W

IM-4MST: 7.2W

IM-4SSC: 7.2W

Physical Characteristics

Casing: IP30 protection

Dimensions (W x H x D): 40 x 127.8 x 100 mm (1.57 x 5.03 x 3.94 in.)

Weight (Gross Weight):

IM-4TX: 215 g

IM-2MSC/2TX: 245 g

IM-2MST/2TX: 250 g

IM-2SSC/2TX: 245 g

IM-1LSC/3TX: 235 g

IM-4MSC: 250 g

IM-4MST: 270 g

IM-4SSC: 270 g

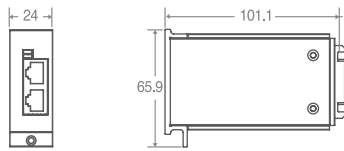
MTBF

620,000 hrs

Database: MIL-HDBK-217F, GB 25°C

Dimensions (unit = mm)

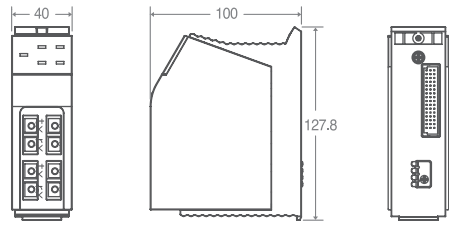
Gigabit Ethernet Interface Modules



Front View

Side View

Fast Ethernet Interface Modules



Front View

Side View

Rear View

Ordering Information

Product Model	Port Interface						
	Gigabit Ethernet		Fast Ethernet				
	10/100/1000BaseT(X)	1000BaseSFP*	10/100BaseT(X)	100BaseFX			
Multi Mode, SC Connector				Multi Mode, ST Connector	Single Mode, SC Connector	Single Mode, SC Connector, 80 km	
IM-2G Series							
IM-2GTX	2						
IM-2GSFP		2					
IM Series							
IM-4TX			4				
IM-4MSC				4			
IM-4MST					4		
IM-2MSC/2TX			2	2			
IM-2MST/2TX			2		2		
IM-4SSC						4	
IM-2SSC/2TX			2			2	
IM-1LSC/3TX			3				1

* IM-2GSFP supports 2 1000BaseSFP slots. Please see page 2-23 for the product information of SFP-1G series Gigabit Ethernet SFP modules.