

EtherDevice™ Switch EDS-726 Series

26-Port Gigabit Ethernet Switch—Modular, Managed, Redundant

Features

Industrial Networking Capability

- Redundant Gigabit Ethernet Ring and RSTP (IEEE 802.1W) Capability (recovery time < 300 ms at full load)
- IGMP Snooping and GMRP for filtering multicast traffic from industrial Ethernet Protocols
- Supports IEEE 802.1Q VLAN and GVRP protocol to ease network planning
- Supports QoS-IEEE 802.1p/1Q and TOS/DiffServ to increase determinism
- Supports 802.3ad, LACP for optimum bandwidth utilization
- Supports IEEE 802.1X and SSL to enhance network security.
- SNMP V1/ V2C/ V3 for different levels of network management

Designed for Industrial Applications

- Modular Managed Switch with up to 26 ports. Choose from the following modules:
 - Three 1-port Gigabit modules, with 10/100/1000BaseT(X) (RJ45 connector), or 1000BaseSX/LX (SC connector)
 - Eight 4-port fast Ethernet Modules with a combination of 10/100BaseT(X) (RJ45 connectors) and 100BaseFX (Single/Multimode, SC/ST connectors)
- Compact-flash card for upgrading firmware and loading or saving configurations
- Bandwidth management prevents unpredictable network status
- 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
- IP 30, rugged high-strength case
- Long-haul transmit distance of 40 km or 80 km
- DIN-Rail or panel mounting capability
- Configurable by Web browser, Telnet/Serial console, Windows utility, CF card
- Send ping commands to identify network segment integrity

Recommended Software and Accessories

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

Future-Proof Investment

Network planning is easy and flexible. The modular design lets you install up to 2 Gigabit ports and 24 fast Ethernet ports. Choose from three 1-port Gigabit modules, with copper or fiber optic connectors, and eight 4-port Fast Ethernet modules with copper or fiber optic (SC/ST) connectors. EDS-726 meets the demands of any industrial application, and also leaves room for future expansion. EDS-726 is designed with the user

in mind. Features include a tilted LED display for convenient viewing from any vertical angle, plug-able Compact Flash for configuration back-up, and redundant and intelligent network management. EDS-726 provides more flexibility, reliability, and application-oriented functions to meet the demands of any harsh industrial application.

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

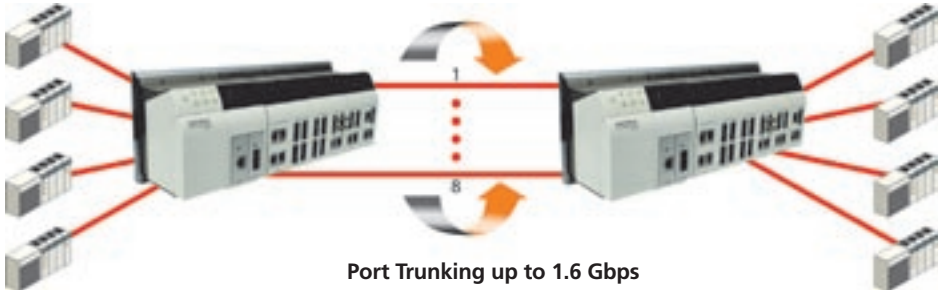
Ethernet has become the default data communications medium for industrial automation applications. In fact, it's not uncommon for video, voice, and high-rate industrial application data transfers to be integrated into one network. MOXA EDS-726, which comes equipped with a redundant Gigabit Ethernet protocol 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

IEEE 802.3ad (LACP, Link Aggregation Control Protocol), provides flexible network connections and a redundant path for critical devices. EDS-726 allows devices to communicate by aggregating up to four links in parallel, with a maximum of eight ports for each link for optimum and flexible network

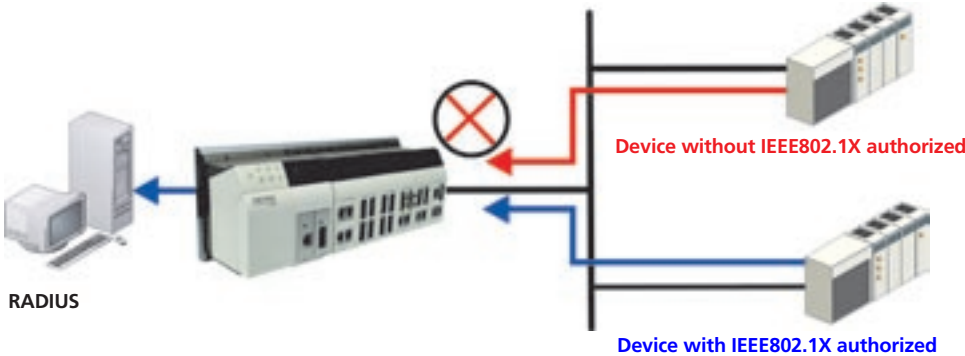
connection. If one of the eight ports fails, the other seven ports will back up and share the traffic automatically. LACP will exchange information to determine whether the ports selected in a group can be trunked together.



IEEE 802.1X enhances user authentication

EDS-726 supports IEEE 802.1X (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-726 supports IEEE 802.1D-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.

Appearance and Functions

1 User Friendly LED display

Tilted 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.



4 Easy Configuration

EDS-726 is easily configured over the network by web browser, Telnet console, Compact Flash card, or a Windows utility provided by Moxa. Moxa's Windows utility can also be used to store and copy configuration parameters to multiple EDS-726 units simultaneously. In addition, EDS-726 has import, export, and TFTP functions for convenient back up and duplication of the configuration file.

5



Future Proven Investment

When Industrial Ethernet penetrates the device level, 100 Mbps of bandwidth is not enough to meet the requirements

posed by video and voice applications. EDS-726, with its two Gigabit ports and Gigabit Turbo, gives you a reliable and high performance backbone. Select from three different 1-port Gigabit modules—10/100/1000BaseT(X) (RJ45 connector), 1000BaseSX (SC connector), or 1000BaseLX—to meet current needs or prepare for future demands.

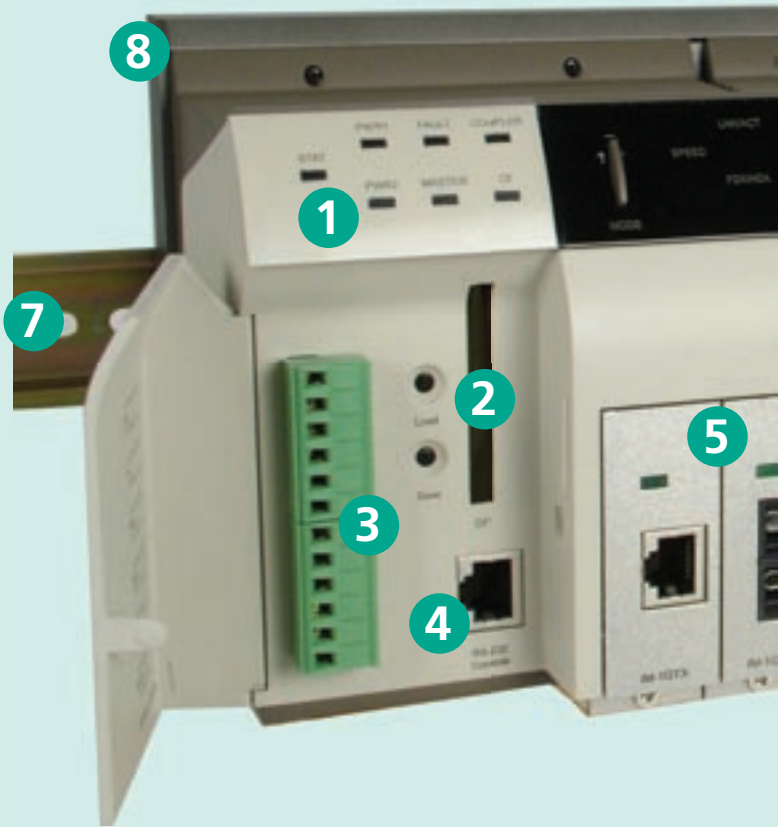
6



Flexible Network Topology Planning

Flexible Fast Ethernet module EDS-726 lets 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/Multimode, SC/ST connectors).

Long-haul transmit distance Long-haul single mode fiber optics for a transmission distance of 40 km or 80 km are also available.



Reduce System Downtime

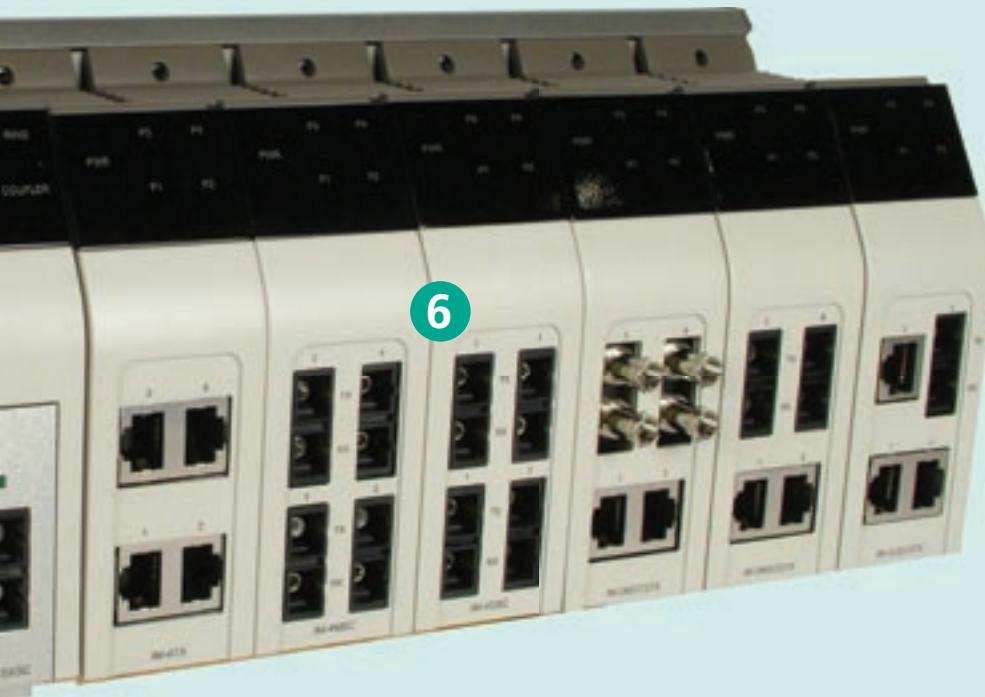
The switch's firmware, configurations for the switch and connected devices, as well as any relevant data can be backed up on a compact flash card, reducing downtime when replacing faulty devices.

3 Industrial Application Oriented Design

Dual redundant DC power inputs help guarantee non-stop operation. The backup power input will take over immediately when the primary DC power input fails.

Two relay outputs let you configure two warning levels to notify engineers in the field automatically when important events occur.

Two digital inputs can be used to integrate sensors into an automatic alarm mechanism, sending warning messages to an IP network by e-mail, SNMP trap, or OPC.



6

8



Industrial Grade Capability and Reliability

Heat Sink on the back panel increases system performance and reliability.

High MTBF and Low Maintenance Industrial grade design is due in part to the "no moving parts" construction.

Industrial Strength Safety Regulations Ensures that your Ethernet equipment can withstand critical industrial applications, such as in hazardous locations (UL/cUL Class 1 Div. 2 and ATEX Class 1 Zone 2), and follow CE Standards.

7



Easy and Flexible Installation

Rugged and User-friendly DIN-Rail Kit

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

Wall mounting kit

A handy option that meets the requirements of many different industrial applications.

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-726 supports IEEE 802.1Q standard and GVRP protocol that 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-726 Series 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. EDS-726 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-726 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-726 Series' mirroring port function helps to ensure that the system behaves as expected.

Automatic warning by event

Warning by e-mail

The EDS-726 Series can send out a warning e-mail when an exception is detected, providing system managers with real-time alarm messages.

Warning by relay output

The EDS-726 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-726 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-726 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-726 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 SNMP-Management Information into existing OPC-based SCADA-packages gives the customer the ability to establish an Ethernet

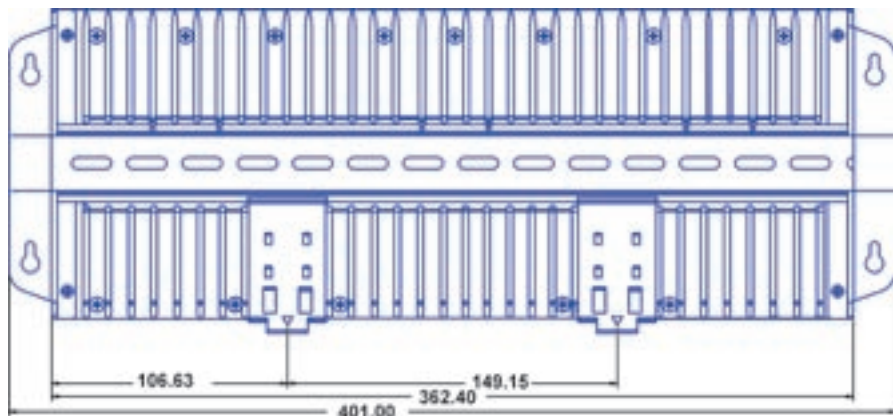
Network Management Application that is integrated with existing Visualization and Control applications.

Dimensions (unit = mm)

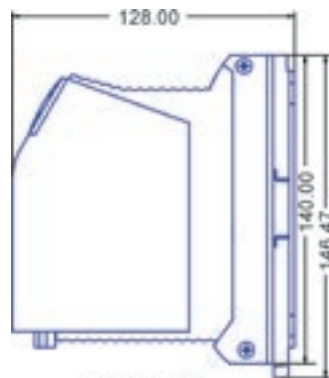
EDS-726



Front View

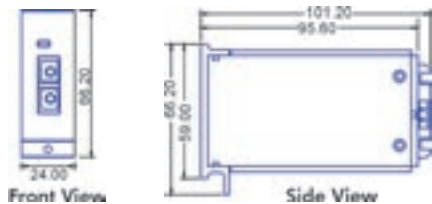


Rear View



Side View

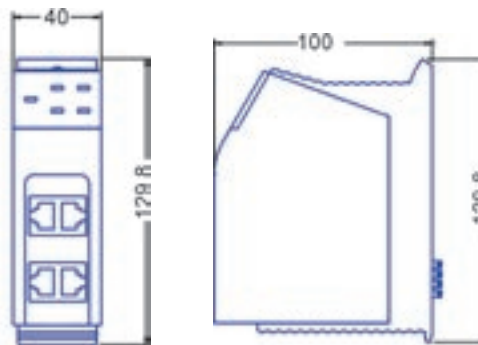
Gigabit Ethernet Interface Modules



Front View

Side View

Fast Ethernet Interface Modules



Front View

Side View

Specifications

Modular Managed Switch System, EDS-72610G



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

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

Gigabit Ethernet: 2 sockets for any combination of 1-port Interface Module with 10/100/1000BaseT(X), 1000BaseSX, or 1000BaseLX.

Compact Flash Interface: Present

Console: RS-232 (RJ45)

System LED Indicators: STAT, PWR1, PWR2, FAULT, MASTER, COUPLER and CF

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.

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

Power

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

Connection: Two removable 6-pin terminal blocks

Overload Current Protection: Present

Reverse Polarity Protection: Present

Mechanical

Casing: IP30 protection

Dimensions: 362 x 146 x 128 mm (W x H x D)

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

Gigabit Ethernet Interface Modules, IM



Interface

LED Indicators: Port Status

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

Fiber Ports: 1000BaseSX/LX (SC connector)

Optical Fiber

Distance:

Multi mode: IM-1GSXSC

0 to 500 m, 850 nm (50/125 μ m, 400 MHz*km)

0 to 275 m, 850 nm (62.5/125 μ m, 200 MHz*km)

IM-1GLXSC

0 to 1100 m, 1310 nm (50/125 μ m, 800 MHz*km)

0 to 550 m, 1310 nm (62.5.125 μ m, 500 MHz*km)

Single mode: IM-1GLXSC

0 to 10 km, 1310 nm (9/125 μ m, 3.5 PS/(nm*km))

Mechanical

Dimensions: 24 x 66 x 101 mm (W x H x D)

Fast Ethernet Interface Modules, IM series



Technology

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

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))

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), -34 to -30 dBm (Multi)

Mechanical

Casing: IP30 protection

Dimensions: 40 x 130 x 100 mm (W x H x D)

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 (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 3

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

Free Fall: IEC60068-2-32

Vibration: IEC60068-2-6

WARRANTY: 5 years

*Preliminary specifications are subject to change without notice.

Ordering information

EDS-72610G: Modular Managed Switch System with 6 slots, up to 26 ports.

IM-4TX: Interface Module with 4 10/100BaseT(X) ports, RJ45 connectors.

IM-4MSC: Interface Module with 4 multi mode 100BaseFX ports, SC connectors.

IM-4MST: Interface Module with 4 multi mode 100BaseFX ports, ST connectors.

IM-4SSC: Interface Module with 4 single mode 100BaseFX ports, SC connectors, 40 km.

IM-2MSC/2TX: Interface Module with 2 multi mode 100BaseFX ports, SC connectors, and 2 10/100BaseT(X) ports, RJ45 connectors.

IM-2MST/2TX: Interface Module with 2 multi mode 100BaseFX ports, ST connectors, and 2 10/100BaseT(X) ports, RJ45 connectors.

IM-2SSC/2TX: Interface Module with 2 single mode 100BaseFX ports, SC connectors, and 2 10/100BaseT(X) ports, RJ45 connectors, 40 km.

IM-1LSC/3TX: Interface Module with 1 single mode 100BaseFX port, 80 km SC connector and 3 10/100BaseT(X) ports, RJ45 connectors.

IM-1GTX: Interface Module with 1 10/100/1000BaseT(X), RJ45 connector.

IM-1GSXSC: Interface Module with 1 1000BaseSX port, SC connector.

IM-1GLXSC: Interface Module with 1 1000BaseLX port, SC connector.

Optional Accessories

DR-4524: 45W/2A DIN-Rail 24 VDC Power Supply with universal 85 to 264 VAC input

DR-75-24: 75W/3.2A DIN-Rail 24 VDC Power Supply with universal 85 to 264 VAC input

DR-120-24: 120W/5A DIN-Rail 24 VDC Power Supply with 88 to 132 VAC/176 to 264 VAC input by switch

***See page 9-5 for more details about these DIN-Rail**

Power Supplies.

EDS-SNMP OPC Server Pro: CD with EDS-SNMP OPC Server Software and Manual

WK-32: EDS-726 Wall Mounting Kit