

## Industrial Ethernet Switch Solutions

# EtherDevice™ Server ED6008 Series

## Industrial 8-Port Redundant Ethernet Switch

### Features

#### High Performance Network Switching Technology

- 10/100BaseT(X) (RJ45), 100BaseFX (Multi/Single mode Fiber)
- IEEE 802.3/802.3u/802.3x/802.1D, SNMP, DHCP Server/Client, BootP
- Store and Forward switching process type, 4096 address entries
- 10/100M, Full/Half-Duplex, MDI/MDIX auto-sensing

#### Industrial Grade Reliability

- Redundant Ethernet Ring capability (recovery time < 300 ms at full load)
- Line-swap fast recovery (patent pending)
- Automatic e-mail warning by exception
- Power failure alarm by relay output
- Automatic recovery of connected device's IP addresses
- Redundant, dual DC power inputs

#### Rugged Design

- 0 to 60°C operating temperature range
- IP 30, rugged high-strength case
- DIN-Rail or panel mounting ability
- High MTBF of over 77,500 hours



#### Useful Utilities and Remote Configuration

- Web browser, Telnet/Serial console, Windows utility configurable
- Port mirroring for online debugging
- Send Ping commands to identify network segment integrity

### Recommended Software and Accessories

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



### Overview

The MOXA EtherDevice™ Server ED6008 series consists of 8-port Ethernet Switches designed especially for industrial applications. With their high performance switching engine, redundant Ethernet ring capability, and dynamic status report ability, you can be confident that your industrial automation system will keep running continuously. ED6008 series' useful device management and network

management functions make it easy for you to master your automation Ethernet network, and the rugged hardware design makes these products suitable for use in demanding industrial environments.

Moreover, the easy web browser and windows utility configuration options ensure quick and accurate installation.

### High Performance Ethernet Switch

ED6008 series has 8 Ethernet switching ports that support 10/100BaseT(X) (RJ45) or 100BaseFX (Fiber), and the 10/100M auto-negotiation feature and auto MDI/MDIX function eliminate compatibility problems when connecting Ethernet-

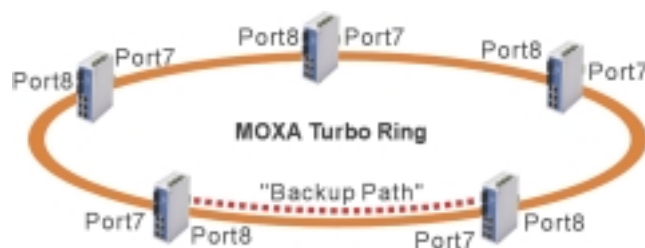
enabled devices to ED6008. With a full slate of supported IEEE standards, and its full-performance bandwidth for heavy Ethernet package switching tasks, your network system is assured to operate at peak performance.

## Fast Ethernet Redundant Ring Capability (<300 ms)

For industrial automation applications, redundancy is always an important issue to help increase the reliability of your system. MOXA EtherDevice™ Redundant Switch—ED6008—comes equipped with a network redundant protocol—called “Turbo Ring”—that was developed by Moxa. Turbo Ring can allow you to establish a redundant Ethernet network easily. With its ultra high-speed recovery time, when any segment of your network is disconnected, your automation system will be back to normal in only 300 ms.

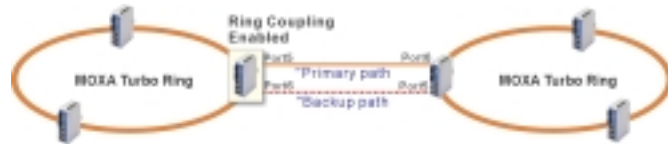
### Single Turbo Ring for Fast Media Redundancy

Turbo Ring can be used to build a backup ring topology. One network segment is blocked logically, and if another segment is broken, Turbo Ring will automatically reconnect, with recovery time less than 300 ms (with 120 nodes connected and a full load network HMI traffic), increasing uptime, and keeping your HMI/SCADA system running continuously.



### Turbo Ring Coupling for Distributed Applications

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



### Dual Turbo Rings for Device Redundancy

Different automation applications require different levels of redundancy. For media redundancy, only Turbo Ring's fast 300 ms recovery time is sufficient for every critical automation system. As far as device redundancy is concerned, you can still establish dual Turbo Rings that have a 300 ms recovery time for media redundancy, but without needing to rely on software to re-establish the connection, as is the case with dual star topologies.



## Industrial Ethernet Switch Solutions

### Designed for Industrial Environments

The ED6008 series is designed to operate in harsh industrial application environments, has a wide operating temperature range from 0 to 60°C, and is able to withstand a high degree of vibration and shock.



### Automatic E-mail Warning by Event



\*The traffic overload warning notifies you before the network crashes.

The ED6008 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

### Line-Swap Fast Recovery

Commercial Ethernet switches need 3 to 5 minutes to recover connections when networked devices change their position, an unacceptable scenario for industrial applica-

tions. Compare this with the MOXA patented Line-Swap Fast Recovery feature, which responds in less than 1 second, keeping your communication lines open longer.

### Replace Faulty Devices

To reduce the effort required to repeatedly set up IP addresses, the ED6008 series comes equipped with DHCP/BootP server and RARP protocol to automatically set up IP addresses of Ethernet-enabled devices.



### Network and Device Management with SNMP OPC Server

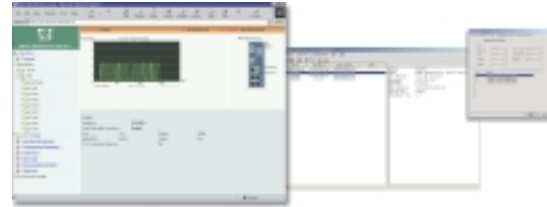
The ED6008 SNMP-OPC Server software package can convert SNMP information into industrial standard OPC (OLE for Process Control) format. The vertical integration of SNMP-Management Information into existing OPC-based SCADA-packages gives the customer the ability to build up an Ethernet network management application

integrated with existing visualization and control applications, a proven standard communication interface between the IT and Automation worlds.



## Easy Configuration

The ED6008 series is easily configured over the network by web browser, Telnet console, or a Moxa provided Windows utility. Moxa's Batch Configurator can also be used to store and copy configuration parameters to multiple ED6008 units simultaneously.



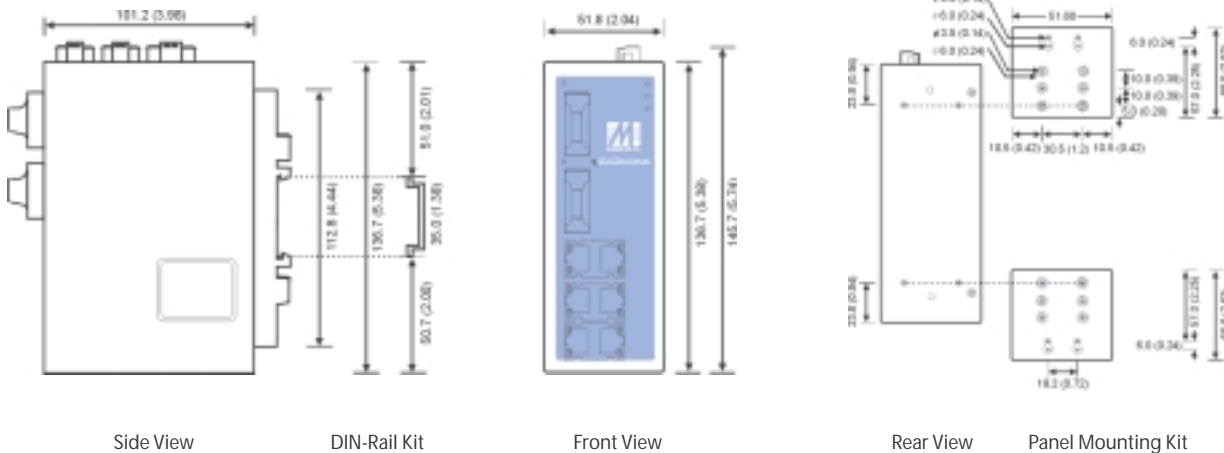
## EMS Type Tests

Test	Description	Test Levels	Severity Level
IEC 61000-4-2	ESD	Air discharge	+/- 8 KV
		Contact discharge	+/- 6 KV
		ESD contact indirect	+/- 6 KV
IEC 61000-4-3	Radiated RFI	Housing	10 V/m, 80 MHz – 1 GHz, AM 1 KHz 80% modulation 10 V/m, 0.9 GHz – 1.8 GHz, FM 200 Hz 50% square
IEC 61000-4-4	Burst (Fast Transient)	Power supply lines	+/- 2 KV
		Comm. lines	+/- 1 KV
		Relay	+/- 1 KV
IEC 61000-4-5	Surge	Power supply lines	+/- 2 KV, 12 ,CM +/- 1KV, 2 ,DM
		Relay	+/- 1 KV, 42 ,CM +/- 1KV, 42 ,DM
IEC 61000-4-6	Induced (Conducted) RFI	Power supply lines	10 Vrms, 150 KHz – 80 MHz, AM 1 KHz 80% modulation
		Comm. lines	10 Vrms, 150 KHz – 80 MHz, AM 1 KHz 80% modulation
		Relay	10 Vrms, 150 KHz – 80 MHz, AM 1 KHz 80% modulation

## ENVIRONMENTAL Type Tests

Test	Description	Test Levels
IEC 60068-2-6	Vibration	10-500-10Hz, 0.5 oct./min., 4 g, X, Y, Z (3 axes)
IEC 60068-2-27	Shock	50 g, 11 ms, ±X, ±Y, ±Z (6 directions)
IEC 60068-2-32	Free Fall	75 cm, 1 corner, 3 edges, 6 faces (total 10 drops)

## Dimensions, unit = mm (inch)



## Specifications

### Technology

**Standards:** IEEE802.3, 802.3u, 802.3x, 802.1D

**Forwarding and Filtering Rate:** 148810 pps

**Packet Buffer Memory:** 256 KB

**Processing Type:** Store and Forward, with IEEE802.3x full duplex, non-blocking flow control

**Address Table Size:** 4K uni-cast addresses

**Latency:** Less than 5  $\mu$ s

**Management:** SNMP V. 1.2c, MIB-II, Ethernet-like MIB, EDS-SNMP OPC Server (optional)

### Interface

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

**Fiber Ports:** 100BaseFX ports (SC connector)

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

**LED Indicators:** Power, Faults, ACT, LNK, 10/100

**Alarm Contact:** One relay output with current carrying capacity of 1A @ 24 VDC

### Optical Fiber

**Distance:** Single mode fiber for 15 km, Multi mode fiber for 2 km

**Wavelength:** 1310 nm

**Min. TX Output:** -15 dBm (Single), -20 dBm (Multi)

**Max. TX Output:** -6 dBm (Single), -14 dBm (Multi)

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

### Power

**Input Voltage:** 9 to 32 VDC, redundant inputs

**Input Current (@24V):**  
0.35A: (ED6008)  
0.45A: (ED6008-M-SC, ED6008-S-SC)  
0.55A: (ED6008-MM-SC, ED6008-SS-SC)

**Connection:** Removable Terminal Block (maximum cable diameter = 1.5 mm)

**Overload Current Protection:** Present, can withstand 2.5A

**Reverse Polarity Protection:** Present

### Mechanical

**Casing:** IP30 protection, aluminum case

**Dimensions:** 51.8 x 136.7 x 101.2 mm (W x H x D)

**Weight:** 0.57 kg

**Installation:** DIN-Rail, Wall Mounting

### Environment

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

**Storage Temperature:** -40 to 80°C (-40 to 185°F)

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

**MTBF:** 77,500 hours

### Regulatory Approvals

**UL/CUL:** UL60950

**TÜV:** EN60950

**FCC Part 15 class A**

**EMI:** EN55022

### WARRANTY

5 years

## Ordering Information

**ED6008:** Industrial Redundant Ethernet Switch with 8 10/100BaseT(X) ports

**ED6008-M-SC:** Industrial Redundant Ethernet Switch with 7 10/100BaseT(X) ports, 1 multi mode 100BaseFX port

**ED6008-S-SC:** Industrial Redundant Ethernet Switch with 7 10/100BaseT(X) ports, 1 single mode 100BaseFX port

**ED6008-MM-SC:** Industrial Redundant Ethernet Switch with 6 10/100BaseT(X) ports, 2 multi mode 100BaseFX ports

**ED6008-SS-SC:** Industrial Redundant Ethernet Switch with 6 10/100BaseT(X) ports, 2 single mode 100BaseFX ports

All items include User's Manual

### 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 7-3 for more detailed information about these DIN-Rail Power Supplies.

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

See page 1-9 for more detailed information about EDS-SNMP OPC Server.