

# EtherDevice™ Switch EDS-405 Series

## Industrial 5-Port Unmanaged Redundant Ethernet Switches

### Features

#### High Performance Network Switching Technology

- Plug-n-play, ring redundancy solution (recovery time < 300 ms)
- 10/100BaseT(X) (RJ45), 100BaseFX (SC optical fiber connector, Multi mode)
- Support IEEE 802.3/ 802.3u/ 802.3x
- Store and Forward switching process type
- 10/100M, Full/Half-Duplex, MDI/MDI-X auto-sensing

#### Industrial Grade Reliability

- Power failure, port break alarm by relay output
- Redundant dual DC power inputs
- Line-Swap Fast Recovery (patent pending)

#### Rugged Design

- Operating temperature ranges from 0 to 60°C, or extended operating temperature from -40 to 75°C



- IP30, rugged high-strength metal case
- For hazardous location (Class 1 Div. 2/Zone 2)
- Long-haul transmit distance of 40 km or 80 km
- DIN-Rail or panel mounting ability

#### Recommended Accessories

- DR Series DIN-Rail 24 VDC Power Supplies



### Overview

EDS-405 Series, the new generation of EtherDevice™ Switch, includes 3 models: EDS-405, EDS-405-MM-SC, and EDS-405-SS-SC. EDS-405 Series is a 5-port Ethernet switch specially designed for industrial automation and control systems. It comes with plug-n-play MOXA Turbo Ring, which is used to establish a Redundant Ethernet ring topology. Turbo Ring can automatically transmit over a redundant path segment in less than 300 ms, increasing the reliability of your system.

These products have been designed for harsh industrial environments, such as in hazardous locations (UL/cUL Class 1 division 2, or ATEX Class 1 zone 2) that comply with FCC, TÜV, UL, and CE standards. EDS-405 series has 2 models available with operating temperature from 0 to 60°C and extended operating temperature from -40 to 75°C. These 2 models are designed for standard and extended operating temperatures respectively, and then go through a 100% burn-in test, fulfilling the special needs of industrial automation control.

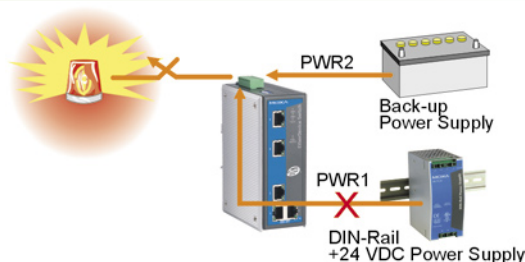
### Plug-n-Play, Redundant Ethernet Solution

EDS-405 is a plug-n-play redundant Ethernet solution with MOXA Turbo Ring. One network segment is blocked logically, and if another segment is broken, Turbo Ring will automatically start using the Backup Path, with recovery time less than 300 ms, increasing uptime, and keeping your HMI/SCADA system running continuously.



### ❖ Redundant Power Inputs

EDS-405 provides two power inputs that can be connected simultaneously to live DC power sources. If one of the power inputs fails, the other live source acts as a backup to automatically support the EDS-405's power needs. The redundant dual DC power inputs give you extra assurance of non-stop operation.



### ❖ Relay Output Alarm for Port Break, Power Failure

The built-in relay output function helps you monitor each port's link status, each power input's status, and the integrity of the Turbo Ring topology. This relay output warning

function enables your maintenance engineers to react promptly to emergency situations.

### ❖ Line Swap Fast Recovery

Commercial Ethernet switches need 3 to 5 minutes to recover your connection when you unplug your device from one port and plug into another port for field diagnosis. The Line-

Swap Fast Recovery feature responds in less than 1 second, increasing the efficiency of your factory floor network diagnosis.

### ❖ Specifications

#### Technology

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

**Processing Type:** Store and Forward

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

#### Interface

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

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

**LED Indicators:** Power, Faults, 10/100M, Ring Master

**DIP Switch:** Port break alarm mask, Ring Master

**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:** 12 to 48 VDC, redundant inputs

**Input Current (@24V):** 0.35 A

**Overload Current Protection:** 1.1A

**Connection:** Removable 6-pin Terminal Block

**Reverse Polarity Protection:** Present

#### Mechanical

**Casing:** IP30 protection, metal case

**Dimensions:** 53.6 x 135 x 105 mm (W x H x D)

**Weight:** 0.65 kg

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

#### Environment

**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

**Hazardous location:**

UL/cUL Class 1, Division 2, Groups A, B, C and D

ATEX Class 1, Zone 2, EEx nC IIC

**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

**Shock:** IEC60068-2-27

**Free Fall:** IEC60068-2-32

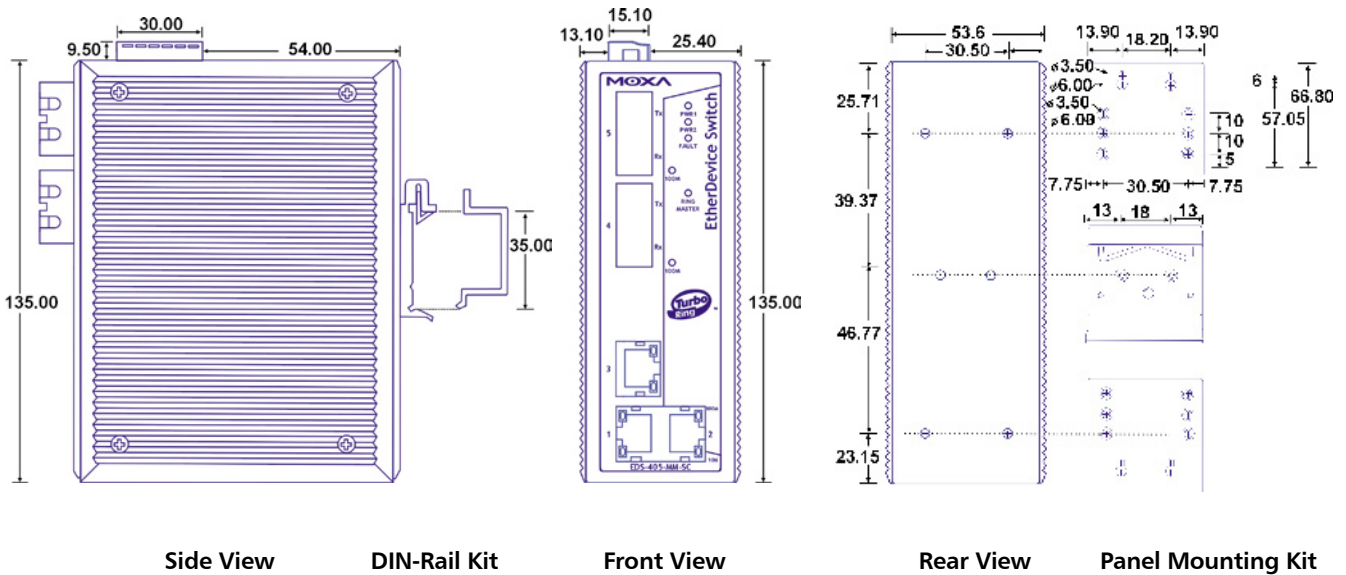
**Vibration:** IEC60068-2-6

**MTBF:** 400,000 hrs

Data Base: MIL-HDBK-217F, GB

**WARRANTY:** 5 years

➤ Dimensions, unit = mm (inch)



➤ Ordering Information

**EDS-405:** Unmanaged Redundant Ethernet Switch with 5 10/100BaseT(X), 0 to 60°C

**EDS-405-MM-SC:** Unmanaged Redundant Ethernet Switch with 3 10/100BaseT(X), 2 100BaseFX, multi mode, SC connector, 0 to 60°C

**EDS-405-SS-SC:** Unmanaged Redundant Ethernet Switch with 3 10/100BaseT(X), 2 100BaseFX, single mode, SC connector, 0 to 60°C

**Extended Operating Temperature Models (-40 to 75°C)**

**EDS-405-T:** Unmanaged Redundant Ethernet Switch with 5 10/100BaseT(X), -40 to 75°C

**EDS-405-MM-SC-T:** Unmanaged Redundant Switch with 3 10/100BaseT(X), 2 100BaseFX, multi mode, SC connector, -40 to 75°C

**EDS-405-SS-SC-T:** Unmanaged Redundant Ethernet Switch with 3 10/100BaseT(X), 2 100BaseFX, single mode, SC connector, -40 to 75°C

**All items include:** User's Manual

*Long haul transmit for Single mode optical fiber of 40 km and 80 km are also available.*

**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 4-6 for more detailed information about these DIN-Rail Power Supplies.*

**WK-46:** Wall Mounting kit