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, Single/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 (Patented)**

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**

CE FC c(UL)us LISTED TÜV Rheinland Product Safety / BAUART GEPRÜFT TYPE APPROVED 〈Ex〉

- **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. These 5-port Ethernet switches are specially designed for industrial automation and control systems. The plug-n-play MOXA Turbo Ring, which is used to establish a Redundant Ethernet ring topology, is included with each switch. Turbo Ring can automatically transmit over a redundant path segment in less than 300 ms, increasing the reliability of your system.

EDS-405 Series are designed for harsh industrial environments, such as in hazardous locations (UL/cUL Class I division 2, or ATEX Class 1 zone 2) that comply with FCC, TÜV, UL, and CE standards. The 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 go through a 100% burn-in test, to ensure that they fulfill the special needs of industrial automation control.
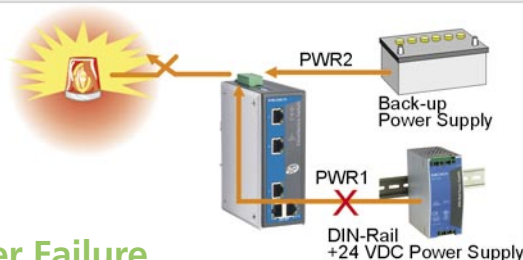
▶ Plug-n-Play, Redundant Ethernet Solution

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

Turbo Ring

"Backup Path"

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 support EDS-405's power needs automatically. 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 form 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 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:
Multi mode: 0 to 5 km, 1310 nm (50/125 μm, 800 MHz*km)
          0 to 4 km, 1310n m (62.5/125 μm, 500 MHz*km)
Single mode: 0 to 15 km, 1310 nm (9/125 μm, 3.5 PS/(nm*km))
          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 15 km, -15 dBm
        0 to 40 km, -5 dBm
        0 to 80 km, -5 dBm

Max. TX Output:
Multi mode : -14 dBm
Single mode: 0 to 15 km, -6 dBm
        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 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

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
Hazardous location:
UL/cUL Class 1, Division 2, Groups A, B, C and D (E238559)
ATEX Class 1, Zone 2, EEx nC IIC (03CA24537)
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
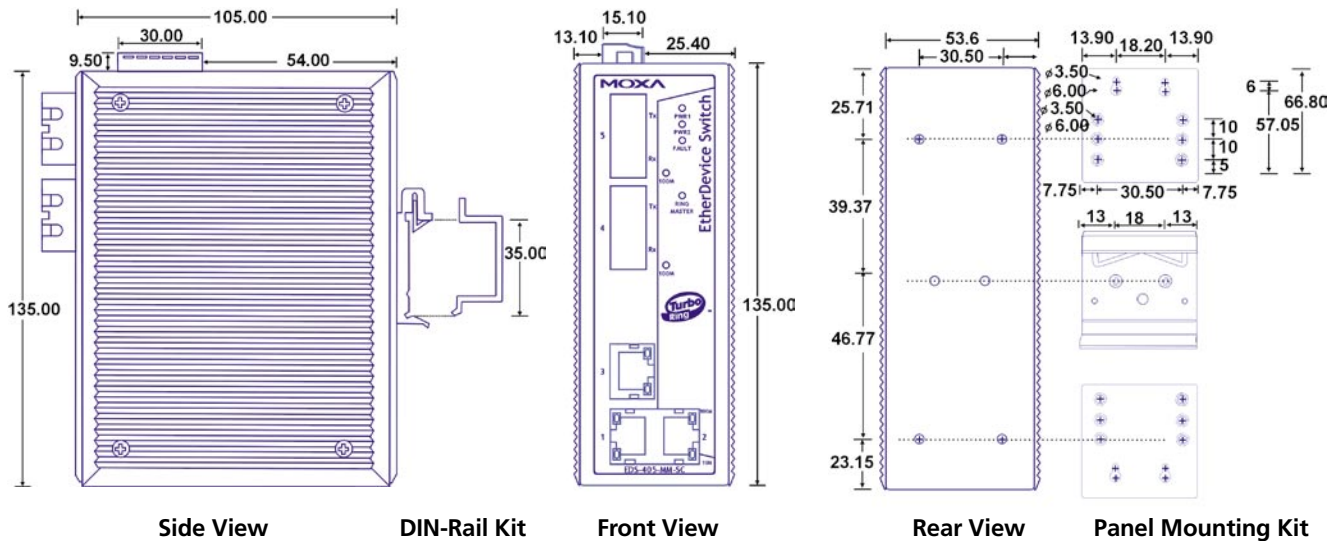
◤ Specifications

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)

| Side View | DIN-Rail Kit | Front View | Rear View | Panel Mounting Kit |

◤ 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 models 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 5-6 for more detailed information about these DIN-Rail Power Supplies.
WK-46: Wall Mounting kit

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