Package Checklist

The EDS-510A is shipped with the following items. If any of these items are missing or damaged, please contact your customer service representative for assistance.

- 1 EDS-510A EtherDevice Switch
- Hardware Installation Guide (this guide)
- CD-ROM with user’s manual and Windows utility
- Moxa product warranty statement
- RJ45 to DB9 console port cable
- Protective caps for unused ports
- DIN-Rail mounting kit (attached to the EDS-510A’s rear panel by default)

Optional Accessories

- **SFP-1GSXLC**: Small Form factor Pluggable transceiver with 1000BaseSX, LC, 0.5km, 0 to 60°C
- **SFP-1GSXLC-T**: Small Form factor Pluggable transceiver with 1000BaseSX, LC, 0.5km, -40 to 75°C
- **SFP-1GLXLC**: Small Form factor Pluggable transceiver with 1000BaseLX, LC, 10km, 0 to 60°C
- **SFP-1GLXLC-T**: Small Form factor Pluggable transceiver with 1000BaseLX, LC, 10km, -40 to 75°C
- **SFP-1GLHXLC**: Small Form factor Pluggable transceiver with 1000BaseLHX, LC, 40 km, 0 to 60°C
- **SFP-1GLHXLC-T**: Small Form factor Pluggable transceiver with 1000BaseLHX, LC, 40 km, -40 to 75°C
- **SFP-1GZXLC**: Small Form factor Pluggable transceiver with 1000BaseZX, 80 km, LC, 0 to 60°C
- **ABC-01**: Automatic Backup Configurator via RS-232 Console Port, 0 to 60°C
- **DR-4524** — DIN-Rail Power Supply (24 VDC, 45W/2A, with 85 to 264 VAC input)
- **DR-75-24** — DIN-Rail Power Supply (24 VDC, 75W/3.2A, with 85 to 264 VAC input)
- **DR-120-24** — DIN-Rail Power Supply (24 VDC, 120W/5A, with 88 to 132 VAC/176 to 264 VAC input by switch)
- **EDS-SNMP OPC Server Pro** — CD with EDS-SNMP OPC Server software and user’s manual
- **WK-46** — Wall Mounting Kit (will be shipped with the product)
### Panel Views of EDS-510A

1. 1 to 7: 10/100BaseT(X) port
2. G1:
   - **EDS-510A-3GT**: 10/100/1000BaseT(X) port
   - **EDS-510A-1GT2SFP**: 10/100/1000BaseT(X) port
   - **EDS-510A-3SFP**: 1000BaseSX/LX/LHX/ZX port
3. G2:
   - **EDS-510A-3GT**: 10/100/1000BaseT(X) port
   - **EDS-510A-1GT2SFP**: 1000BaseSX/LX/LHX/ZX port
   - **EDS-510A-3SFP**: 1000BaseSX/LX/LHX/ZX port
4. G3:
   - **EDS-510A-3GT**: 10/100/1000BaseT(X) port
   - **EDS-510A-1GT2SFP**: 1000BaseSX/LX/LHX/ZX port
   - **EDS-510A-3SFP**: 1000BaseSX/LX/LHX/ZX port
5. G1, G2, G3: LED indicators for 1000 Mbps ports
6. PWR1: LED for power input 1
7. PWR2: LED for power input 2
8. FAULT: LED indicator
9. MASTER: LED indicator
10. COUPLER: LED indicator
11. Turbo Ring logo
12. 100M: LED indicator for TP port
13. 10M: LED indicator for TP port
14. Model Name
Top Panel:
1. Ground screw
2. RS-232 console port
3. Heat dissipation orifices
4. DIP switches for Ring Master, Ring Coupler, and Turbo Ring
5. 6-pin terminal block for DI 1, DI 2, and PWR 2
6. 6-pin terminal block for PWR1, Relay 1, and Relay 2

Rear Panel:
7. Screw holes for Wall Mounting Kit
8. DIN-Rail Kit
Mounting Dimensions (unit = mm)

DIN-Rail Mounting
The aluminum DIN-Rail attachment plate should already be fixed to the back panel of the EDS-510A when you take it out of the box. If you need to reattach the DIN-Rail attachment plate to the EDS-510A, make sure the stiff metal spring is situated towards the top, as shown by the following figures.

**STEP 1**—Insert the top of the DIN-Rail into the slot just below the stiff metal spring.

**STEP 2**—The DIN-Rail attachment unit will snap into place as shown in the following illustration.

To remove the EDS-510A from the DIN-Rail, simply reverse Steps 1 and 2 above.
Wall Mounting (Optional)
For some applications, you will find it convenient to mount MOXA EDS-510A on the wall, as shown in the following illustrations:

**STEP 1**—Remove the aluminum DIN-Rail attachment plate from the rear panel of the EDS-510A, and then attach the wall mount plates, as shown in the figure at the right.

**STEP 2**—Mounting the EDS-510A on the wall requires 4 screws. Use the EDS-510A, with wall mount plates attached, as a guide to mark the correct locations of the 4 screws. The heads of the screws should be less than 6.0 mm in diameter, and the shafts should be less than 3.5 mm in diameter, as shown in the figure at right.

**NOTE** Before tightening the screws into the wall, make sure the screw head and shank size are suitable by inserting the screw through one of the keyhole-shaped apertures of the Wall Mounting Plates.

Do not screw the screws in all the way—leave about 2 mm to allow room for sliding the wall mount panel between the wall and the screws.

**STEP 3**—Once the screws are fixed to the wall, insert the four screw heads through the wide parts of the keyhole-shaped apertures, and then slide the EDS-510A downwards, as indicated in the figure at the right. Tighten the four screws for more stability.

Wiring Requirements

**WARNING**
Do not disconnect modules or wires unless power has been switched off or the area is known to be non-hazardous. The devices may only be connected to the supply voltage shown on the type plate. The devices are designed for operation with a Safety Extra-Low Voltage. Thus, they may only be connected to the supply voltage connections and to the signal contact with the Safety Extra-Low Voltages (SELV) in compliance with IEC950/EN60950/ VDE0805.
ATTENTION
This unit is a built-in type. When the unit is installed in another piece of equipment, the equipment enclosing the unit must comply with fire enclosure regulation IEC 60950/EN60950 (or similar regulation).

ATTENTION
Safety First!
Be sure to disconnect the power cord before installing and/or wiring your MOXA EtherDevice Switch.
Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.
If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

You should also pay attention to the following:

• Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point
• NOTE: Do not run signal or communications wiring and power wiring through the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately
• You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together
• You should separate input wiring from output wiring
• We advise that you label the wiring to all devices in the system.

Grounding the MOXA EDS-510A
Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

ATTENTION
This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

Wiring the Relay Contact
The EDS-510A has two sets of relay outputs—relay 1 and relay 2. Each relay contact uses two contacts of the terminal block on the EDS-510A’s top panel. Refer to the next section for detailed instructions on how to connect the wires to the terminal block connector, and how to attach the terminal block connector to the terminal block receptor.

In this section, we illustrate the meaning of the two contacts used to connect the relay contact.
FAULT:
The two sets of relay contacts of the 6-pin terminal block connector are used to detect user-configured events. The two wires attached to the fault contacts form an open circuit when a user-configured event is triggered. If a user-configured event does not occur, the fault circuit remains closed.

Wiring the Redundant Power Inputs
The EDS-510A has two sets of power inputs—power input 1 and power input 2. The top two contacts and the bottom two contacts of the 6-pin terminal block connector on the EDS-510A’s top panel are used for the two digital inputs. The top and front views of one of the terminal block connectors are shown here.

STEP 1: Insert the negative/positive DC wires into the V-/V+ terminals, respectively.

STEP 2: To keep the DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

STEP 3: Insert the plastic terminal block connector prongs into the terminal block receptor, which is located on the EDS-510A’s top panel.

Wiring the Digital Inputs
The EDS-510A has two sets of digital inputs, DI 1 and DI 2. Each DI consists of two contacts of the 6-pin terminal block connector on the EDS-510A’s top panel, which are used for the two DC inputs. The top and front views of one of the terminal block connectors are shown here.

STEP 1: Insert the negative (ground)/positive DI wires into the ┴/I1 terminals, respectively.

STEP 2: To keep the DI wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

STEP 3: Insert the plastic terminal block connector prongs into the terminal block receptor, which is located on the EDS-510A’s top panel.
Communication Connections

Each EDS-510A switch has 3 types of communication port:

- 1 RJ45 console port (RS-232 interface)
- 7 10/100BaseTX Ethernet ports
- 3 gigabit Ethernet ports:
  - 3 10/100/1000BaseTX ports, or 1 10/100/1000BaseTX and 2 1000BaseSFP (mini-GBIC) ports, or 3 1000BaseSFP (mini-GBIC) ports

In this section, we present two types of diagrams—Pinout Diagrams and Cable Wiring Diagrams—that convey information about the ports and the cables used to connect the EDS-510A to other devices:

**Pinouts**—The “Pinouts” diagrams display the type of signal passing through each of the port’s pins.

**Cable Wiring**—The “Cable Wiring” diagrams present standard cable wiring schemes for cables used to connect the EDS-510A’s ports to other devices. These diagrams display three pieces of information:

1. When building your own cable, refer to the “pin-to-pin” cable wiring information displayed between the two vertical dashed lines to see which pin of the connector on the left should be connected to which pin of the connector on the right.
2. The information to the left of the left vertical dashed lines gives the pinouts of the relevant EDS-510A port.
3. The information to the right of the right vertical dashed line gives the pinouts of the opposing device’s port.

**NOTE**

1. The pin numbers for male DB9 connectors and hole numbers for female DB9 connectors are labeled on the connector.
2. The pin numbers for 10-pin RJ45 connectors (and ports) are typically not labeled on the connector (or port). Refer to the following Pinout and Cable Wiring diagrams to see how 10-pin RJ45 pins are numbered.

RS-232 Connection

The EDS-510A has one RS-232 (10-pin RJ45) console port, located on the top panel. Use either an RJ45-to-DB9 (see the cable following wiring diagrams) to connect the EDS-510A’s console port to your PC’s COM port. You may then use a console terminal program, such as MOXA PComm Terminal Emulator, to access the EDS-510A’s console configuration utility.
RJ45 (10-pin) Console Port Pinouts

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>DSR</td>
</tr>
<tr>
<td>3</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>TxD</td>
</tr>
<tr>
<td>6</td>
<td>RxD</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>---</td>
</tr>
<tr>
<td>9</td>
<td>DTR</td>
</tr>
<tr>
<td>10</td>
<td>---</td>
</tr>
</tbody>
</table>

RJ45 (10-pin) to DB9 (F) Cable Wiring

10/100BaseT(X) Ethernet Port Connection

The 10/100BaseT(X) ports located on the EDS-510A’s front panel are used to connect to Ethernet-enabled devices. Most users configure these ports for Auto MDI/MDI-X mode, in which case the port’s pinouts are adjusted automatically depending on the type of Ethernet cable used (straight-through or cross-over), and the type of device (NIC-type or HUB/Switch-type) connected to the port.

In what follows, we give pinouts for both MDI (NIC-type) ports and MDI-X (HUB/Switch-type) ports. We also give cable wiring diagrams for straight-through and cross-over Ethernet cables.

RJ45 (8-pin, MDI) Port Pinouts

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tx+</td>
</tr>
<tr>
<td>2</td>
<td>Tx-</td>
</tr>
<tr>
<td>3</td>
<td>Rx+</td>
</tr>
<tr>
<td>6</td>
<td>Rx-</td>
</tr>
</tbody>
</table>

RJ45 (8-pin, MDI-X) Port Pinouts

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rx+</td>
</tr>
<tr>
<td>2</td>
<td>Rx-</td>
</tr>
<tr>
<td>3</td>
<td>Tx+</td>
</tr>
<tr>
<td>6</td>
<td>Tx-</td>
</tr>
</tbody>
</table>
RJ45 (8-pin) to RJ45 (8-pin) Straight-through Cable Wiring

- **Switch Port**
  - **RJ45 Plug Pin 1**
  - **Connector**
    - **Tx+** 3
    - **Tx-** 6
    - **Rx+** 1
    - **Rx-** 2

- **NIC Port**
  - **RJ45 Connector**
    - **Rx+**
    - **Rx-**
    - **Tx+**
    - **Tx-**

RJ45 (8-pin) to RJ45 (8-pin) Cross-over Cable Wiring

- **Switch Port**
  - **RJ45 Plug Pin 1**
  - **Connector**
    - **(RxA+)** 3
    - **(RxB+)** 6
    - **(RxA-)** 1
    - **(RxB-)** 2

- **NIC Port**
  - **RJ45 Connector**
    - **(Rx+)**
    - **(Rx-)**
    - **(Tx+)**
    - **(Tx-)**

1000BaseT Ethernet Port Connection

1000BaseT data is transmitted on differential TRD+/− signal pairs over copper wires.

MDI/MDI-X Port Pinouts

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TRD(0)+</td>
</tr>
<tr>
<td>2</td>
<td>TRD(0)-</td>
</tr>
<tr>
<td>3</td>
<td>TRD(1)+</td>
</tr>
<tr>
<td>4</td>
<td>TRD(1)-</td>
</tr>
<tr>
<td>5</td>
<td>TRD(2)+</td>
</tr>
<tr>
<td>6</td>
<td>TRD(2)-</td>
</tr>
<tr>
<td>7</td>
<td>TRD(3)+</td>
</tr>
<tr>
<td>8</td>
<td>TRD(3)-</td>
</tr>
</tbody>
</table>
1000BaseSFP (mini-GBIC) Fiber Port

The gigabit Ethernet ports on the EDS-510A-1GT2SFP and EDS-510A-3SFP are 1000BaseSFP Fiber ports, which require using the gigabit mini-GBIC fiber transceivers to work properly. MOXA provides completed transceiver models for different distance requirement.

**Multi mode:**
- 1000BaseSX
  0 to 300 m, 850 nm (50/125 μm, 400 MHz*km)
  0 to 275 m, 850 nm (62.5/125 μm, 200 MHz*km)
- 1000BaseLX
  0 to 1100 m, 1310 nm (50/125 μm, 800 MHz*km)
  0 to 550 m, 1310 nm (62.5/125 μm, 500 MHz*km)

**Single mode:**
- 1000BaseLX
  0 to 10 km, 1310 nm (9/125 μm, 3.5 PS/(nm*km))
- 1000BaseLHX
  0 to 40 km, 1310 nm (9/125 μm, 3.5 PS/(nm*km))
- 1000BaseZX
  0 to 80 km, 1550 nm (9/125 μm, 19 PS/(nm*km))

The concept behind the LC port and cable is quite straightforward. Suppose that you are connecting devices I and II; contrary to electrical signals, optical signals do not require a circuit in order to transmit data. Consequently, one of the optical lines is used to transmit data from device I to device II, and the other optical line is used transmit data from device II to device I, for full-duplex transmission.

Remember to connect the Tx (transmit) port of device I to the Rx (receive) port of device II, and the Rx (receive) port of device I to the Tx (transmit) port of device II. If you make your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, as shown below, or A1-to-A2 and B1-to-B2).

**Turbo Ring DIP Switch Settings**

EDS-510A series are plug-and-play managed redundant Ethernet switches. The proprietary Turbo Ring protocol was developed by MOXA to provide better network reliability and faster recovery time. MOXA Turbo Ring’s recovery time is less than 300 ms—compared to a 3- to 5-minute recovery time for commercial switches—decreasing the possible loss caused by network failures in an industrial setting. There are 4 Hardware DIP Switches for Turbo Ring on the top panel of EDS-510A that can be used to set up the Turbo Ring easily within seconds.
If you do not want to use a hardware DIP switch to set up the Turbo Ring, you can use a web browser, Telnet, or console to disable this function.

**EDS-510A Series DIP Switches**

The default setting for each DIP Switch is OFF. The following table explains the effect of setting the DIP Switches to the ON positions.

<table>
<thead>
<tr>
<th>DIP Switch</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>---- ---</td>
<td>ON</td>
<td>Enables the EDS-510A to be the Ring Master in a Turbo Ring topology, and enables the Turbo Ring break warning. If the EDS-510A is the Master of this Turbo Ring, and the Turbo Ring is broken, the relay will form an open circuit.</td>
</tr>
<tr>
<td>MASTER</td>
<td>OFF</td>
<td>Disables the EDS-510A from being the Ring Master in a Turbo Ring topology, and disables the Turbo Ring break warning.</td>
</tr>
<tr>
<td>--- COUPLER</td>
<td>ON</td>
<td>Enables the Turbo Ring Coupling function. Use port 5 and 6 of EDS-510A to form the Ring Coupler path.</td>
</tr>
<tr>
<td>TURBO</td>
<td>OFF</td>
<td>Disables the Turbo Ring coupling function.</td>
</tr>
<tr>
<td>RING</td>
<td>ON</td>
<td>Enables plug-and-play Turbo Ring redundancy. Ports 7 and 8 of EDS-510A are used to form a Turbo Ring.</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Disables the plug-and-play Turbo Ring redundancy function.</td>
</tr>
</tbody>
</table>

**NOTE** You must enable the Turbo Ring function first before using the DIP switch to activate the Master and Coupler functions.

**NOTE**

If you do not enable any of the EDS-510A switches to be the Ring Master, the Turbo Ring protocol will automatically choose the EDS-510A with the smallest MAC address range to be the Ring Master. If you accidentally enable more than one EDS-510A to be the Ring Master, these EDS-510A switches will auto-negotiate to determine which one will be the Ring Master.
## LED Indicators

The front panel of the MOXA EDS-510A contains several LED indicators. The function of each LED is described in the following table:

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWR1</td>
<td>AMBER</td>
<td>On</td>
<td>Power is being supplied to power input P1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>Power is <strong>not</strong> being supplied to power input P1.</td>
</tr>
<tr>
<td>PWR2</td>
<td>AMBER</td>
<td>On</td>
<td>Power is being supplied to power input P2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>Power is <strong>not</strong> being supplied to power input P2.</td>
</tr>
<tr>
<td>FAULT</td>
<td>RED</td>
<td>On</td>
<td>When the corresponding PORT alarm is enabled, and a user-configured event is triggered.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>When the corresponding PORT alarm is enabled and a user-configured event is not triggered, or when the corresponding PORT alarm is disabled.</td>
</tr>
<tr>
<td>MASTER</td>
<td>GREEN</td>
<td>On</td>
<td>When the EDS-510A is the Master of this Turbo Ring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blinking</td>
<td>When the EDS-510A is Ring Master of this Turbo Ring and the Turbo Ring is broken.</td>
</tr>
<tr>
<td>COUPLER</td>
<td>GREEN</td>
<td>On</td>
<td>When the EDS-510A enables the coupling function to form a back-up path.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>When the EDS-510A disables the coupling function.</td>
</tr>
<tr>
<td>10M (TP)</td>
<td>GREEN</td>
<td>On</td>
<td>TP port’s 10 Mbps link is active.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blinking</td>
<td>Data is being transmitted at 10 Mbps.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>TP port’s 10 Mbps link is inactive.</td>
</tr>
<tr>
<td>100M (TP)</td>
<td>GREEN</td>
<td>On</td>
<td>TP port’s 100 Mbps link is active.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blinking</td>
<td>Data is being transmitted at 100 Mbps.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>TP port’s 100 Mbps link is inactive.</td>
</tr>
<tr>
<td>1000M (TP/SFP)</td>
<td>GREEN</td>
<td>On</td>
<td>TP/SFP port’s 1000 Mbps link is active.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blinking</td>
<td>Data is being transmitted at 1000 Mbps.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>TP/SFP port’s 1000 Mbps link is inactive.</td>
</tr>
</tbody>
</table>
## Specifications

### Technology

<table>
<thead>
<tr>
<th>Standards</th>
<th>IEEE802.3, 802.3u, 802.3x, 802.1D, 802.1w, 802.1Q, 802.1p, 802.1X, 802.3ad, 802.3z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protocols</td>
<td>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)</td>
</tr>
<tr>
<td>MIB</td>
<td>MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1,2,3,9</td>
</tr>
</tbody>
</table>

### Interface

| RJ45 Ports        | 10/100/1000BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection |
| Fiber Ports       | optional 1000BaseSX/LX/LHX/ZX (LC connector) |
| Console Port      | RS-232 (10-pin RJ45) |
| LED Indicators    | PWR1, PWR2, FAULT, 10/100M (TP port), 1000M, Ring Master and Ring Coupler |
| Alarm Contact     | Two relay outputs with current carrying capacity of 1A @ 24 VDC |
| Digital Input     | 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 |

### Optical Fiber—1000BaseSX/LX/LHX/ZX

#### Distance:

| Multi mode         |  
|--------------------|----------------------------------------------------------------------------------|
| 1000BaseSX         | 0 to 500 m, 850 nm (50/125 µm, 400 MHz*km)  
|                    | 0 to 275 m, 850 nm (62.5/125 µm, 200 MHz*km) |
| 1000BaseLX         | 0 to 1100 m, 1310 nm (50/125 µm, 800 MHz*km)  
|                    | 0 to 550 m, 1310 nm (62.5.125 µm, 500 MHz*km) |
| Single mode        |  
| 1000BaseLX         | 0 to 10 km, 1310 nm (9/125 µm, 3.5 PS/(nm*km)) |
| 1000BaseLHX        | 0 to 40 km, 1310 nm (9/125 µm, 3.5 PS/(nm*km)) |
| 1000BaseZX         | 0 to 80 km, 1550 nm (9/125 µm, 19 PS/(nm*km)) |

### Power

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>24 VDC (12 to 45 VDC), redundant inputs</th>
</tr>
</thead>
</table>
| Input Current      | 0.47A: (EDS-510A-3GT)  
|                    | 0.38A: (EDS-510A-1GT2SFP)  
|                    | 0.34A: (EDS-510A-3SFP) |
| Connection         | Two removable 6-pin terminal blocks |
Overload Current Protection Present
Reverse Polarity Protection Present

**Mechanical**
- Casing: IP30 protection, metal case
- Dimensions (W × H × D): 80.5 × 135 × 105 mm (3.17 × 5.31 × 4.13 in)
- Weight: 1.17 kg
- Installation: DIN-Rail, Wall Mounting Kit (optional)

**Environmental**
- Operating Temperature: 0 to 60°C (32 to 140°F), standard models
  -40 to 75°C (-40 to 185°F), wide temp. 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 (pending), CSA C22.2 No. 60950, EN60950
- Hazardous Location: UL/cUL Class I, Division 2, Groups A, B, C, and D, 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 2
  - 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
- Freefall: IEC60068-2-32
- Vibration: IEC60068-2-6

**WARRANTY**
- 5 years

**MOXA Internet Services**
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