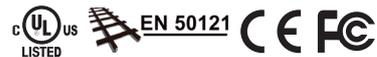# IEX-402-SHDSL Series

Managed SHDSL Ethernet extender

> Automatic CO/CPE negotiation reduces configuration time
> Link Fault Pass-through (LFP) support and interoperable with Turbo Ring and Turbo Chain
> Turbo speed connections, up to 15.3 Mbps over twisted copper wires
> LED indicators for simple troubleshooting
> Easy network management by web browser, Telnet/serial console, Windows utility, ABC-01, and MXview.

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: Introduction

The IEX-402-SHDSL is an entry-level industrial managed Ethernet extender designed with one 10/100BaseT(X) and one DSL port. The Ethernet extender provides a point-to-point extension over twisted copper wires based on the G.SHDSL.bis standard. The device supports a data rate of up to 15.3 Mbps and a long transmission distance of up to 8 km.

The IEX-402-SHDSL series is designed for use in harsh operating environments. The DIN-rail mount, wide operating temperature range

(-40 to 75°C), and dual power inputs make it ideal for installation in industrial applications.

To simplify configuration, the IEX-402-SHDSL uses CO/CPE auto negotiation. By factory default, the device will automatically assign CPE status to one of each pair of IEX devices. In addition, Link Fault Pass-through (LFP) and network redundancy interoperability enhance the reliability and accessibility of communication networks. Advanced managed and monitored functionality through MXview, including a virtual panel, improve the user experience for quick trouble shooting.

Features and Benefits

- Automatic CO/CPE negotiation reduces configuration time
- Standard G.SHDSL data rate up to 5.7 Mbps, with up to 8 km transmission distance (performance varies by cable quality)
- Moxa proprietary Turbo Speed connections up to 15.3 Mbps
- Supports Link Fault Pass-Through(LFP) and Line-swap fast recovery
- Supports SNMP v1/v2c/v3 for different levels of network management

- Interoperable with Turbo Ring/Turbo Chain network redundancy
- Support Modbus/TCP protocol for device management and monitoring
- Compatible with EtherNet/IP and PROFINET protocols for transparent transmission
- Easy network management through web browser, Telnet/Serial console, Windows utility, MXview, and ABC-01
- IPv6 Ready

: Specifications

Technology
Standards:
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X)
IEEE 802.3x for Flow Control
IEEE 802.1p for Class of Service
ITU-T G.991.2 for Single-pair high-speed digital subscriber line (G.SHDSL) transceivers
Protocols: SNMPv1/v2c/v3, DHCP Client, TFTP, SNTP, HTTP, Telnet, Syslog, LLDP, Modbus/TCP
MIB: MIB-II
Flow Control: IEEE 802.3x flow control, back pressure flow control

Interface
DSL Port: RJ-11 (RJ45 connector) or detachable 2-contact terminal block
RJ45 Ports: 10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection
Console Port: RS-232 (RJ45 connector)

LED Indicators: PWR1, PWR2, FAULT, STATE, LINK/ACT, CO/CPE, 10/100 (TP port)
DIP Switches: CO/CPE, SNR/SPEED, ANNEX B/ANNEX A, STD/TURBO
Button: Reset button

Switch Properties
MAC Table Size: 1K
Packet Buffer Size: 512K

Physical Characteristics
Housing: Metal, IP30 protection
Dimensions:
35 x 130 x 105 mm (1.38 x 5.12 x 4.13 in)
Weight: 290 g (0.64 lb)
Installation: DIN-rail mounting, wall mounting (with optional kit)
Altitude: Up to 2000 m
Note: Contact Moxa for products guaranteed to function at higher altitudes.

Environmental Limits
Operating Temperature:
Standard Models: -10 to 60°C (14 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements
Rated Voltage: 12/24/48 VDC (9.6 to 60 VDC), redundant dual inputs
Input Current: 0.388 A @ 12 V; 0.196 A @ 24 V; 0.097 A @ 48 V
Connection: 2 removable 2-contact terminal block
Overload Current Protection: Present
Reverse Polarity Protection: Present

Standards and Certifications
Safety: UL 508
EMC: EN 55032/24
EMI: CISPR 32, FCC Part 15B Class A

EMS:
EN 61000-4-2 (ESD): Contact: 6 kV; Air: 8 KV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 10 V/m
EN 61000-4-4 (EFT): Power: 2 kV
EN 61000-4-5 (Surge): Power: 2 kV
EN 61000-4-6 (CS) 150 kHz to 80 MHz: 10 V/m
EN 61000-4-8 (PFMF)
Shock: IEC 60068-2-27
Freefall: IEC 60068-2-32
Rail Traffic: EN 50121-4
Vibration: IEC 60068-2-6
Note: Please check Moxa's website for the most up-to-date certification status.

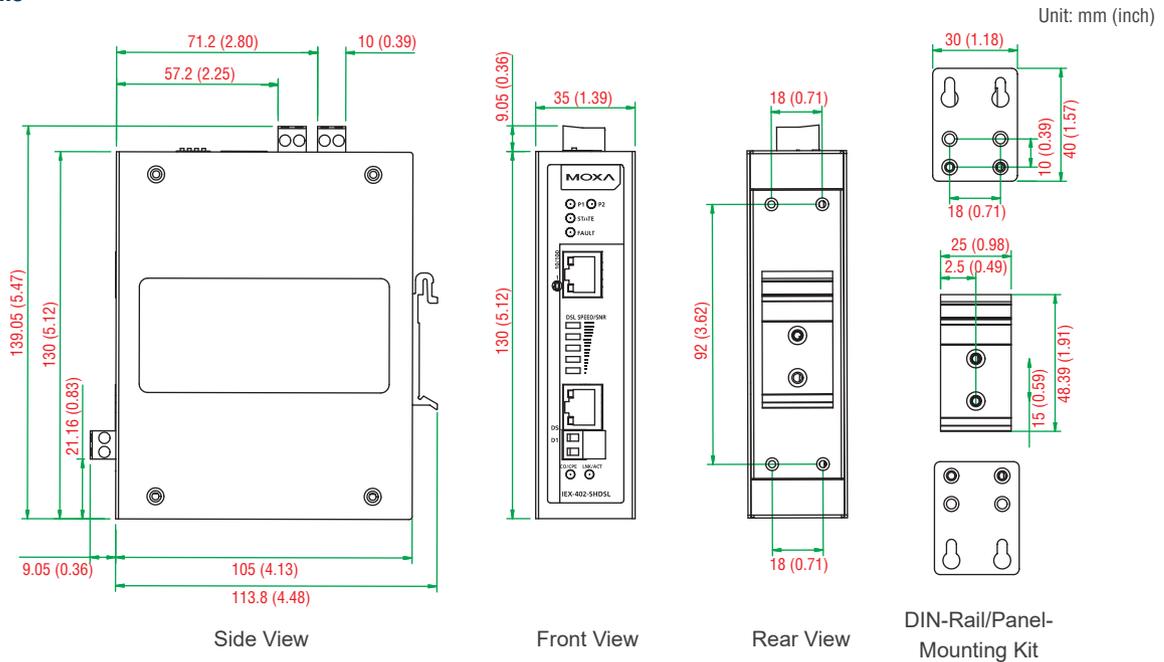## MTBF (mean time between failures)
Time:
1,310,000 hrs
Standard: Telcordia (Bellcore), GB

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)

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

Ordering Information

Available Models		Port Interface	
Standard Temperature (0 to 60°C)	Wide Temperature (-40 to 75°C)	10/100BaseT(X)	DSL
IEX-402-SHDSL	IEX-402-SHDSL-T	1	1

Optional Accessories (can be purchased separately)
MXview: Moxa industrial network management software with 50, 100, 250, 500, 1000, or 2000 nodes
EDS-SNMP OPC Server Pro: OPC server software that works with all SNMP devices
ABC-01: Configuration backup and restoration tool for managed Ethernet switches, 0 to 60°C operating temperature
DR-4524/75-24/120-24: 45/75/120 W DIN-Rail 24 VDC power supplies
MDR-40-24/60-24: 40/60 W DIN-Rail 24 VDC power supplies, -20 to 70°C operating temperature
RK-4U: 4U-high 19" rack mounting kit
WK-30: Wall mounting kit

Package Checklist
- IEX-402 DSL Ethernet Extender
- RJ45 to DB9 console port cable
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card