

# IEX-402 Series

## Managed DSL Ethernet extenders



- > Automatic CO/CPE negotiation reduces configuration time
- > Up to 100 Mbps over twisted-pair copper wires (IEX-402-VDSL2)
- > Turbo mode connection, up to 15.3 Mbps over twisted-pair copper wires (IEX-402-SHDSL)
- > Link Fault Pass-through (LFP) support and interoperable with Turbo Ring and Turbo Chain
- > Link quality indicators for simple troubleshooting
- > Easy network management by web browser, Telnet/serial console, Windows utility, ABC-01, and MXview



### Introduction

The IEX-402 series is an 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 G.SHDSL.bis and VDSL2 standards. The IEX-402-SHDSL supports data rates of up to 15.3 Mbps with a long transmission distance of up to 8 km, while the IEX-402-VDSL2 provides data rates of up to 100 Mbps with transmission distance of up to 3 km.

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

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

To simplify configuration, the IEX-402 series 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 troubleshooting.

### Features and Benefits

- Automatic CO/CPE negotiation reduces configuration time
- IEX-402-SHDSL series: Standard G.SHDSL data rate up to 5.7 Mbps (Turbo Speed connections up to 15.3 Mbps), with up to 8 km transmission distance (performance varies by cable quality)
- IEX-402-VDSL2 series: Standard VDSL2 data rate up to 100 Mbps, with up to 3 km transmission distance (performance varies with line conditions)
- 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
- 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 transceivers (IEX-402-SHDSL only)
- ITU G.993.2 for very high speed digital subscriber line transceivers 2 (IEX-402-VDSL2 only)

#### Software Features

**Management:** SNMPv1/v2c/v3, DHCP Client, TFTP, SNMP, HTTP, Telnet, Syslog, LLDP

**MIB:** MIB-II

**Flow Control:** IEEE 802.3x flow control, back pressure flow control

#### Interface

**DSL Port:** DSL Port: RJ11 (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:

IEX-402-SHDSL series: CO/CPE, SNR/SPEED, ANNEX B/ANNEX A, STD/TURBO

IEX-402-VDSL2 series: CO/CPE, SNR/SPEED, STD/INP

**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:

IEX-402-SHDSL Series: 290 g (0.64 lb)

IEX-402-VDSL2 Series: 275 g (0.61 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**

**Input Voltage:** 12/24/48 VDC, redundant dual inputs  
**Operating Voltage:** 9.6 to 60 VDC  
**Input Current:**

IEX-402-SHDSL Series: 0.36 A @ 24 VDC  
 IEX-402-VDSL Series: 0.33 A @ 24 VDC  
**Connection:** 2 removable 2-contact terminal block

**Overload Current Protection:** Present  
**Reverse Polarity Protection:** Present

**Standards and Certifications**

**Safety:** UL 508  
**EMC:** EN 55022/24  
**EMI:** CISPR 22, 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; Signal: 2 kV  
 EN 61000-4-5 (Surge): Power: 0.5 kV; Signal: 1 kV  
 EN 61000-4-6 (CS): 10 V  
 EN 61000-4-8

**Shock:** IEC 60068-2-27

**Freefall:** IEC 60068-2-32

**Traffic Control:** NEMA TS2 (IEX-402-VDSL2 only)

**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:**  
 IEX-402-SHDSL series: 1,310,000 hrs  
 IEX-402-VDSL2 series: 1,490,000 hrs

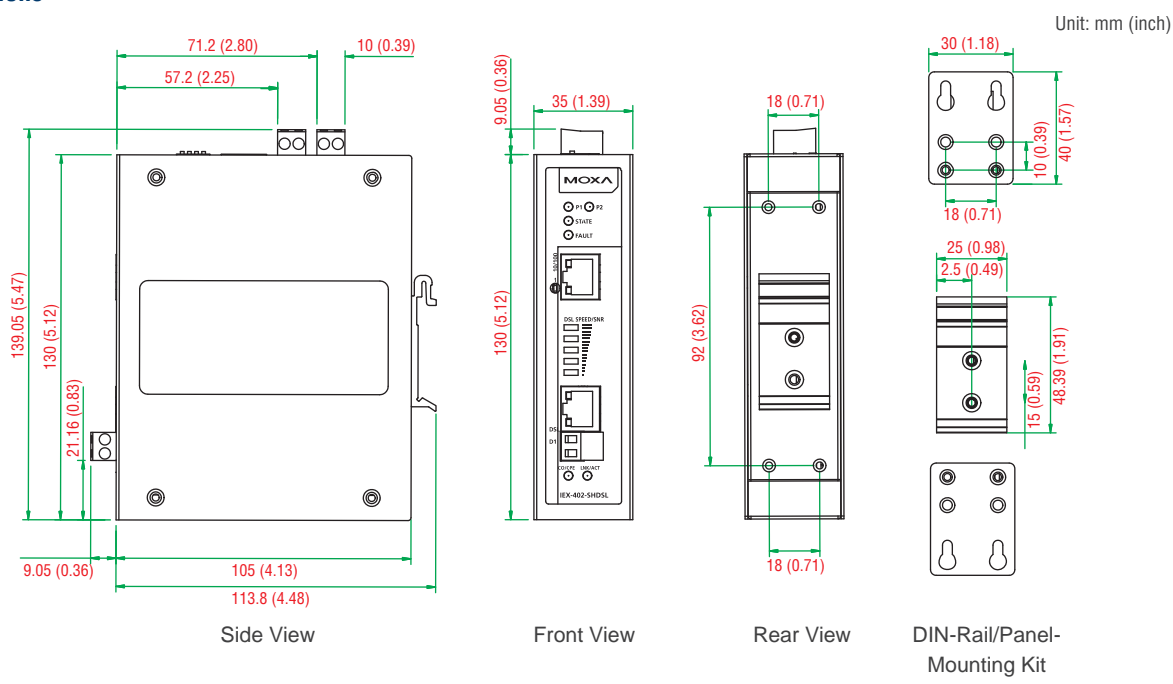
**Standard:** Telcordia (Bellcore), GB

**Warranty**

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

**Dimensions**



**Ordering Information**

Available Models		Port Interface	
Standard Temperature (-10 to 60°C)	Wide Temperature (-40 to 75°C)	10/100BaseT(X)	DSL
IEX-402-SHDSL	IEX-402-SHDSL-T	1	1
IEX-402-VDSL2	IEX-402-VDSL2-T	1	1

**Optional Accessories (can be purchased separately)**

- RK-4U:** 4U-high 19-inch rack-mounting kit
- 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
- WK-30:** Wall-mounting kit, 2 plates with 4 screws

**Package Checklist**

- IEX-402 DSL Ethernet Extender
- Serial Cable: CN20070
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card