IEX-408E-2VDSL2 Series

Industrial managed 6 FE + 2 VDSL2 Ethernet extender switches

> VDSL2 high-speed long distance copper connections; up to 300 m at 100 Mbps and up to 3 km at 1 Mbps over twisted-pair copper wires
> Automatic CO/CPE negotiation reduces configuration time
> Turbo Ring / Turbo Chain on both Fast Ethernet and VDSL2 ports for fast recovery
> Controllable bypass mode on VDSL2 ports gives higher availability in a daisy chain topology
> Flexible deployment with 2-pin or RJ11/45 connector on VDSL2 ports
> Easy network management by web browser, Telnet/serial console, Windows utility, ABC-02, and MXview

NEMA TS2   c(UL)us LISTED   EN 50121   CE   FC

: Introduction

The IEX-408E-2VDSL2 is an industrial managed Ethernet extender switch for establishing long distance Ethernet transmissions over twisted-pair copper wiring. IEX-408E-2VDSL2 units can easily be linked in series to form a long distance multi-drop configuration, with one IEX-408E-2VDSL2 unit located at each drop-point. Adjacent drop points can be separated theoretically by up to 3 km, with a transmission speed of 1 Mbps achieved using a VDSL2 connection (with a connection distance of 300 m, a transmission speed of 100 Mbps can be theoretically achieved). Each IEX-408E-2VDSL2 unit provides six 10/100BaseT(X) and two DSL ports, giving users an incredible amount of flexibility for linking together a wide variety of devices separated by vast distances.

Ethernet redundancy is provided by Turbo Ring, Turbo Chain, RSTP/STP, and MSTP, and a state-of-the-art controllable bypass solution on the DSL ports increases the system reliability and availability of your network. The IEX-408E-2VDSL2 series also supports advanced management and security features. It is the perfect solution for

reducing the cost of establishing new network cable installations using existing twisted-pair copper wiring to extend copper cable networks beyond the conventional distance limitations imposed by the Ethernet protocol.

With its compact DIN-rail design, the IEX-408E-2VDSL2 series is perfect for use in harsh operating environments with limited installation space, such as ITS, rail wayside, oil and gas, mining, factory automation, and process automation applications. 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-408E-2VDSL2 uses CO/CPE automatic negotiation (the factory default setting). The device will automatically assign CPE status to one of each pair of IEX devices. In addition, advanced management and monitoring functionalities through NMS, including a virtual panel, improve the user experience by enabling quick troubleshooting.

Features and Benefits

- Command Line Interface (CLI) for quickly configuring major managed functions
- Automatic CO/CPE negotiation reduces configuration time
- Standard VDSL2 data rate up to 100 Mbps, with up to 3 km transmission distance (performance varies with line conditions)
- Turbo Ring and Turbo Chain, RSTP/STP, and MSTP supported on both Ethernet and DSL ports for network redundancy
- Controllable bypass mode supported in between DSL ports for higher availability in long distance daisy chain topologies
- Port Trunking on Ethernet and DSL ports for optimum bandwidth utilization
- IGMP snooping and GMRP for filtering multicast traffic
- Port-based VLAN, IEEE 802.1Q VLAN, and GVRP to ease network planning
- QoS (IEEE 802.1p/1Q) and TOS/DiffServ to increase efficiency
- Supports EtherNet/IP, PROFINET, and Modbus/TCP protocols for device management and monitoring

- DHCP Option 82 for IP address assignment with different policies
- RADIUS, TACACS+, SNMPv3, IEEE 802.1X, HTTPS, and SSH to enhance network security
- Lock port function for blocking unauthorized access based on MAC address
- Supports SNMP v1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability
- Port mirroring for online debugging
- Automatic warning by exception through e-mail and relay output
- ABC-02-USB (Automatic Backup Configurator) for system configuration backup/restore and firmware upgrade
- Easy network management through web browser, Telnet/Serial console, Windows utility, MXview, and ABC-02-USB

: Specifications

Technology
Standards:
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X) and 100BaseFX
IEEE 802.3ab for 1000BaseT(X)
IEEE 802.3z for 1000BaseX
IEEE 802.3x for Flow Control
IEEE 802.1D-2004 for Spanning Tree Protocol
IEEE 802.1w for Rapid STP
IEEE 802.1Q for VLAN Tagging
IEEE 802.1p for Class of Service
IEEE 802.1X for Authentication
IEEE 802.3ad for Port Trunk with LACP
ITU G.993.2 for very high speed digital subscriber line transceivers 2
Management: SNMP v1/v2c/v3, LLDP, Syslog, RMON, DHCP Server/Client, DHCP Option 66/67/82, BootP. TFTP, SMTP, RARP, Telnet, SNMP Inform, Flow Control, Back Pressure Flow Control
Filter: 802.1Q VLAN, Port-Based VLAN, GVRP, IGMP v1/v2/v3, GMRP
Redundancy Protocols: STP, RSTP, MSTP, Turbo Ringv1/v2, Turbo Chain, Link Aggregation
Security: RADIUS, TACACS+, SSL, SSH
Time Management: SNTP, NTP Server/Client
Industrial Protocols: EtherNet/IP, PROFINET IO, Modbus/TCP
MIB: MIB-II, Ethernet-Like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9

Interface
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: USB-serial console (Type B connector)
LED Indicators: PWR1, PWR2, FAULT, STATE, LINK/ACT, CO/CPE, 10/100 (Fast Ethernet port), MSTR/HEAD, CPLR/TAIL, DSL BYPASS
Alarm Contact: 1 relay output with current carrying capacity of 1 A @ 24 VDC
Storage Port: USB storage port (Type A connector)
Button: Reset button
Digital Inputs: 1 input with the same ground, but electrically isolated from the electronics.
• +13 to +30 V for state "1"
• -30 to +3 V for state "0"
• Max. input current: 8 mA

Switch Properties
MAC Table Size: 16K
Packet Buffer Size: 1.5 MB for Fast Ethernet side; 8 KB for DSL side
Priority Queues: 4
Max. Number of Available VLANs: 64
VLAN ID Range: VID 1 to 4094
IGMP Groups: 256

Physical Characteristics
Housing: Metal, IP30 protection
Dimensions: 74 x 111 x 135 mm (2.91 x 4.37 x 5.32 in)
Weight:
LV Models: 1.23 kg
HV Models 1.26 kg
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:
LV Models: 12/24/48 VDC, redundant dual inputs
HV Models: 110/220 VDC/VAC
Operating Voltage:
LV Models: 9.6 to 60 VDC
HV Models: 88 to 300 VDC, 85 to 264 VAC
Input Current:
Max. 1 A @ 12 VDC
Max. 0.48 A @ 24 VDC
Max. 0.26 A @ 48 VDC
Max. 0.097 A/0.050 A @ 110/220 VDC
Max. 0.230 A/0.149 A @ 110/220 VAC
Connection: 5-pin terminal block
Overload Current Protection: Present
Reverse Polarity Protection: Present

Standards and Certifications
Safety: UL 61010-2-201, EN 60950-1 (LVD) (In plan)
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
EN 61000-4-2 (ESD): Contact: 8 kV; Air: 15 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 10 V/m
EN 61000-4-4 (EFT): Power: 4 kV
EN 61000-4-5 (Surge): Power: 4 kV; Signal: 4 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 (In plan)
Rail Traffic: EN 50121-4 (In plan)
Vibration: IEC 60068-2-6
Note: Please check Moxa's website for the most up-to-date certification status.
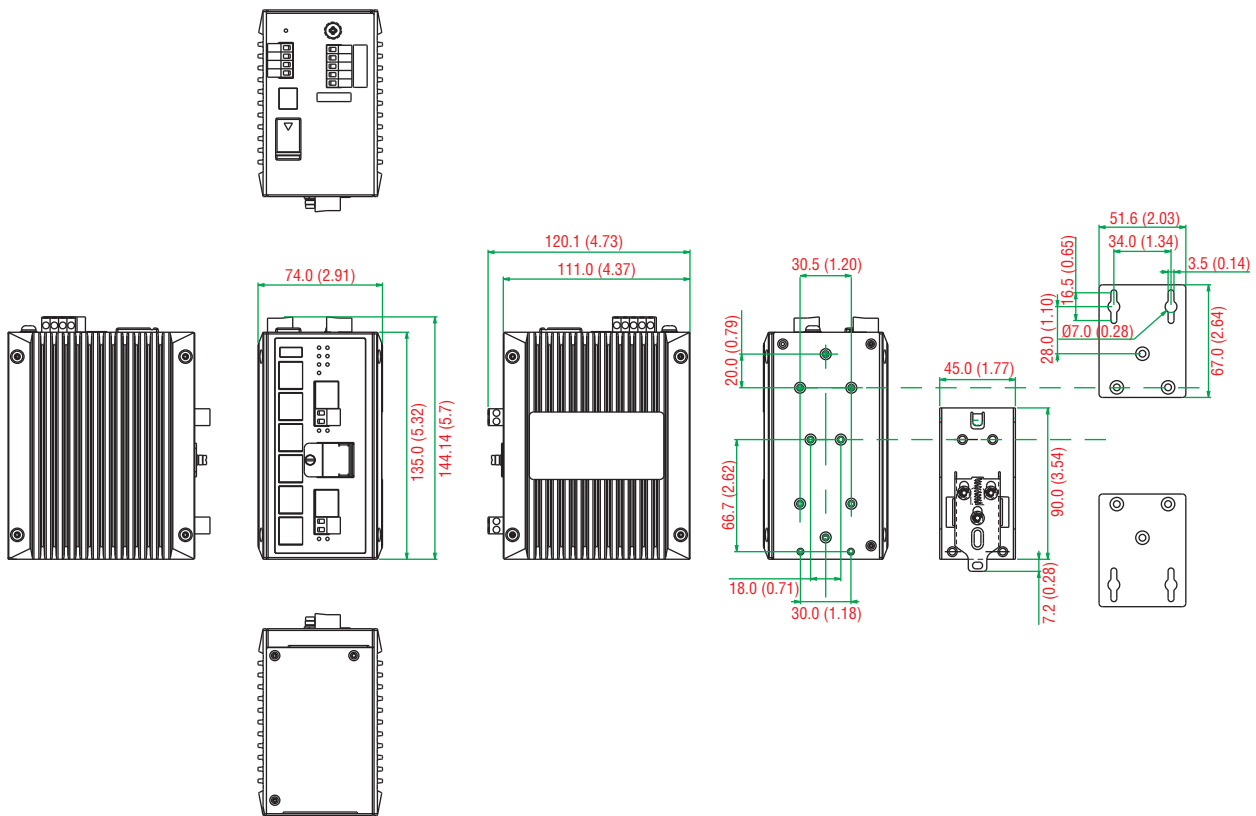
MTBF (mean time between failures)
Time: 782,910 hrs
Standard: Telcordia (Bellcore), GB

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

Dimensions

Unit: mm (inch)

∷ Ordering Information

Available Models	Operating Temperature		Power Supply		Port Interface		Bypass (DSL ports)
	Standard Temperature (-10 to 60˚C)	Wide Temperature (-40 to 75˚C)	LV: 12/24/48 VDC (9.6 to 60 VDC), isolated (dual power inputs)	HV: 110/220 VDC/VAC (88 to 300 VDC, 85 to 264 VAC), isolated	DSL	10/100BaseT(X)	
IEX-408E-2VDSL2-LV	✓	–	1	–	2	6	1
IEX-408E-2VDSL2-LV-T	–	✓	1	–	2	6	1
IEX-408E-2VDSL2-HV	✓	–	–	1	2	6	1
IEX-408E-2VDSL2-HV-T	–	✓	–	1	2	6	1

Optional Accessories (can be purchased separately)

WK-51-01: Wall-mounting kit, 2 plates with 6 screws
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-02-USB-T: Configuration backup and restoration tool for managed Ethernet switches, -40 to 75°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
DR-75-48/120-48: 75/120 W DIN-rail 48 VDC power supplies
DRP-240-48: 240 W DIN-rail 48 VDC power supplies
SDR-480P-48: 480 W DIN-rail 48 VDC power supplies

Package Checklist

- IEX-408E-2VDSL2 Extender Switch
- USB Cable: CBL-USBA/B-100
- Protective caps for unused ports
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card