BROUDY PRECISION
NETWORKING PRODUCT VENDORS

TOSIBOX

TOSIBOX LOCK 150

- An industrial router that serves as an endpoint for secure remote connections (with Wifi and Ethernet) (VPN throughput up to 15 Mbps)
  - 1 x USB 2.0, type A
  - 1 x RJ-45 WAN connection, 10/100 Mbit/s, auto-negotiation (MDI / MDI-X)
  - 3 x RJ-45 LAN connection, 10/100 Mbit/s, auto-negotiation (MDI / MDI-X)
  - 1 x RJ-45 Service connection, 10/100 Mbit/s, auto-negotiation (MDI / MDI-X)

TOSIBOX LOCK 200

- An industrial router with a robust housing that serves as an endpoint for secure remote connections (Ethernet Only) (VPN throughput up to 20 Mbps)
  - 1 x USB 2.0, type A
  - 1 x RJ-45 WAN connection, 10/100 Mbit/s, auto-negotiation (MDI / MDI-X)
  - 3 x RJ-45 LAN connection, 10/100 Mbit/s, auto-negotiation (MDI / MDI-X)
  - 1 x RJ-45 Service connection, 10/100 Mbit/s, auto-negotiation (MDI / MDI-X)

TOSIBOX KEY

- An intelligent cryptoprocessing device that enables a secure connection between your computer and one or more Tosibox Lock devices, giving you full visibility and control over the network devices connected to the Lock. The Key is fully compatible with all existing Tosibox products.
  - Accessories include items such as 4G Modems, Antennas, Antenna Extensions, Serial Adapters, etc.

SECURITY ROUTERS

- **MGUARD series Industrial Firewall and Security Routers**
  - Offers secure integration of machines and systems into production networks. These devices allow you to easily and inexpensively protect industrial networks against IT attacks. The on-board functions enable fast startup of devices, even if you only have minimal network and security knowledge.

- **Ethernet Extenders**
  - EXTENDER series managed Ethernet extenders for long range wired communication (up to 20km in-house) (with and without surge protection)

- **Ethernet Switches:**
  - - SWITCH series Ethernet Switches for every application: Unmanaged, Managed, Intelligent, and 3-Layer (with and without POE+) (Independent POE+ Injectors also available)

- **Fiber Optic Media Converters:**
  - FO Series Fiber Optic Media Converters for converting Fiber Optic communication cabling to Ethernet (CAT- type cable)

- **Serial Device Converter/Servers:**
  - Serial Device Servers: Allow for easy integration of legacy serial devices and buses into modern Ethernet networks (RS-232, RS-422, RS-485, ModBus TCP/RTU, etc.)

- **Smart Camera Box:**
  - Industrial Smart Camera Box for Video Surveillance: Enclosure for connecting PoE end devices (IP Cameras) with optional PoE ports, uplink ports (SFP slots), Managed Switches, integrated surge protection and splice trays.

ROUTERS:

- **BASrouter:** The BASrouter is used to route messages between BACnet/IP, BACnet Ethernet and BACnet MS/TP networks. It supports 5 BBMD entries. This compact DIN-rail mounted unit is used for fixed installations.
- **Portable BASrouter:** The Portable BASrouter is used to route messages between BACnet/IP, BACnet Ethernet and BACnet MS/TP networks. The portable unit is used for commissioning and troubleshooting.
- **BASrouterLX:** The BASrouterLX is a high performance router used to route messages between BACnet/IP, BACnet Ethernet and BACnet MS/TP networks. It supports 50 BBMD entries and incorporates a more powerful processor and memory. DIN-rail mounted unit is used for fixed installations.

UNMANAGED SWITCHES:

- **Skorpion Switch Series (EISK5 series):** For cost-effective general purpose applications including control panels where DIN-rail space is at a premium. The Skorpion unmanaged Ethernet switch series offers widths as little as one inch (26 mm) and from as little as 5-ports up to 16-ports. Operating temperature 0 to 60°C.
- **BAS Switch Series (EIBA series):** For shallow-depth cabinets and wiring systems. Utilizing switching technology, the compact and low-cost EIBA switches provide five 10/100Mbps shielded RJ-45 ports. Each port is auto-MDIX compliant and can operate as an uplink port, eliminating the need for crossover cables. All ports automatically negotiate data rate, duplex and flow control. Panel or DIN-rail mount models available with operating temperature 0 to 60°C.
- **Ethernet Interconnect Unmanaged Switch Series (EIS series):** The EIS line of unmanaged switches within the Ethernet Interconnect Series accommodates up to eight 10/100 Mbps twisted-pair ports. A mix of fiber optic and twisted-pair ports is available in five and six-port models. The EIS complies with the requirements of Underwriters Laboratories (UL) 864 Control Units and Accessories for Fire Alarm Systems 10th Edition.
- **Skorpion Media Converters**: The EIMK Skorpion Media Converter series makes the conversion of an Ethernet copper segment to fiber simple. By operating full duplex at 100 Mbps provides the highest possible performance on 100 Mbps links. The EIMK is a true media converter and not just a two-port Ethernet switch. Therefore performance is enhanced by not introducing the store-and-forward data latency inherent in a switch. Both multimode and single-mode models are available with ST or SC connectors. Fiber distances of up to 15 km are possible with the single-mode model-up to 2 km with the multimode models. On the copper side, both MDI and MDIX ports are available to compliment either an end station port or a switch port. Crossover functionality is accomplished on the fiber side by simply reversing fiber connections.

MANAGED SWITCHES:

- **Skorpion Managed Switch Series (EISK8M Series)**— Used as a Cost effective option. The EISK8M Series offers a compact rugged managed 10/100Mbps Ethernet switch with a choice of eight copper ports or a mix of six copper and two fiber ports. The two fiber optic ports can be configured for cable redundancy. Intended for cost-effective SNMP managed applications, the unit is extremely compact and rated over the industrial temperature range. Fiber optic distances up to 15 km are possible with the single-mode option. Besides having the standard plug-and-play features found in unmanaged switches, this unit supports the SNMP protocol and management features usually found only in high-end switches. Each unit can be configured via its web pages, and can be powered either from a low voltage AC or DC source. Available as DIN-rail mounting. Operating Temperature 0 to 60°C.

- **Compact Managed Switch Series (EISXM Series)** — Used in harsh environment applications. The EISXM Series of compact managed switching hubs provides management functionality in situations where outdoor temperatures are expected. Network management is significant in an outdoor scenario because in many cases the location of the switch or switches may not be easily accessible, making troubleshooting difficult. The EISXM Series also supports Simple Network Management Protocol (SNMP). Other management features include VLAN, trunking, and Quality of Service (QoS) and can be panel or DIN-rail mounted with operating temperature −40 to +75°C.

- **Automation Switch Series (EIDXM Series)** — Used in applications with high port density. The EIDXM Series of Ethernet switchesprovide management functionality in situations where extended temperatures of −40 to +75°C are expected. With a fixed width of 62 mm, these units offer 16 or 24 ports with copper and fiber/copper combinations and can be panel or DIN-rail mounted.

- **Industrial Managed Ethernet Switch (EIRX28M-100T/4GT)** — Used in applications with flexible port configuration. This industrial managed Ethernet switch provides compact 1U rack-mount design, flexible port configuration and high reliability. It provides error-free data transmission and network management functions in harsh environments. The switch is equipped with four ports for 10/100 Mbps copper links, 20 ports for 100BASE-FX SFP links and 4 ports for 1000BASE-FX SFP links. It offers redundant power supply connections for sources providing 100–240 VAC. It can be installed with the included standard 1U rackmount kit. Operating temperature −40 to +75°C.

DIAGNOSTIC SWITCHES:

- **Skorpion Series Diagnostic Switches (EISK5-100T/H, EISK5-GT/H, EISK8-GT/H):** Skorpion Diagnostic Switches assist the user in troubleshooting Ethernet networks by allowing a network sniffer such as Wireshark® to attach to an unused port on the switch and observe all traffic on the network. Skorpion Diagnostic Switches retain all the features of an unmanaged switch but perform like a repeating hub where all received messages are flooded to all other ports. There are two 5-port diagnostic switches in the series which differ only by the highest data rate supported. The EISK5-100T/H supports 10/100 Mbps networks while the EISK5-GT/H can additionally support gigabit speed. The EISK8-GT/H supports up to eight ports at 10/100/1000 Mbps speeds.

IP ROUTERS:

- **Skorpion IP Routers** — Used as cost-effective wired router option. The EIPR routers have a 10/100Mbps Ethernet WAN port and a built-in 4-port LAN switch. By installing the appropriate USB adapter, a Wi-Fi LAN connection can be made with either EIPR model, or in the case of a cellular adapter with EIPR-V, a WAN connection to a cellular provider can be made. The EIPR-V has a resident OpenVPN® client for accessing a virtual private network server—thereby creating a VPN tunnel with higher security. Available as DIN-rail mounting. Operating temperature 0 to 60°C.

- **Skorpion GigE IP Routers** — Gigabit wired IP and VPN router options. The EIGR series of IP and VPN routers add Gigabit ports for faster speeds and higher data throughput. The EIGR-E is a wired router while the EIGR-V router adds OpenVPN server/client. As a VPN Server, up to 15 router clients and 15 PC clients can be supported. Operates over 0 to 60°C or −40 to +75°C, depending on model.

- -**Skorpion GigE Cellular IP Routers** — gigabit IP and VPN cellular routers. The EIGR-C series of cellular routers offers built-in cellular modem for easy connectivity to cellular networks. The EIGR-C router is approved for use on the carrier network and can be used at sites where wired connectivity is an issue. It has OpenVPN client for secure remote VPN site access and operates over 0 to 60°C or −40 to +75°C, depending on model.

POE EQUIPMENT:

- **Skorpion PoE Mid-Span Injector** — Used for powering a single device with PoE applications that require a 48 VDC power source. Most automation systems run from 24 VAC/VDC power. If only one Ethernet Powered Device (PD) needs power, the Skorpion PoE Injector can provide it. The EIPE-1 operates from 24 VAC/VDC and internally generates the 48 VDC PoE power for the Powered Device (PD)—eliminating grounded primary power concerns while providing isolated 15.4 W power output. It injects 48 VDC into the Ethernet cable to provide both power and data to the PD.

- **Skorpion PoE Mid-Span Splitter** — Used to harvest power from your cable. Under certain circumstances a non-PoE compliant device can work with the use of the EIPE-2 splitter. If the end device is 10/100 Mbps Ethernet-based but requires 24 VDC to operate, the splitter will accept the combined 48 VDC and data from a power sourcing equipment (PSE) and then internally generate 24 VDC to provide the non-PoE end device with separate data and power up to 10 W.

- **Skorpion PoE Gigabit Switch —** Used for high speed and compact size. The EISK8P-GT gigabit switch within the Skorpion Series is an 8-port unmanaged Ethernet switch with Gigabit Ethernet (GigE) performance on all ports and PoE on four ports, supplying 15.4 W per PoE port. GigE jumbo frames up to 9216 bytes are supported for maximum system performance. 10/100 Mbps legacy devices are supported via auto-negotiation—accommodating any Ethernet automation system. This low-cost compact unit has a rugged metal enclosure and is intended for DIN-rail mounting in control panels. The unit is powered from 48 VDC and operates over 0 to 60°C temperature range.

- **Automation Switch Series** — Used in applications with PoE and high port density. The EIDXMP Series of Ethernet switches provide management functionality in situations where extended temperatures of −40 to +75°C are expected. With a fixed width of 62 mm, these units offer 16 or 24 ports with copper and fiber/copper combinations. Ports 9 through 16 (located on the bottom of the unit) support Power over Ethernet (PoE), providing data and power over one cable. The unit acts as power sourcing equipment (PSE) supplying up to 15.4 W per port for IEEE 802.3af-compliant powered devices (PD). PDs can be located up to 100 meters from the switch. Models are available with either multimode (MM) or single-mode (SM) fiber optic ports to accommodate long distances through hostile environments. Fiber ports are fixed at 100Mbps data rate and use 100BASE-FX signaling at a wavelength of 1310nm. Available with panel or DIN-rail mounting, and 48 VDC powered.

GATEWAYS:

- **LGATE-952**: Universal Gateway: The LGATE-952 Gateways are powerful universal gateways that can host user specific graphical pages to be used with LWEB-802/803. They can simultaneously integrate and map data points from multiple open protocols.

- **LGATE-902:** Universal Gateway: The LGATE-902 Gateway is a powerful gateway that can host user specific graphical pages. The gateways provide connectivity functions to concurrently integrate CEA-709 (LonMark Systems), BACnet, KNX, Modbus, and M-Bus.

- **LINX-102/103 Automation Server CEA-709:** The L-INX Automation Servers LINX-102 and LINX-103 can host user specific graphical pages for the visualization of information from LonMark systems via LWEB-900 (Building Management) or LWEB-802/803.

- **LINX-202/203 Automation Server BACnet**: The L-INX Automation Servers LINX-202 and LINX-203 (successors of LINX-200, LINX-201) can host user specific graphical pages for the visualization of information from BACnet networks via LWEB-900 (Building Management) or LWEB-802/803.

ROUTERS:

- **L-IP Router CEA-709:** The L-IP Router connects twisted pair channels (TP/FT-10 or TP/XF-1250) with the Ethernet/IP channel (IP-852) in LonMark Systems.

- **L-IP Router BACnet:** The LIP-ME201C, LIP-ME202C, and LIP-ME204C BACnet/IP Routers connect BACnet MS/TP channels to a BACnet/IP network. The BACnet routers are compliant with the standards ASHRAE 135-2012 and ISO 16484-5:2012.

- **L-Switch CEA-709 Router:** The L-SwitchXP is the solution for interconnecting multiple twisted pair channels (TP/FT-10 or TP/XF-1250 channels) in LonMark Systems.

- **NIC:** LOYTEC NICs (Network Interface) are the most universal network interfaces for CEA-709 and IP-852 (Ethernet/IP) channels.