Built to comply with international train standards, the Gigabit BXS switches offer industrial engineers and train builders reliable networking and connectivity capabilities onboard road and rail vehicles.

- **High data rates** enable fast data transfer for a wide range of applications, including passenger information systems, advertising opportunities, IP cameras and more
- **Easy to install and maintain** with a compact design, cabinet-less mounting and Power over Ethernet (PoE+) port options that eliminate the need for separate cabling to power end devices
- **Withstands harsh conditions** of transportation and rail markets, including high temperatures, high vibration and electrostatic discharge

**Key Features**

- 60 W PoE power supply and optional PoE+ enables terminal equipment to be powered without additional cables
- Vibration-proof M12 connectors for uninterrupted communication
- EMC and fire prevention compliant
- Real-time TSN Ethernet support for precise data transmission
- Advanced security features, including wire-speed access control lists (ACL) and automatic denial-of-service (DoS) prevention
- Extended temperature range of -40°C to +70°C
- Compact, IP40 metal enclosure
- Built-in Layer 2 protocols and wholistic diagnostics
- Supports HiOS software

Built specifically with the transportation sector in mind, Hirschmann’s Gigabit BXS switches are a powerful, secure and cost-effective path to road and rail connectivity.
Your Benefits

The Hirschmann Gigabit BXS switches were uniquely designed for transportation markets. Not only can the switches withstand the high vibration and wide temperature ranges found in road and rail applications, but they meet all electromagnetic compatibility (EMC) and fire prevention requirements for rail vehicles.

With PoE and optional PoE+ port capabilities, users save costs by eliminating the need for separate cabling to power end devices, such as IP cameras. Additionally, TSN technology on all ports enables precise data transmission and guarantees bandwidth for dedicated network services.

Applications

Hirschmann’s Gigabit BXS switches are an ideal solution for industrial engineers and train builders looking for:

- **Fast data transfer** for a wide range of infotainment applications, including passenger information systems, advertising opportunities and wireless internet access, to enhance the passenger experience.
- **Simple, cost-effective connectivity** to terminal equipment for IP cameras, VoIP telephones and WLAN access points, via PoE.

Markets

With full rail approvals, the BXS switches were designed to meet the needs of transportation markets, particularly rolling stock. Built to withstand vibration and extreme temperatures, its robust hardware ensures uninterrupted communication even in the harshest rolling stock environments.
## Technical Information

### Product Description

<table>
<thead>
<tr>
<th>Type</th>
<th>BX530</th>
<th>BX532</th>
<th>BX540</th>
<th>BX542</th>
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</thead>
<tbody>
<tr>
<td>Description</td>
<td>Managed IP40 switch with optional PoE (+); 12 ports, 4 Gigabit-Ethernet and 8 Fast-Ethernet or 12 Gigabit-Ethernet M12-ports</td>
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</tbody>
</table>

### Additional Interfaces

- **Local Management and Device Replacement**: M12 (USB-C)
- **LEDs**: Port, Power, ACA, PoE

### Power over Ethernet

| Port Type and Quantity* | 4 Gigabit-Ethernet, thereof 3 PoE* and 8 Fast-Ethernet, thereof 8 PoE or 12 Gigabit-Ethernet thereof 11 PoE* |

### Power Requirements

| Operating Voltage* | 24 V DC or 72-110 V DC; 24-48 V DC or 72-110 V DC for PoE variants |
| Power Consumption | 10 -13 W Switch, 46 - 50 W at 30 W PoE output, 83 - 86 W at 60 W PoE output |

### Mechanical Construction

- **Dimensions (W x H x D) mm**: 282 mm x 143.6 mm x 91 mm
- **Housing**: Metal
- **Mounting**: Wall mountable with bottom side
- **Weight***: 2.15 - 2.63 kg
- **Protection Class**: IP40

### Software

- **Supported HiOS Software Levels**: Layer 2 Advanced (L2A)

### Software Layer 2

- **Management**: Dual Software Image Support, TFTP, SFTP, SCP, LLDP (802.1AB), LLDP-MED, SSHv2, HTTP, HTTPS, Traps, SNMP v1/v2/v3, Telnet, IPv6 Management
- **Diagnostics**: Management Address Conflict Detection, MAC Notification, Signal Contact, Device Status Indication, TCPDump, LEDs, Syslog, Persistent Logging on ACA, Port Monitoring with Auto-Disable, Link Flap Detection, Overload Detection, Duplex Mismatch Detection, Link Speed and Duplex Monitoring, RMON (1,2,3,9), Port Mirroring, Port Mirroring 81, Port Mirroring N1, Port Mirroring N2, System Information, Self-Tests on Cold Start, Copper Cable Test, SFP Management, Configuration Check Dialog, Switch Dump
- **Configuration**: Automatic Configuration Undo (roll-back), Configuration Fingerprint, Text-based Configuration File (XML), Backup config on a remote server when saving, Clear config but keep IP settings, BOOTP/DHCP Client with Auto-Configuration, DHCP Server: per Port, DHCP Server: Pools per VLAN, Auto/Configuration Adapter ACA21/22 (USB), HiDiscovery, USB-C Management support, Command Line Interface (CLI), CLI Scripting, CLI script handling over ENVM at boot, Full-featured MIB Support, Context-sensitive Help, HTML5 based Management
- **Redundancy Functions**: HI-PER-Ring (Ring Switch), Link Aggregation with LACP, Link Backup, Media Redundancy Protocol (MRP) (IEC62439-2), Redundant Network Coupling, RSTP 802.1D-2004 (IEC62439-1), RSTP Guards
- **Switching**: Independent VLAN Learning, Fast Aging, Static Unicast/Multicast Address Entries, QoS / Port Prioritization (802.1D/p), TOS/DSCP Prioritization, Interface Trust Mode, CoS Queue Management, Queue-Shaping / Max. Queue Bandwidth, Flow Control (802.3X), Egress Interface Shaping, Ingress Storm Protection, Jumbo Frames, VLAN (802.1Q), GARP VLAN Registration Protocol (GVRP), IGMP Snooping/Querier per VLAN (v1/v2/v3), Unknown Multicast Filtering, Multiple VLAN Registration Protocol (MVRP), Multiple MAC Registration Protocol (MMRP), Multiple Registration Protocol (MRP)
<table>
<thead>
<tr>
<th>Ambient Conditions</th>
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<tbody>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-40 °C to +70 °C, attention to derating rules</td>
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<tr>
<td><strong>Relative Humidity (non-condensing)</strong></td>
<td>10% to 95%, non condensing</td>
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<tr>
<td><strong>Air pressure</strong></td>
<td>Operating hight max. 3000 m</td>
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<tr>
<th>Approvals Configurable</th>
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<tr>
<td><strong>Safety of Industrial Control Equipment</strong></td>
<td>EN 62368-1, UL 61010-2-201 &amp; CSA C22.2 NO. 61010-2-201:18*</td>
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<tr>
<td><strong>Mechanical Standards</strong></td>
<td>EN 60068-2-6</td>
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<tr>
<td><strong>EMC Interference Emission</strong></td>
<td>EN 61131-2, EN 50155, EMV 06, EN 50121-4, FCC 47CFR, EN 61000-6-4, EN 55032</td>
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<td><strong>EMC Interference Immunity</strong></td>
<td>EN 61131-2, EN 50155, EN 50121-4, FCC 47CFR, EN 61000-6-2, EN 61000-3-2, EN 61000-3-3</td>
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<td><strong>Transportation</strong></td>
<td>EN 50155, EN 45545 HL3, EN 50121-4, NEMA TS2,E1, ECE R118</td>
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<th>Accessories</th>
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<tr>
<td><strong>Device Replacement and Logging</strong></td>
<td>ACA22-M12-C (EEC)</td>
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* Depending on the selected variant
** Pending

**NOTE:** These are the prominent technical specifications. For complete technical specifications visit: [www.belden.com](http://www.belden.com)