Full Gigabit OCTOPUS
IP67 Ethernet Switches

Hirschmann’s Full Gigabit managed OCTOPUS PoE switches are enclosed in a L-shaped IP67 housing, reducing space for cabling while maximizing bandwidth, even in harsh settings.

Maximize network performance and guarantee high-speed connections with full Gigabit Ethernet options on all ports

Power connected devices up to 60 W through PoE with standard voltage of the switch

Ensure network reliability under extreme conditions with vibration and waterproof IP67 housing design

Save precious operating space with L-shaped housing for reduced cabling space and IP67 protection for cabinet-less mounting

Key Features

- Full Gigabit Ethernet switch and router in IP67 housing
- 120 W Power over Ethernet with optional PoE supply
- Configurable feature sets including three housing sizes for 8, 16 or 24 ports
- HiOS software up to Layer 3 advanced for switching and routing
- Power supply variants include 24 V DC, 110 V DC, 110 V AC and 230 V AC
- IP67 and IP65 protection degree
- Vibration-proof M12 connectors
- Extensive operating temperature range (-40°C to +70°C)
- Rail approvals for safe usage onboard, as well as along tracks, including EN 50121-4, EN 50155, EN45545-2

With Gigabit Ethernet on all ports, the Full Gigabit managed OCTOPUS PoE switches are an evolutionary step in meeting real-time data demands with high-speed connections in condensed industrial spaces.
**Full Gigabit OCTOPUS IP67 Ethernet Switches**

Hirschmann's Full Gigabit OCTOPUS IP67 Ethernet switches offer a powerful, yet economical, solution for industrial engineers seeking to optimize network performance in harsh, condensed operating spaces.

The unique L-shaped housing takes up less space for cabling both onboard and along rail system tracks and the PoE port options save costs by eliminating the need for separate cabling to power end devices, such as IP cameras. The compact design and cabinet-less mounting make installation and maintenance simple and cost-effective.

Highly configurable, the Full Gigabit OCTOPUS switches are available in a variety of feature sets including three housing sizes with 8, 16 or 24 ports to allow expansion tailored to meet individual network demands. Combined with advanced redundancy mechanisms and IP67 protection against water and dust, industrial engineers can now ensure high-speed connections in harsh conditions with increased reliability, no matter the industrial environment.

**Applications**

Built in compliance with international train standards, the Full Gigabit OCTOPUS switches from Hirschmann are ideal solutions for industrial engineers needing a high-end switch for use onboard trains and alongside tracks. The switches are also well-suited for applications requiring superior data transfer rates, such as high-definition IP cameras in production and embedded quality control, as well as situations where devices need to withstand extreme temperatures and exposure to vibration and dust.

**Markets**

Hirschmann's Full Gigabit OCTOPUS switches are designed for a variety of industrial markets, including transportation settings—specifically mass transit systems, traffic control systems, rail-rolling stock and railway and train stations, as well as general manufacturing, automotive and machine building industries.
Technical Information

<table>
<thead>
<tr>
<th>Type</th>
<th>OS3-4x-xx24xx</th>
<th>OS3-4x-xx16xx</th>
<th>OS3-4x-xx08xx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Managed IP65/IP67 switch in accordance with IEEE 802.3, store-and-forward-switching and routing, Fast-Ethernet (10/100 MBit/s) and Gigabit-Ethernet (10/100/1000 MBit/s), M12 ports, PoE+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port Type and Quantity</td>
<td>24 Ports</td>
<td>16 Ports</td>
<td>8 Ports</td>
</tr>
</tbody>
</table>

### Additional Interfaces

- **Power Supply**: M12-Power L-coded (24 to 54 V DC)/K-coded (72 to 110 V DC/110 to 230 V AC)
- **Signalling Contact**: M12 plug A-coded
- **USB (ACA)**: M12 socket A-coded
- **RS232**: M12 socket A-coded

### Network Size – Length of Cable

- **Twisted Pair (TP)**: 0 to 100 m

### Power Requirements

- **Operating Voltage**: 24 to 110 V DC, 110 to 230 V AC; 54 V for 120 W PoE+
- **Ambient Conditions**
  - **Operating Temperature**: -40 ºC to +70 ºC
  - **Relative Humidity (also condensing)**: 10% to 100%

### Mechanical Construction

- **Dimensions (W x H x D)**: 478 x 138 x 198 mm
- **Weight**: 8 kg
- **Protection Class**: IP65 and IP67

### Software

- **Switching**: Independent VLAN Learning; Fast Aging; Static Unicast/Multicast Address Entries; QoS / Port Prioritization (802.1p); STS/DSCP Prioritization; Interface Trust Mode; CoS Queue Management; IP Ingress DiffServ Classification and Policing; IP Egress DiffServ Classification and Policing; Queue-Shaping / Max. Queue Bandwidth; Flow Control (802.3X); Egress Interface Shaping; Ingress Storm Protection; Jumbo Frames; VLAN (802.1Q); Protocol-based VLAN; VLAN Unaware Mode; GARF VLAN Registration Protocol (GVRP); Voice VLAN; MAC-based VLAN; IP subnet-based VLAN; GARP Multicast Registration Protocol (GMRP); IPMG Snooping/Querier per VLAN (v1/v2/v3); Unknown Multicast Filtering; Multiple VLAN Registration Protocol (MVRP); Multiple MAC Registration Protocol (MMRP); Multiple Registration Protocol (MRP)
- **Redundancy**: HIPER-Ring (Ring Switch); HIPER-Ring over Link Aggregation; Link Aggregation with LACP; Link Backup; Media Redundancy Protocol (MRP) (IEC62439-2); MRP over Link Aggregation; Redundant Network Coupling; Sub Ring Manager; RSTP 802.10-2004 (IEC62439-1); MSTP (801.2Q); RSTP Guards; VRP; VRP Tracking; HVRP (VRP enhancements)
- **Management**: DNS Client; Dual Software Image Support; TFTP; SFTP; SCP; LLDP (802.1AB); LLDP-MED; SSHv2; V.24; HTTP; HTTPS; Traps; SNMP v1/v2/v3; Telnet
- **Diagnostics**: Management Address Conflict Detection; MAC Notification; Signal Contact; Device Status Indication; TCPDump; LEDs; Syslog; Persistent Logging on ACA; Email Notification; 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 1:1; Port Mirroring 6:1; Port Mirroring N:1; RSPAN; SFLOW; VLAN Mirroring; Port Mirroring N:2; 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); BOOTP/DHCP Client with Auto-Configuration; DHCP Server: per Port; DHCP Server: Pools per VLAN; AutoConfiguration Adapter ACA31/22 (USB); HiDiscovery; DHCP Relay with Option 82; Command Line Interface (CLI); CLI Scripting; Full-featured MIB Support; Web-based Management; Context-sensitive Help
- **Security**: MAC-based Port Security; Port-based Access Control with 802.1X; Guest/authenticated VLAN; Integrated Authentication Server (IAS); RADIUS VLAN Assignment; RADIUS Policy Assignment; Multi-Client Authentication per Port; MAC Authentication Bypass; DHCP Snooping; IP Source Guard; Dynamic ARP Inspection; Denial-of-Service Prevention; LDAP; Ingress MAC-based ACL; Egress MAC-based ACL; Ingress IPv4-based ACL; Egress IPv4-based ACL; Time-based ACL; VLAN-based ACL; Ingress VLAN-based ACL; Egress VLAN-based ACL; ACL Flow-based Limiting; Access to Management restricted by VLAN; Device Security Indication; Audit Trail; CLI Logging; HTTPS Certificate Management; Restricted Management Access; Appropriate Use Banner; Configurable Password Policy; Configurable Number of Login Attempts; SNMP Logging; Multiple Privilege Levels; Local User Management; Remote Authentication via RADIUS; User Account Locking
- **Time Synchronization**: PTPv2 Transparent Clock two-step; PTPv2 Boundary Clock; Buffered Real Time Clock; SNTF Client; SMTP Server
- **Industrial Profiles**: EtherNet/IP Protocol; IEC61850 Protocol (MMS Server, Switch Model); ModbusTCP; PROFINET I/O Protocol
- **Miscellaneous**: PoE (802.3at); PoE (802.3af); PoE Manual Power Management; PoE Fast Startup; Manual Cable Crossing; Port Power Down
- **Routing**: IP/UDP Helper; Full Wire-Speed Routing; Port-based Router Interfaces; VLAN-based Router Interfaces; Loopback Interface; ICMP Filter; Injected Broadcasts; GSFPv2; RIP v1/v2; ICMP Router Discovery (RDP); Equal Cost Multiple Path (ECMP); Static Unicast Routing; Proxy ARP; Static Route Tracking
- **Multicast Routing**: DVMRP; IGMP v1/v2/v3; IGMP Proxy (Multicast routing); PIM-DM (RFC3373); PIM-SM / SSM (RFC4601)

### Approvals

- **Safety of Industrial Control Equipment**: EN 62368-1, cUL61010-1, cUL 61010-2-201
- **Along Track and Onboard Train**: EN 50155, EN 50121-4, EN 45545

**NOTE:** All specifications must be determined from the user documentation. This information is subject to change without notice.
Full Gigabit OCTOPUS Configurations

**Design**
- **OS3-30**: Fast Ethernet and Gigabit Ethernet Ports
- **OS3-34**: Fast Ethernet and Gigabit Ethernet Ports with PoE+
- **OS3-40**: Gigabit Ethernet Ports
- **OS3-44**: Gigabit Ethernet Ports with PoE+

**Total Number of PoE+ Ports**
- 00 = no PoE+ Ports
- 08 = 8 PoE+ Ports
- 16 = 16 PoE+ Ports
- 24 = 24 PoE+ Ports

**Fast Ethernet PoE+ Ports**
- 00 = no Fast Ethernet PoE+ Ports
- 08 = 8 Fast Ethernet PoE+ Ports
- 16 = 16 Fast Ethernet PoE+ Ports

**Gigabit Ethernet PoE+ Ports**
- 00 = no Gigabit Ethernet PoE+ Ports
- 08 = 8 Gigabit Ethernet PoE+ Ports
- 16 = 16 Gigabit Ethernet PoE+ Ports
- 24 = 24 Gigabit Ethernet PoE+ Ports

**Fast Ethernet Ports**
- 00 = no Fast Ethernet Ports
- 08 = 8 Fast Ethernet Ports
- 16 = 16 Fast Ethernet Ports

**Gigabit Ethernet Ports**
- 00 = no Gigabit Ethernet Ports
- 08 = 8 Gigabit Ethernet Ports
- 16 = 16 Gigabit Ethernet Ports
- 24 = 24 Gigabit Ethernet Ports

**10 Gigabit Ethernet Ports**
- 00 = no 10 Gigabit Ethernet Ports

**Typ 1 Uplink Port**
- T6 = M12 X-coded
- R6 = M12 X-coded with bypass relay

**Typ 2 Uplink Port**
- (see Type 1 Uplink Port)

**Temperature Range**
- T = -40 °C to +70 °C

**Power Supply**
- BB = 2 x 24 V DC (16.8 to 30 V DC)
- N9 = 1 x 72/110 V DC (50.4 to 138 V DC)
- HH = 2 x 36/48 V DC (25.2 to 60 V DC)
- M9 = 1 x 110/120/220/230 V AC (88 to 265 V AC)
- QQ = 2 x 24/36/48 V DC (16.8 to 60 V DC)
- PP = 2 x 47 to 57 V (PoE) / 2 x 53 to 57 V (PoE+)

**Approvals**
- S9 = CE, FCC, EN 61131, EN 62368-1
- Y9 = CE, FCC, EN 61131, EN 62368-1, EN 50121-4, EN 50155, EN 45545
- Y9 = CE, FCC, EN 61131, EN 6368-1, cUL 61010

**Software Packages**
- 99 = Reserved
- UR = Unicast Routing
- MR = Multicast Routing

**OEM-Type**
- HH = Standard

**Hardware Configuration**
- S = Standard

**Software Configuration**
- E = Reserved
- I = Ethernet/IP
- P = Profinet I/O
- B = BDEW

**Software Version**
- 2A = HiOS Layer 2 Advanced
- 3A = HiOS Layer 3 Advanced

**Software Release**
- XX.X = Current Software Release