# PRA-ES8P2S Ethernet switch, 8xPoE, 2xSFP

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Invented for life

- 8 x Gigabit ports with PoE
- 2 x Gigabit combo ports with SFP sockets for glass fiber transceivers
- Network redundancy via STP/MSTP/RSTP
- Dual power supply connections
- Fault relay

The PRA-ES8P2S is a compact DIN-rail mounted Ethernet switch with eight Gigabit copper ports, supporting Power over Ethernet (PoE) and two Gigabit SFP combo ports. This Ethernet switch is an OEM switch, made for Bosch by Advantech for use in Bosch Public Address and Voice Alarm systems. It is a preconfigured version of the EKI-7710G-2CPI-AE switch, optimized for PRAESENSA. The PRA-ES8P2S is certified for EN 54-16 in combination with PRAESENSA systems. It can be used in addition to the switch ports of the PRAESENSA system controller and multifunction power supply. This is especially convenient in large systems where more SFP ports are needed for long distance interconnections on glass fiber or more PoE-enabled ports are needed to power PRAESENSA call stations.

## Functions

### Intended for PA/VA systems

- Managed industrial Gigabit Ethernet switch with convection cooling and DIN-rail mounting, designed for long term continuous operation.
- Redundant wide range DC power input.
- Protected against overloads and short circuits.
- Comes with pre-installed and pre-configured firmware for quick installation and optimum performance.
- Certified for EN 54-16 in combination with Bosch PRAESENSA systems.

### Advanced features

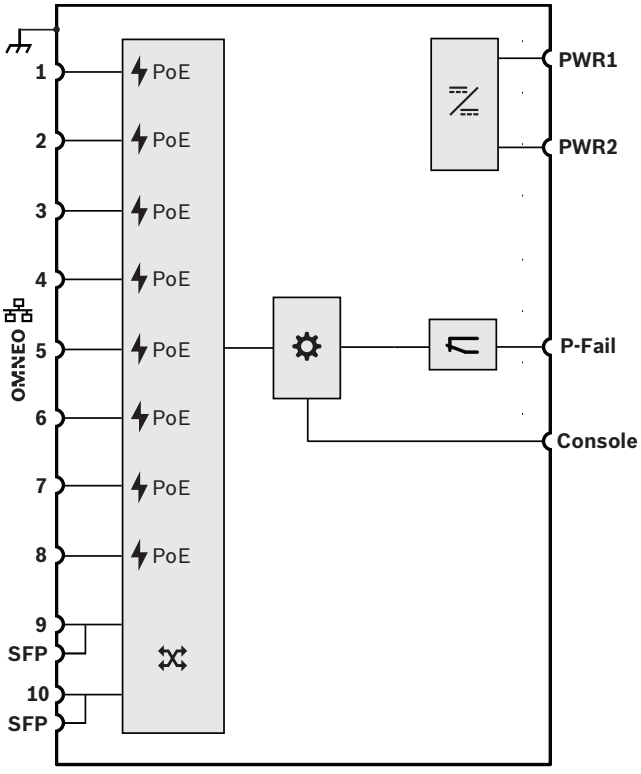
- Managed switch, configurable via web browser, with eight Gigabit copper ports with PoE and two SFP combo ports for PRA-SFPLX single mode and/or PRA-SFPSX multimode fiber transceiver modules.
- Deactivated Energy Efficient Ethernet (EEE) mode on all ports to avoid problems in combination with audio clock synchronization (IEEE 1588) in combination with OMNEO, Dante and AES67.
- Wire speed switching in hardware to avoid variable latency that may cause audio streaming problems.
- Full Quality of Service (QoS) through differentiated services (DiffServ) on all ports, compatible with OMNEO Docent diagnostic tool.
- Support for Rapid Spanning Tree Protocol (RSTP) according to IEEE 802.1d to create redundant loops.
- Fault output relay for fault reporting into PA/VA system.
- Large MAC-address table (8k-addresses) for large system broadcasting.

- Support for Simple Network Management Protocol (SNMP) and Link Layer Discovery Protocol (LLDP).
- All copper ports provide PoE (IEEE 802.3 af/at) to power PRAESENSA call stations or other devices.

### Fault tolerance

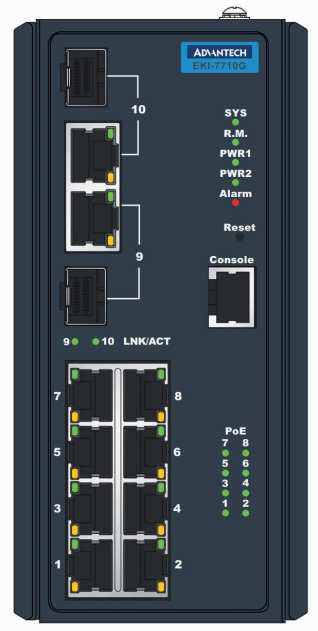
- All ports support RSTP for loop connections to adjacent devices with recovery from a broken link.
- Dual redundant 24 to 48 V DC-inputs.

### Connection and functional diagram




| | | | |
|---|---|---|---|
| ϟ | Power over Ethernet power source | ⫽ | DC to DC converter |
| ⚙ | Controller | ⊐ | Fault relay |
| SFP | Socket for SFP module | ⤮ | OMNEO network switch |

### Front view



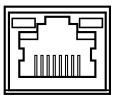
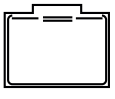
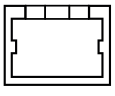

### Front panel indicators

| | | |
|---|---|---|
| Port 1-10 ∧ | Link activity | Green |
| Port 1-10 ∨ | 100 Mbps network<br>1Gbps network | Yellow<br>Green |
| PoE 1-8 | PoE activated | Green |
| SYS | System is operating normally | Green |
| R.M. | Active when determining ring master | Green |
| PWR1 | Power on power supply input 1 | Green |
| PWR2 | Power on power supply input 2 | Green |
| Alarm | SFP port disconnected or link down | Red |

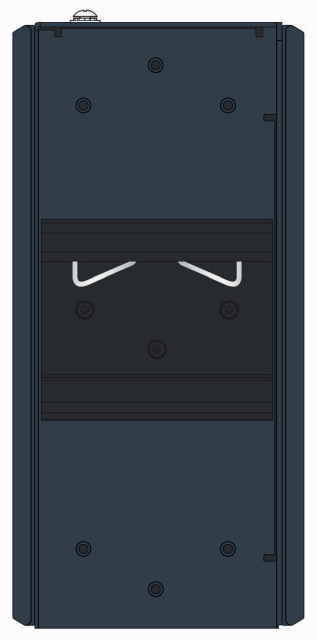
### Front panel control

| | | |
|---|---|---|
| Reset | System soft reset or factory reset | Switch |

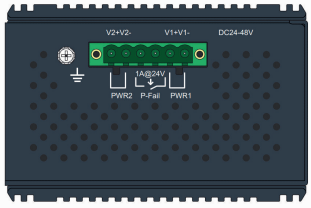
### Front panel connections

| | | |
|---|---|---|
| Port 1-8 | Network port 1-8 with PoE |  |
| Port 9-10 | Network combo port 9-10 |  |
| Console | Console serial RS232 cable COM port |  |

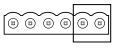
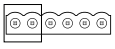
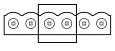
### Rear view



### Top view




### Top panel connections

| | | |
|---|---|---|
| ⏚ | Chassis ground | ⊕ |
| PWR1 | 24 to 48 VDC input 1 |  |
| PWR2 | 24 to 48 VDC input 2 |  |
| P-Fail | Fault relay |  |

### Architects' and engineers' specifications

The Ethernet switch shall be a managed 10-port Gigabit switch with eight ports providing PoE and two ports providing SFP sockets for glass fiber transceivers. The switch shall have dual redundant, wide range DC power supply inputs for 24 to 48 V. It shall supervise its DC power supply inputs and port links, and have a fault relay output for fault reporting. The Ethernet switch shall be DIN rail mountable with convection cooling. It shall be certified for EN 54-16 in combination with Bosch PRAESENSA systems for public address and voice alarm purposes. The switch shall be marked for UL and CE and be compliant with the RoHS directive. Warranty shall be three years minimum. The Ethernet switch shall be a Bosch PRA-ES8P2S.

## Certifications and approvals

| | |
|---|---|
| **Emergency standard certifications** | |
| Europe | EN 54-16 |
| International | ISO 7240-16 |
| Maritime applications | DNV GL Type Approval |
| **Emergency standard compliance** | |
| Europe | EN 50849 |
| UK | BS 5839-8 |
| **Regulatory areas** | |
| Safety | EN/IEC 62368-1 |
| Immunity | EN 55024<br>EN 61000-4-2<br>EN 61000-4-3<br>EN 61000-4-4<br>EN 61000-4-5<br>EN 61000-4-6<br>EN 61000-4-8 |
| Emissions | EN 55032 class A<br>EN 61000-6-4<br>FCC-47 part 15B class A<br>CISPR 32 |
| Environment | EN IEC 63000 |
| Shock | IEC 60068-2-27 |
| Freefall | IEC 60068-2-32 |
| Vibration | IEC 60068-2-6 |
| Railway applications | EN 50121-1<br>EN 50121-3-2<br>IEC 62236-1<br>IEC 62236-3-2<br>IEC 60571 clause 5.4, 5.5 |
| **Conformity declarations** | |
| Europe | CE/CPR |
| USA/Canada | FCC/c-UL |
| Korea | KE |

## Parts included

| Quantity | Component |
|---|---|
| 1 | 10-port industrial Ethernet switch |
| 1 | Screw connector |

| Quantity | Component |
|---|---|
| 2 | Wall-mounting bracket |
| 1 | DIN-rail mounting bracket and screws |
| 1 | Startup manual |

## Technical specifications

### Quick overview

| | PRA-ES8P2S Ethernet switch, 8xPoE, 2xSFP |
|---|---|
| Operating voltage (VDC) | 16.80 VDC – 62.40 VDC |
| Power consumption (W) | 140 W maximum |
| PoE/PoE + power budget | 120 W maximum |
| PoE/PoE + power per port | 20 W maximum |
| PoE/PoE + standard | IEEE 802.3 af/at |
| Switch type | Managed |
| Number of RJ45 ports | 10 |
| Number of RJ45 connections with PoE | 8 |
| Number of SFP ports | 2 |
| MAC table size | 8k |
| Fault output | Relay |
| Additional features | Pre-configured for PRAESENSA |
| Ethernet type | 100BASE-TX; 1000BASE-T |
| Cooling | Convection |
| Mounting type | Rail-mounted; Wall-mounted |
| Protection | Watchdog; RSTP; Rate limiting; Storm control |
| Degree of protection (IEC 60529) | IP30 |
| Operating temperature (°C) | -40 °C – 75 °C |
| Dimension (H x W x D) (mm) | 152 mm x 74 mm x 105 mm |
| Weight (kg) | 1.30 kg |

### Electrical

| Power transfer | |
|---|---|
| Power supply input PWR1-2 | |
| Input voltage | 24—48 VDC |
| Input voltage tolerance | 16.8—62.4 VDC |
| Power consumption (48 V) | |
| Active mode, no PoE | 12 W |
| Active mode, with PoE | < 140 W |
| Power over Ethernet | |
| Standard | IEEE 802.3 af/at |
| Output power, all ports together | < 120 W |
| Output power, per port (1-8) | < 30 W |

| Supervision | |
|---|---|
| Redundant power failure | P-Fail relay / Alarm LED |
| Port link down | P-Fail relay / Alarm LED |
| Fiber link down | P-Fail relay / Alarm LED |
| Device status reporting | SNMP, SMTP |

| Network interface | |
|---|---|
| Ethernet | |
| Speed | 100BASE-TX<br>1000BASE-T |
| Ports 1-8 | RJ45 |
| Ports 9-10 | RJ45/SFP combo |
| Console | |
| Standard | RS232 |
| Port | RJ45 |

| Reliability | |
|---|---|
| MTBF | 800,000 h |

### Functional

| Switching | |
|---|---|
| MAC-address table size | 8k |
| VLAN | IEEE 802.1Q |
| Group | 256 (VLAN ID1-4094) |
| Arrange | Port based, Q-in-Q, GVRP |
| Multicast | IGMP snooping v1/v2/v3,<br>MLD snooping,<br>IGMP immediate leave |
| Energy Efficient Ethernet | IEEE 802.3az EEE |
| Redundancy | IEEE 802.1D-STP<br>IEEE 802.1s-MSTP<br>IEEE 802.1w-RSTP |

| QoS | |
|---|---|
| Priority queue scheduling | SP, WRR |
| Class of service (CoS) | IEEE 802.1p,<br>DiffServ (DSCP) |
| Rate limiting | Ingress, Egress |
| Link aggregation | IEEE 802.3ad<br>Static, Dynamic (LACP) |

| Security | |
|---|---|
| Port security | Static, Dynamic |
| Authentication | IEEE 802.1X, port based |
| Storm control | Broadcast,<br>Unknown multicast,<br>Unknown unicast |

| Management | |
|---|---|
| DHCP | Client, Server |
| Access | SNMP v1/v2c/v3,<br>RMON,<br>Telnet, SSH, HTTP(S),<br>CLI |
| Software upgrade | TFTP, HTTP (dual image) |
| NTP | SNTP client |

## Environmental

| Climatic conditions | |
|---|---|
| Temperature | |
| Operating | -40 – 75 °C<br>(-40 – 167 °F) |
| Storage and transport | -40 – 85 °C<br>(-40 – 185 °F) |
| Humidity (non condensing) | 5 – 95% |

## Mechanical

| Enclosure | |
|---|---|
| Dimensions (HxWxD) | 152 x 74 x 105 mm<br>(6.0 x 2.9 x 4.1 in) |
| Ingress protection | IP30 |
| Mounting | TS35 DIN Rail<br>(EN 60715),<br>Wall-mounting |
| Case | Aluminum |
| Weight | 1.3 kg (2.7 lb) |

## Ordering information

**PRA-ES8P2S Ethernet switch, 8xPoE, 2xSFP**
Managed 10-port Ethernet switch with PoE and SFP.
Order number **PRA-ES8P2S**

### Services

**EWE-PRAES-IW 12 mths wrty ext Ethernet Switch**
12 months warranty extension
Order number **EWE-PRAES-IW**

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