# VOLKTEK

# IEN-8648-PN

## Managed 8 x 10/100/1000 RJ45 & 4 x GbE SFP Industrial Switch, PROFINET Approval

## Description

The PROFINET certified Industrial Ethernet switches enable the real-time communication for automation control. The Ethernet is not capable of the real-time performance required by the industrial automation. However, PROFINET bypasses the network layer for some specific application to provide real-time communication. Volktek comes up with the openstandard PROFINET certified industrial switches for real-time motion control of industrial instruments and factory automation. In a high precision control environment, the data exchange rate must be faster to meet the speed requirements. Therefore, the PROFINET certified switches can transmit the real-time and Non-real-time data in 10 and 100ms, respectively.

PROFINET is able to operate in the difficult environments of industry and is capable of delivering the speed and precision required by manufacturing plants. It can also provide additional functions and can be used in combination with the control and monitoring functions.

## Features Highlight

### Robust Switch Performance

IEN-8648-PN is built with IP30 aluminum case protection, surge, and ESD protection to deliver robust performance and withstand extreme conditions in Industrial environments. The SFP ports support 1000Mbps for high bandwidth transmissions and the SFP DDM feature enables service providers to monitor SFP parameters. In case of any abnormal hardware condition, the switch automatically sends warnings through email and relay output with real-time alarm messages. This assists the system administrators to immediately react to emergency events and diagnose the faults more efficiently for smoother network operations.

### Swift Communication on PROFINET Networks

PROFINET device properties stored in a Generic Station Description (GSD) file in XML format and the descriptive language is called GSDML (GSD Markup Language). The PROFINET I/O device manufacturer creates the GSD file which is imported by the engineering tool (STEP 7) to create the bus configuration. Besides, SNMP MIB (Management Information Base) also stores the device information in files for device management. These files can be downloaded from switch to field controller automatically through management interface, and can be integrated into TIA Portal software. An approved PROFINET certification, Volktek industrial Ethernet switch supports very high capability for industrial field.

Support powerful diagnostic function via PROFINET I/O protocol to response device and network status. The PROFINET I/O is an automation approach to create automation solutions using the PROFINET standard for automation devices. In this process, a software stack is allowed to access the PROFINET I/O-devices without any additional communication software which reduces the development cost and time.

### Network Redundancy

Volktek's industrial switch redundant ring architecture enhances network reliability and make them ideal for deploying secure automation network systems in tough outdoor industrial environments, such as ITS, maritime, mining, and manufacturing systems. Our PROFINET switch supports Media Redundancy Protocol (MRP) Slave mode for high reliable demands of PROFINET operational environment. MRP is a data network protocol that allows rings of industrial Ethernet switches to overcome any single failure with recovery time much faster than Spanning Tree Protocol which is suitable for most Industrial Applications.
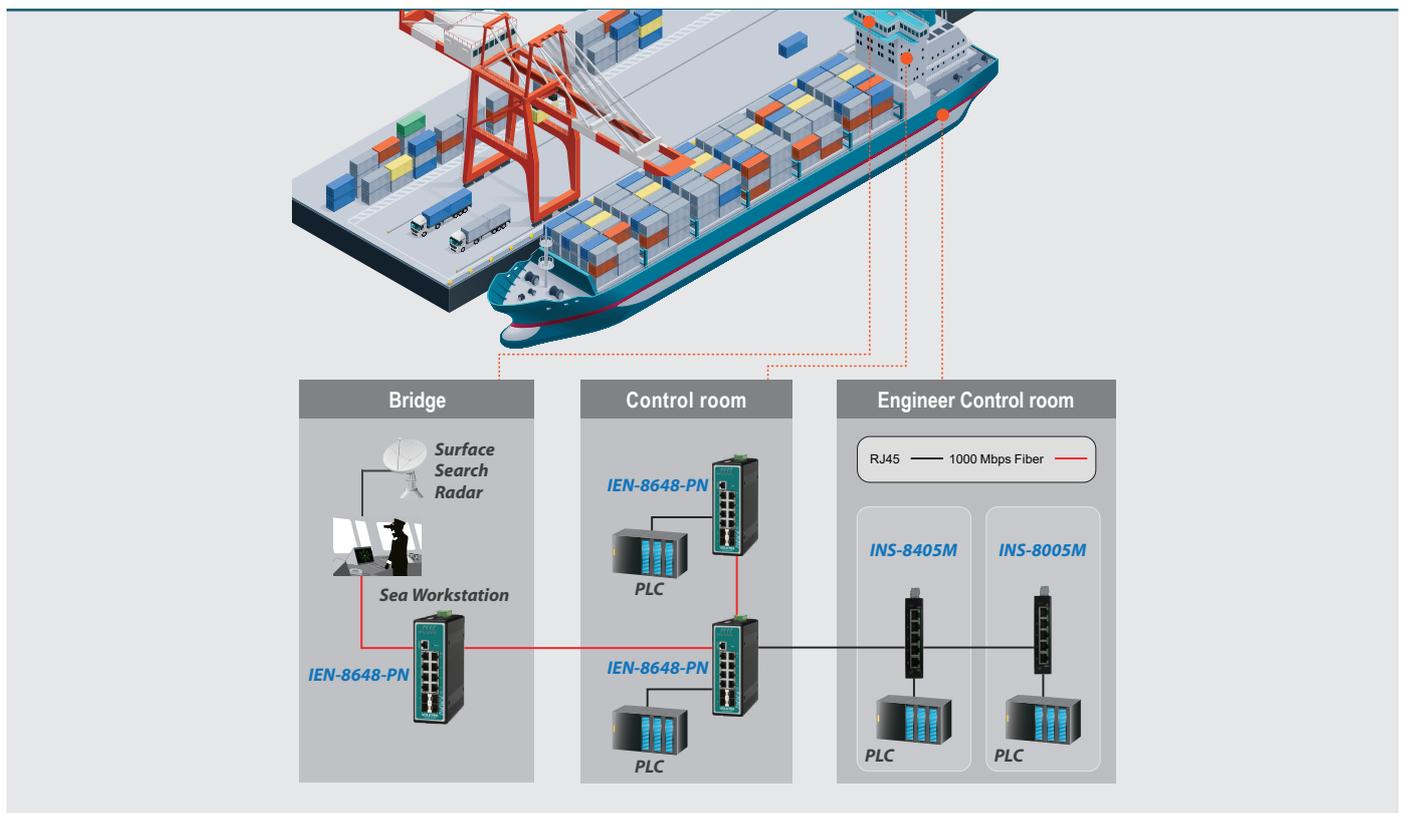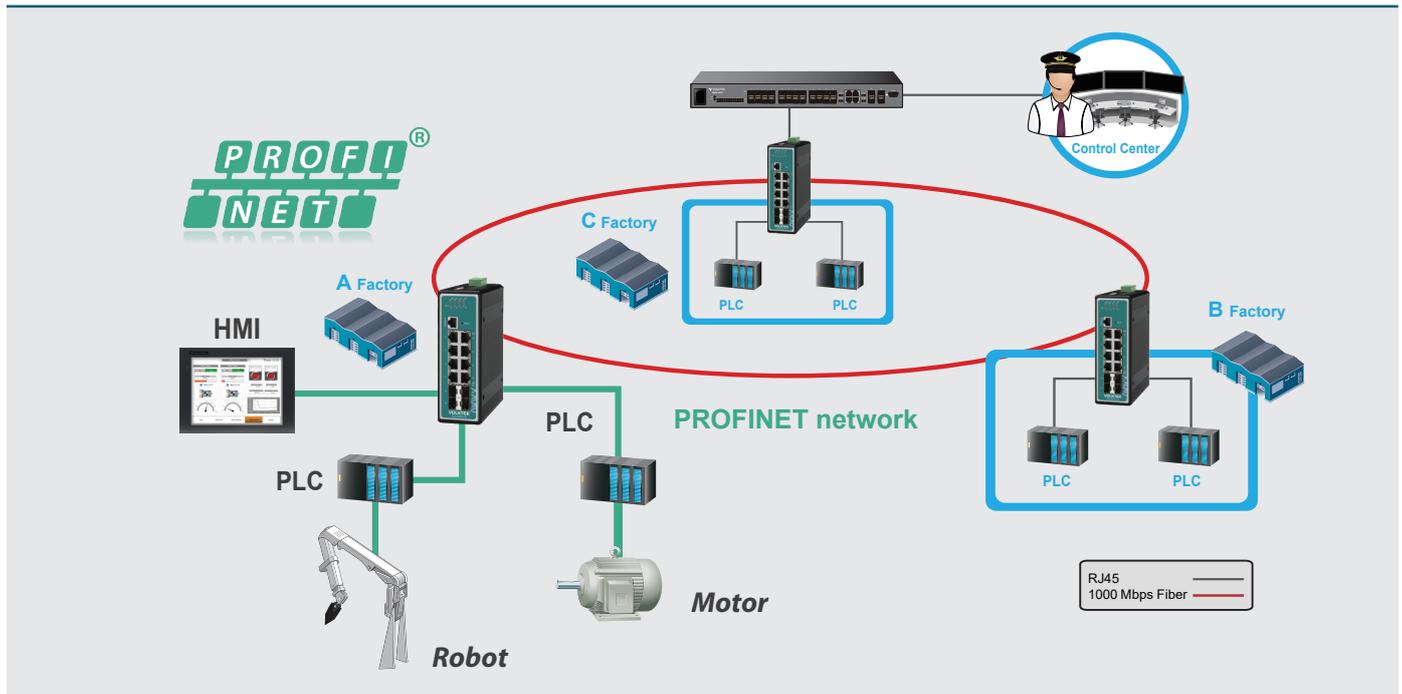
### Redundant Power system

Mission-critical industrial applications need to operate without any interruptions because even a minimum network downtime can hugely impact the overall output. Providing continuous power as well as data to such applications is now made easy with IEN-8648-PN's redundant power system. The switch is designed with standard industrial terminal block for redundant power. In case the primary power supply fails, the secondary power source will enable the switch to provide continuous services.

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## Features Highlight

### Port-based VLAN, IEEE 802.1Q VLAN to ease network planning

Planning, designing and managing complex networks is now simplified with IEN-8648-PN. The switch supports VLANs which segment large networks into smaller parts and organize them into separate broadcast domains. This helps the administrators to control the traffic patterns, limit broadcast traffic and reduce broadcast storms.

## Applications

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## Specifications

| Standards | |
|---|---|
| IEEE 802.3 | 10BASE-T |
| IEEE 802.3u | 100BASE-TX |
| IEEE 802.3ab | 1000BASE-T |
| IEEE 802.3x | Flow Control |
| IEEE 802.3ad | Link Aggregation |
| IEEE 802.1ab | LLDP |
| IEEE 802.1D | STP |
| IEEE 802.1w | RSTP |
| IEEE 802.1s | MSTP |
| IEEE 802.1p | Class of Service |
| IEEE 802.1Q | VLAN Tagging |
| IEEE 802.1X | Port Authentication |

| Interface | |
|---|---|
| Ports | 8 x 10/100/1000BASE-T (PoE RJ45) |
| | 4 x Gigabit SFP Slots |
| | 1 x RJ45 Console Port |
| DIP Switch | Primary/Redundant Power Voltage Drop Alarm setting |
| LED Panel | PWR, RPS, ALM, POST, 1000, LNK/ACT |

| Features | |
|---|---|
| Performance | Jumbo frame Size: 10KBytes |
| | MAC Table Entries: 16K |
| | Active VLAN: 4K |
| | Switch Fabric: 24Gbps |
| | L2 Forwarding Rate: 17.9Mpps |
| Management | CLI, Telnet/SSH, HTTP/HTTPs, SNMP v1//v2c/v3, SNMP Trap, MVLAN, Firmware Upgradable, Configuration Backup/Restore, Syslog, SNTP, LLDP, UDLD, DHCP Client, DHCP Option 82, e-mail Alarm, Service Control, DDM |
| Reliability | STP/RSTP/MSTP, Xpress Ring, ERPS v1/v2, Dual Homing, LACP, Code Redundancy |
| VLAN | IEEE 802.1Q, GARP/GVRP, Port-based VLAN, MAC-based VLAN, IP-based VLAN, Protocol-based VLAN, QinQ |
| Traffic Control | IGMP snooping/Throttling/Proxy, MVR, QoS, Flow Control, Abnormal Traffic Detection, Rate Limit, Storm Control, Port Isolation, Loop Detection |
| Security | ACL, SSH, Port Security, Port-based 802.1x, MAC-based 802.1x, TACACS+, MAC limit, MAC Search, Refusal MAC, Static MAC, DHCP Snooping, DHCP Sever Screening, ARP Inspection, BPDU Guard/Filter, Root Guard, Management Host |

| Power | |
|---|---|
| Input Voltage | Primary inputs：12~60VDC |
| | Redundant inputs：12~60VDC |
| Power Consumption | System：18W |
| Alarm Relay | One relay output, 1 A @ 24V DC |

| Mechanical and Environment | |
|---|---|
| Housing | Aluminum (IP30 Protection) |
| Mounting | DIN-Rail |
| Operating Temperature | -40°C~75°C |
| Storage Temperature | -40°C~85°C |
| Operating Humidity | 5 to 95% RH (non-condensing) |
| Storage Humidity | 5 to 95% RH (non-condensing) |
| Weight | 860g |
| Dimension (WxHxD) | 50x162x122mm (1.97x6.38x4.8 inch) |

| Certifications | |
|---|---|
| EMI | FCC Part 15 Subpart B Class A<br>EN 55022 : class A<br>EN 55011 : 2009  class A<br>EN 61000-6-4 |
| EMS | EN 55024<br>EN 61000-6-2<br>EN 61000-4-2 ( ESD )<br>EN 61000-4-3 ( RS )<br>EN 61000-4-4 ( Burst )<br>EN 61000-4-5 ( Surge )<br>EN 61000-4-6 (CS )<br>EN 61000-4-8 (PFMF ) |
| Shock | IEC 60068-2-27 |
| Freefall | IEC 60068-2-32 |
| Vibration | IEC 60068-2-6 |

| Ordering Information | |
|---|---|
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| Optional Accessories | |
|---|---|
| Power Supply | SDR-480P-48: 480W DIN-Rail 48V DC Industrial Power  Supply, -25°C~70°C |
| GBM-104 | 1000BASE-SX 1.25G, Multi-mode SFP, 500m |
| GBM-123TS | 1000BASE-LX, Bi-Di SFP TX:1310/RX:1550 Single Mode, 10Km, 0°C~70°C / -32°F~158°F |
| GBM-123RS | 1000BASE-LX, Bi-Di SFP TX:1550/RX:1310 Single Mode, 10Km, 0°C~70°C / -32°F~158°F |

*Note :*

*\* The SFP communication distance upon the request.*

*\* Industrial SFP with wide operating temperature from -40°C~85°C is available upon request.*

*\* Specifications subject to change without notice.*

## Dimension



DIN-Rail Bracket

50mm (1.97inch)

122.2mm (4.81inch)

161.5mm (6.36inch)

169mm (6.65inch)

130.8mm (5.15inch)