

# IEN-9648M

L2+ Managed 8 x 10/100/1000 RJ45 &  
4 x GbE SFP Industrial Switch, DNV Marine Approval

## Description

Volktek's IEN-9648M Managed Industrial switch is equipped with 8 port 10/100/1000Base-T and 4 Gigabit SFP slots. Under DNV (Det Norske Veritas) certified for Industrial switch, the IEN-9648M suits your anti-corrosion harsh environments in marine & offshore applications and contains all the standard features of a industrial managed switch. Engineered with hardened components and enclosed in a rugged case, the switch can operate in wide temperatures from -40°C to 75°C and excellent tolerance capability to high vibration and shock.

IEN-9648M is a Layer 2+ switch that offers additional enhanced features for encompassed management with RMON, SNMP v1/v2c/v3, STNP, network recovery in milliseconds, and advanced network cybersecurity features and traffic control.



**RoHS** **CE** **FC**



## Features Highlight

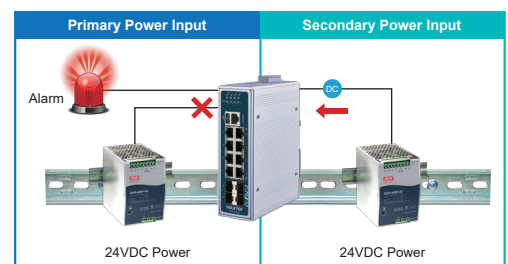
### Robust Switch Performance

IEN-9648M 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.



### Redundant Power Input 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-9648M 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 will enable the switch to provide continuous service.



### Efficient network monitoring and proactive capability

In a network, the issues that impact network performance can be quickly resolved with the IEN-9648M most accepted and enhanced traffic management, monitoring and analysis protocols such as SNMP and RMON. SNMP allows end users to centrally manage different levels in a network and RMON gives the capability to monitor the network performance. Service providers can ensure a reliable network by identifying connectivity and performance issues and isolating the problem remotely on individual switches. This avoids high OPEX and provides administrators the control they need to manage a healthy and efficient network.

### Bandwidth management to prevent unpredictable network status

Industrial surveillance applications need different levels of services delivered to them reliably without any transmission delays and interruptions. The IEN-9648M has comprehensive QoS mechanisms which assign priority to applications and sends only specific dedicated traffic to them. In addition, bandwidth management function of the switch allocates high bandwidths to mission-critical communications and reduce the bandwidth to applications that are less critical. With full control of limiting the bandwidth, the administrators can prevent unpredictable errors and utilize the bandwidth more effectively.

### Redundant Ring and Fast Recovery for Surveillance System

Even few seconds of missed communications due to link failures, especially in IP surveillance systems, can cause inconvenience and recovering it becomes very critical. Featuring with Xpress Ring, IEN-9648M can rapidly react to such link failures and recovers it within less than 10ms, a much faster fail-over time to support nonstop transmissions. And to handle the heavy traffic load of video and data, the switch implements.

## Certificates &amp; Approvals

# Marine

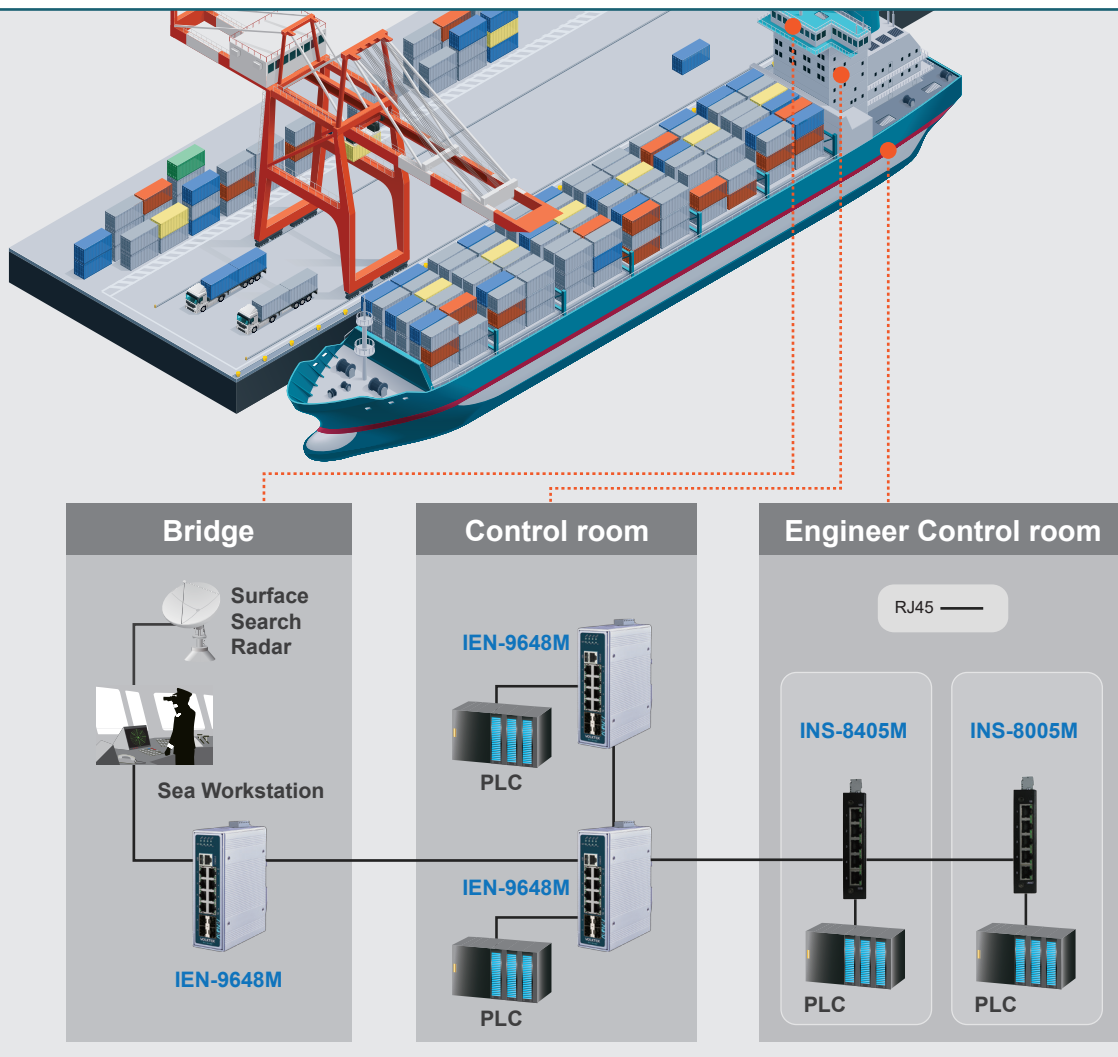
## Type Approval



IEC 60945 / IACS E10

Marine Certifications Ensure Secure Communication Networks for Offshore Environments

## Applications



## Specifications

| Standards       |                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEEE 802.3      | 10BASE-T                                                                                                                                                                                                                                                                                                                                                            |
| IEEE 802.3u     | 100BASE-TX                                                                                                                                                                                                                                                                                                                                                          |
| IEEE 802.3ab    | 1000BASE-T                                                                                                                                                                                                                                                                                                                                                          |
| IEEE 802.3z     | 1000BASE-SX/LX                                                                                                                                                                                                                                                                                                                                                      |
| IEEE 802.3      | Nway Auto-negotiation                                                                                                                                                                                                                                                                                                                                               |
| IEEE 802.3x     | Flow Control                                                                                                                                                                                                                                                                                                                                                        |
| IEEE 802.3ad    | Link Aggregation                                                                                                                                                                                                                                                                                                                                                    |
| IEEE 802.3az    | Energy Efficient Ethernet (EEE)                                                                                                                                                                                                                                                                                                                                     |
| IEEE 802.1AB    | LLDP                                                                                                                                                                                                                                                                                                                                                                |
| IEEE 802.1ad    | QinQ                                                                                                                                                                                                                                                                                                                                                                |
| 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                                                                                                                                                                                                                                                                                                                                                 |
| IEEE 1588v2     | PTP                                                                                                                                                                                                                                                                                                                                                                 |
| Interface       |                                                                                                                                                                                                                                                                                                                                                                     |
| Ports           | 8 x 10/100/1000BASE-T (PoE RJ45)                                                                                                                                                                                                                                                                                                                                    |
|                 | 4 x GbE SFP Slots                                                                                                                                                                                                                                                                                                                                                   |
|                 | 1 x RJ45 Console Port                                                                                                                                                                                                                                                                                                                                               |
|                 | 1 x USB Port                                                                                                                                                                                                                                                                                                                                                        |
| DIP Switch      | Primary/Redundant Power Voltage Drop<br>Alarm setting                                                                                                                                                                                                                                                                                                               |
| LED Panel       | PWR, RPS, ALM, POST, PoE, 1000, LNK/ACT                                                                                                                                                                                                                                                                                                                             |
| Features        |                                                                                                                                                                                                                                                                                                                                                                     |
| Performance     | Jumbo frame Size: 10KBytes                                                                                                                                                                                                                                                                                                                                          |
|                 | MAC Table Entries: 16K                                                                                                                                                                                                                                                                                                                                              |
|                 | Active VLAN: 4K                                                                                                                                                                                                                                                                                                                                                     |
|                 | Switch Fabric: 24Gbps<br>L2 Forwarding Rate: 17.9Mpps                                                                                                                                                                                                                                                                                                               |
| Management      | CLI, Telnet/SSH, HTTP/HTTPS, SNMP v1/v2c/v3, RMON Statistics, SNMP Trap, MVLAN, Firmware Upgradable, Configuration Backup/Restore, Syslog, STNP, DHCP Client/Relay/Option 82, DHCP Option 66/67, Service Control, SFP DDM/Info, Mirroring, Auto-Provisioning, Modbus TCP, LLDP, UDLD, IEEE 1588 v1/v2, EEE, e-mail Alarm, Service Control, PPPoE IA, MAC Aging Time |
|                 | Reliability                                                                                                                                                                                                                                                                                                                                                         |
|                 | STP/RSTP/MSTP, Xpress Ring, ERPS v1/v2, Dual Homing, LACP, Code Redundancy, Static Trunk                                                                                                                                                                                                                                                                            |
|                 | VLAN                                                                                                                                                                                                                                                                                                                                                                |
|                 | IEEE 802.1Q, GARP/GVRP, Port-based VLAN, MAC-based VLAN, IP Subnet-based VLAN, Protocol-based VLAN, QinQ, VLAN Translation, Service-based VLAN                                                                                                                                                                                                                      |
| Traffic Control | IGMP snooping v1/v2/v3/, IGMP Querier/Throttling/Proxy, MLD Snooping, MVR, 802.1p QoS, Flow Control, Abnormal Traffic Detection, Rate Limit, Storm Control, Port Isolation, Loop Detection, Static Route, Inter-VLAN Routing                                                                                                                                        |
|                 | Security                                                                                                                                                                                                                                                                                                                                                            |
|                 | DHCP Snooping, ACL, SSH, Port Security, Port-based 802.1x, TACACS+, MAC Search, Refusal MAC, Static MAC, DHCP Server Screening, ARP Inspection, BPDU Guard/Filter, Root Guard, Management Host                                                                                                                                                                      |
|                 |                                                                                                                                                                                                                                                                                                                                                                     |

| Power                      |     |                                                                                                                                                                                            |
|----------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Voltage              |     | Primary inputs: 12-48V DC<br>Redundant inputs: 12-48V DC                                                                                                                                   |
| Connection                 |     | Terminal Block                                                                                                                                                                             |
| 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 (-40°F~167°F)                                                                                                                                                                   |
| Storage Temperature        |     | -40°C~85°C (-40°F~185°F)                                                                                                                                                                   |
| Operating Humidity         |     | 5 to 95% RH (non-condensing)                                                                                                                                                               |
| Storage Humidity           |     | 5 to 95% RH (non-condensing)                                                                                                                                                               |
| Weight                     |     | 955 g (2.1 lb)                                                                                                                                                                             |
| Dimension (WxHxD)          |     | 50 x 161.5 x 119.9 mm (1.97 x 6.35 x 4.72 in)                                                                                                                                              |
| Certifications             |     |                                                                                                                                                                                            |
| CE                         | EMI | FCC Part 15 Subpart B Class A<br>EN 55011 / BS EN 55011 Class A<br>EN 55032 / BS EN 55032 Class A<br>EN 61000-6-4 / BS EN 61000-6-4                                                        |
|                            | EMS | EN 55035 / BS EN 55035<br>EN 61000-6-2 / BS EN 61000-6-2<br>EN 61000-4-2 (ESD) , EN 61000-4-3 (RS)<br>EN 61000-4-4 (Burst), EN 61000-4-5 (Surge)<br>EN 61000-4-6 (CS), EN 61000-4-8 (PFMF) |
| Marine                     |     | DNV-CS-0339:2016<br>DNV-RU-SHIP-Pt4Ch9:2018<br>IEC-60945, IACS E10 (Rev.6 2014)<br>LR certify environmental category ENV1, ENV2, and ENV3                                                  |
| Shock                      |     | IEC 60068-2-27                                                                                                                                                                             |
| Freefall                   |     | IEC 60068-2-31                                                                                                                                                                             |
| Vibration                  |     | IEC 60068-2-6                                                                                                                                                                              |
| Ordering Information       |     |                                                                                                                                                                                            |
| IEN-9648M                  |     | L2+ Managed 8 x 10/100/1000 RJ45 & 4 x GbE SFP Switch, -40°C~75°C (-40°F~167°F)                                                                                                            |
| Optional Accessories       |     |                                                                                                                                                                                            |
| Power Supply               |     | SDR-120-48: 120W DIN-Rail, 48VDC, Industrial Power Supply with PFC Function                                                                                                                |
| 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 (-40°F~185°F) is available upon request.

\* The highest degree of temperature operation certified by DNV is (Class D) -25°C~70°C (-13°F~158°F), and the nominal voltage of 24VDC for DNV type approval is specified.

\* Specifications subject to change without notice.

Dimension

