

## JetNet 4508/4508f

### Industrial 8-port Managed Ethernet Switch

- Redundant Super Ring (recovery time <300ms) and Ring Coupling
- Supports Dual Homing, RSTP over Super Ring
- Supports Two Multi-mode (JetNet 4508f-m) / Single-mode (JetNet 4508f-s) Fiber Ports
- Supports SNMP/RMON Network Management
- Supports VLAN/QoS/IGMP Snooping
- Event Notification by Email, SNMP trap, Syslog and Relay Output
- Supports Online Port Mirroring and IP Security
- Web-based Configuration with Windows Discovery Utility
- Redundant DC Power Inputs
- Rigid Aluminum Case Design Complies with IP30 Standard
- DIN-Rail/Wall-Mounting/Desktop Installation



### Overview

JetNet 4508/4508f Industrial 8-port Managed Ethernet Switch provides solid foundation for a highly fault-tolerant and easily-managed network. JetNet 4508/4508f can be remotely configured by web browser, and managed by SNMP and RMON. Security is enhanced with advanced features such as Port/Tag-based VLAN and IP security. Performance is optimized by QoS and IGMP Snooping/querying.

### Superb Management Features

It is critical for industrial applications that network remains non-stop. Korenix Super Ring technology provides network redundancy that can self-recover in less than 300ms at full load. Moreover, JetNet 4508/4508f provides users with many advanced management features. It can be configured smartly by web browser. Network administrators can define event notification to be sent via E-mail, SNMP trap, Syslog or relay output. Online status of each port is also shown in web page. To optimize network traffic, network administrators can



JetNet 4508

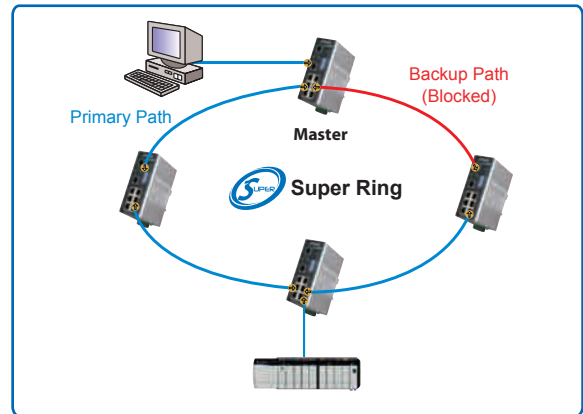
JetNet 4508f

Korenix Super Ring technology enables superb self-healing capability for network failure. The IP31-design aluminum case further strengthens JetNet 4500/4508f withstandability in harsh industrial environments. The event warning is notified to the network administrator via e-mails or to field engineers by relay output. JetNet 4508/4508f will be your best option for highly-managed industrial network.

segment ports into different VLANs, or filter multicast traffic by IGMP Snooping. Bandwidth can be managed by port rate control to avoid abnormal broadcast storm. To enhance security, port access can be limited to pre-defined IP address table. Network determinism is answered by QoS, Quality of Service, for traffic prioritization. JetNet 4508/4508f is the perfect combination for intelligent network management and robust network operation.

## Super Ring-Recovery Time < 300ms

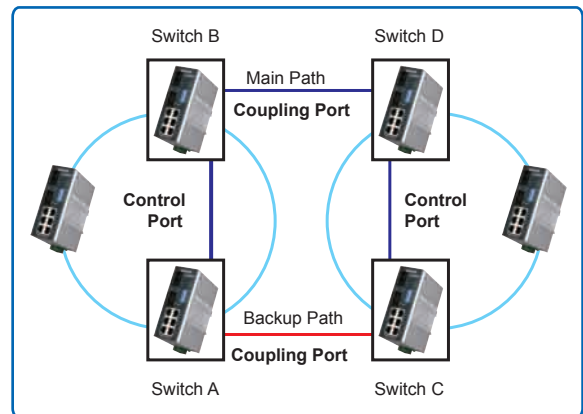
One of the main topics in Industrial Automation field is to ensure your system will run non-stop. A minor failure in the communication process may cause the whole system to break down. As a result, you might suffer from substantial damage in terms of extra time and monetary losses. JetNet 4500 Series Switches are your ultimate solution. With Super Ring (Self-healing Redundant) technology, JetNet 4500 provides you with a self-recovery mechanism. If any segment of your primary communication path is broken or disconnected, Super Ring technology allows JetNet 4500 to self-reconfigure and to provide a redundant path in the network. With its ultra fast recovery time, which is less than 300ms, your mission-critical applications are protected from any network interruptions or temporary malfunctions. With the recovery time that fast, you won't even notice a network failure.



## Couple Ring

The Couple Ring, which extends from Super Ring technology, allows the Ethernet switches to be separated into two Super Rings for better ring recovery efficiency. The coupled Super Rings can still back up with each other.

Super Ring gives you the local ring redundancy and Ring Coupling gives you the redundancy between the 2 rings.



## Dual Homing

The "Dual Homing" is an advanced redundancy network solution that can connect Ethernet switches on different redundant protocols (e.g. IEEE 802.1w Rapid Spanning Tree Protocol and Super Ring) to extend the network redundancy coverage.

Dual Homing redundancy is achieved by connecting one port from each of the two switches in the Super Ring to one port of each of the two managed switches in RSTP redundancy.

An active link transmits data between the switches in two protocols, while the hot standby link constantly monitor the status and will switch over as active once the active link is disconnected or breaks.

Figure 1 shows the Super Ring connect to the same upper switch. Figure 2 shows the Super Ring connect to the different upper switches.

Figure 1

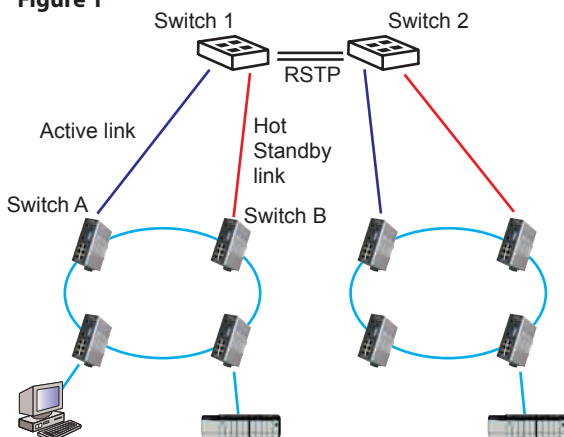
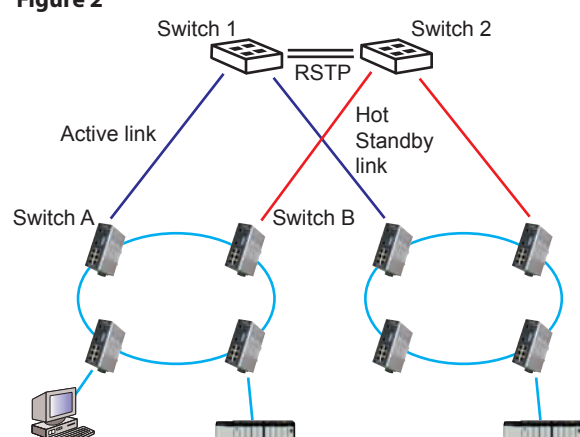


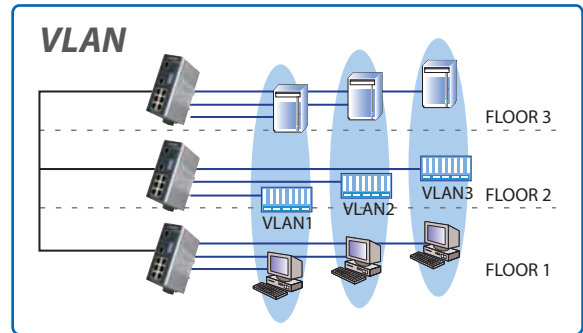
Figure 2



## VLAN

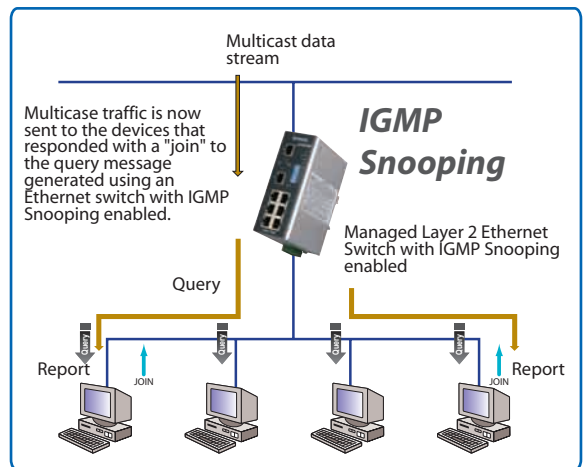
The VLAN allow you to separate the physical interfaces of one Ethernet switch into different segments. For example, some switches may be placed in different floor, are difficult to be grouped. With user defined VLAN ID, the system can identify the origins of the frames and pass to the targets within the pre-defined VLAN.

Korenix VLAN design conforms to IEEE 802.1Q standard, therefore can interoperate with other Ethernet switches that support VLAN.



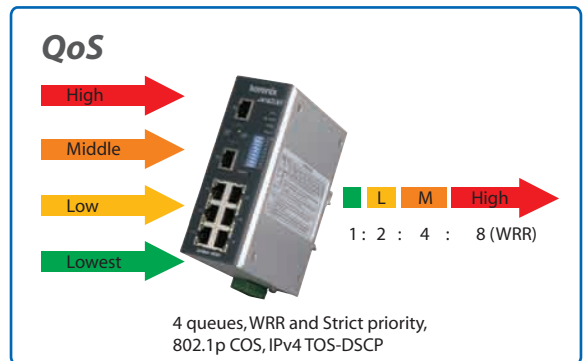
## IGMP Snooping

The multicast stream over Ethernet is always quick and heavy. It floods to all ports if no mechanism to filter them and all the terminal devices might be effected by the continuous traffic. In such environments, IGMP( Internet Group Management Protocol) snooping is important. It helps the switches to have the ability to snoop the multicast traffic and transmit only to those end stations/users who requires such kind of traffic and not to the end stations/users who are not in the specific group to receive the multicast stream.



## QoS

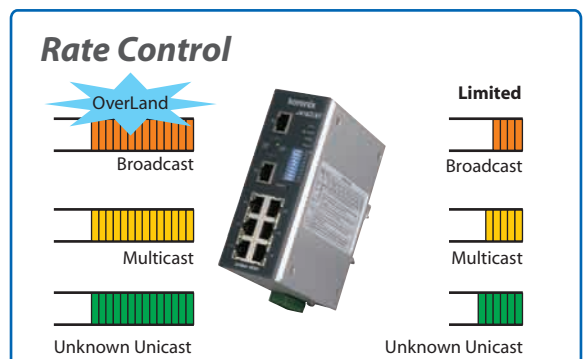
Quality of Service (QoS) provides the traffic prioritization mechanism, which allows you to deliver better service to certain flows. QoS can also help alleviate the congestion problems and ensure the high-priority traffic is delivered first. JetNet QoS supports 4 queues, weighted fair queuing (WRR) and Strict Priority scheme, which follows the 802.1p COS tag and IPv4 TOS-DiffServ information to prioritize the traffic of your industrial network.



## Rate Control

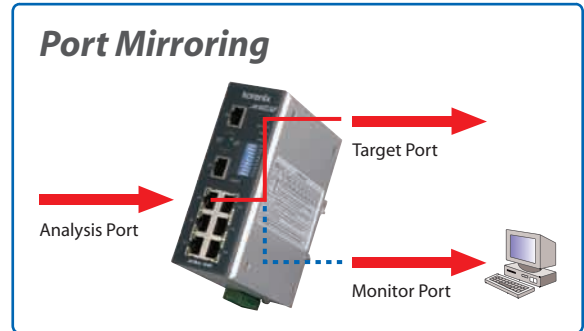
Rate Control is a form of flow control that is used to enforce a strict bandwidth limitation on a port. You can program separate transmit (egress) and receive (ingress) rate limits on each port, and even apply the limit to certain packet types depending on your industrial network applications.

The packet types for ingress (incoming) port include the selections of Broadcast, Multicast, Unknown Unicast or All. The egress (outgoing) port supports ALL packet types.



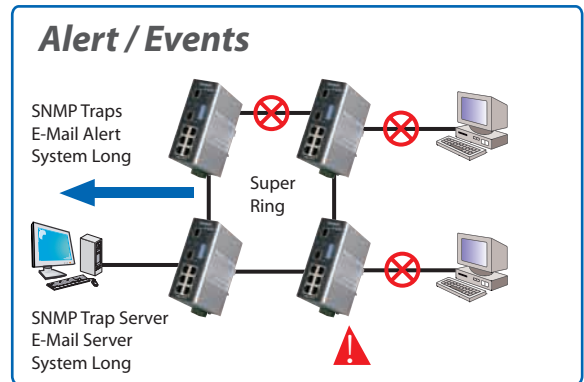
## Port Mirroring

Port mirroring is a tool to mirror the traffic from one port onto another port, without disrupting the flow of traffic on the original port. Any traffic that goes into or out of the monitored port will be duplicated to the analysis port. The network administrator can use port mirroring function for diagnostic or debugging purposes, especially when encountering network problems or under hacker's attack. It helps the administrator to keep close track of the traffic and analyze locally or remotely.



## Alert and Events

Some industrial Ethernet devices are located remotely and it is difficult for the administrators to monitor them aside by the devices. The Alert features are practical for this status monitoring. JetNet switches give Alerts by generating different types of Ethernet packets or Relay events when the specific events occurred.



### SNMP Trap

The switch can generate below SNMP Traps that is conforming to the SNMP format. You can receive the alert from the SNMP Trap server.

### E-Mail Alert

The switch can generate the specific events which conform to the SMTP format. You can receive the alert events by your E-mail system.

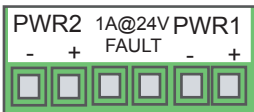
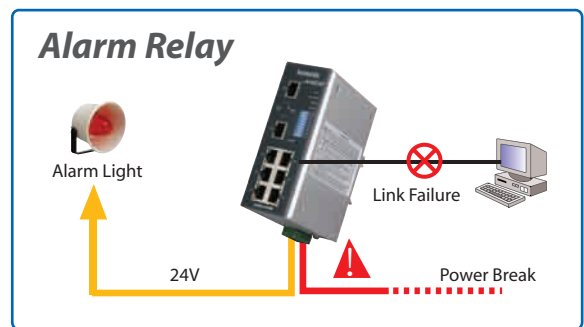
### Syslog:

The system can record the logs in local or relay to the Syslog server. From the syslog, you can monitor the events and know the changes in the switch. Another benefit of the Syslog Server is that the logs can be tracked in the syslog server, rather than being deleted after resetting the switch.

## Alarm Relay

The alarm output relay contacts are located at the two middle terminals of the power terminal block, between PWR2 and PWR1 as shown in the figure. These contacts will close if the unit is not powered, or if the DC power 1 or power 2 fails, or if a port connection fails.

The relay contacts are energized (open) for normal operation and will close for fault conditions. This contact does not supply any power and is rated up to 24V DC at 1A.



Relay Output Alarm Contact

## The supported system events and port events

System Event	SNMP Trap	E-Mail Alert	SysLog	Alarm Relay
Device Cold Start	V	V	V	
Power Status	V	V	V	V
SNMP Authentication Failure	V	V	V	
Super Ring Topology Change	V	V	V	
<b>Port Event</b>	<b>SNMP Trap</b>	<b>E-Mail Alert</b>	<b>SysLog</b>	<b>Alarm Relay</b>
Link-Up	V	V	V	V
Link-Down	V	V	V	V

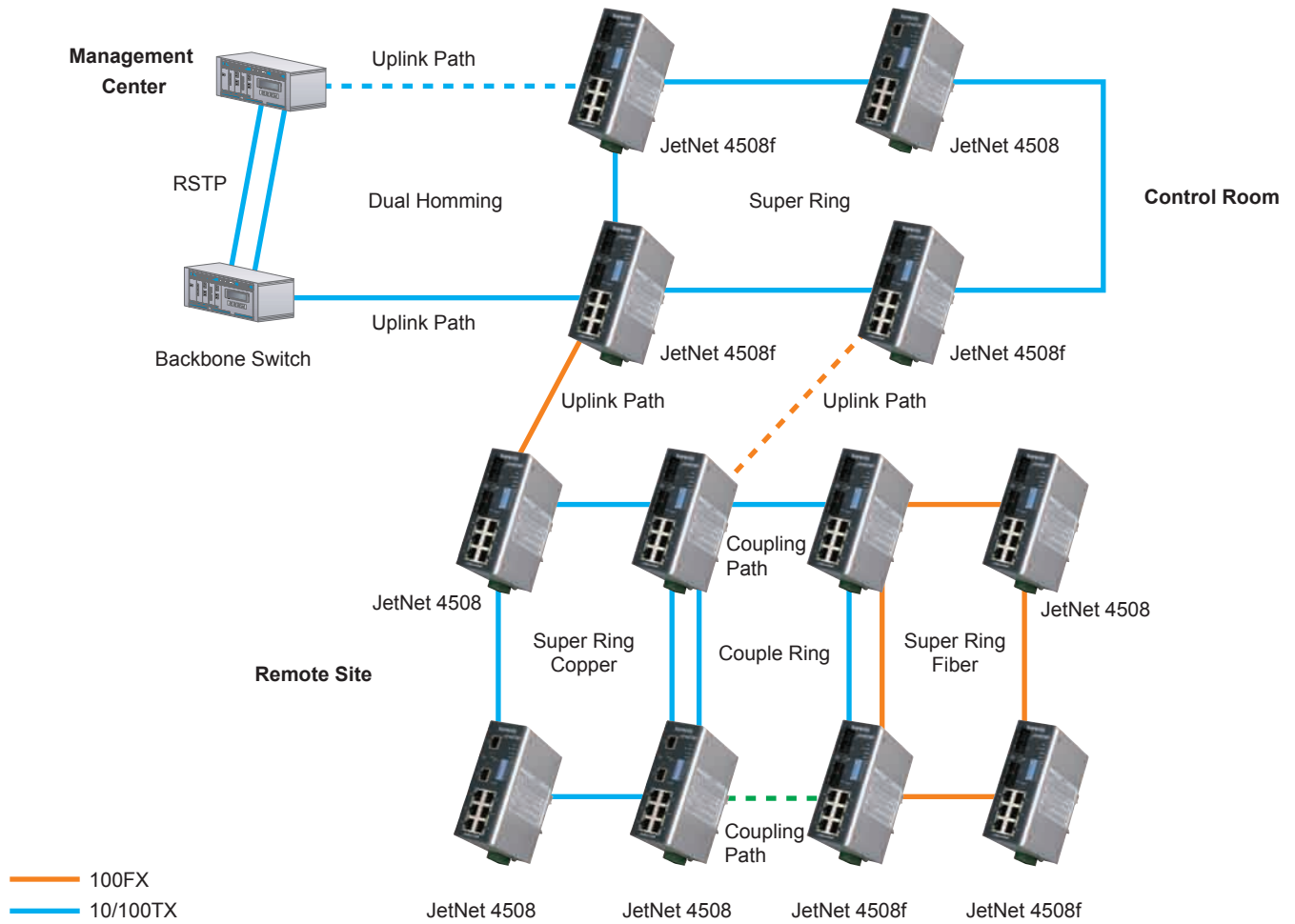
## Application

### Ring Redundant Ethernet

The self-recovery ring redundancy is not only a plus but a must for most industrial network applications. Korenix "Super Ring" is designed for the industrial need which can reduce the network recovery time to less than 300ms. Super Ring supports two extended designs. The "Ring Coupling" can couple two Super Rings, so the devices can be

separated into two rings for ring recovery efficiency, and the two coupling paths can still backup with each other.

The "Dual Homing" can connect Super Ring to other standard ring redundancy protocols, such as RSTP, or STP. In Dual Homing, the uplink paths can backup with each other. Below is the illustration of Super Ring, Ring Coupling and Dual Homing.



## Specifications

### Technology

**Standard:**

IEEE 802.3 10Base-T Ethernet  
IEEE 802.3u 100Base-TX Fast Ethernet  
IEEE 802.3x Flow Control and Back-pressure  
IEEE 802.1p class of service  
IEEE 802.1Q VLAN  
IEEE 802.1D Spanning Tree Protocol (STP)  
IEEE 802.1W Rapid Spanning Tree Protocol (RSTP)

**Processing:** Store and Forward architecture**Packet Filter:** Broadcast packet filtering

### Interface

**Number of Ports:**

JetNet 4508: 8 x 10/100 Base-TX  
JetNet 4508f: 6 x 10/100 Base-Tx, 2 x 100 Base-Fx

**Network Cable:**

10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable, EIA/TIA-568 100-ohm (100m)  
100Base-TX: 2-pair UTP/STP Cat. 5 cable, EIA/TIA-568 100-ohm (100m)

**Optical Cable:**

SC (Multi Mode): 50/125um to 62.5/125um  
SC (Single Mode): 9/125um to 10/125um  
Available distance: 2km (Multi Mode) / 30km (Single Mode)  
Wavelength: 1310nm (Multi Mode/ Single Mode)

**LED Indicators:**

Per port: Link/Activity (Green), Full duplex/Collision (Green)  
Per unit: Power x 3 (Green), Fault (Orange), R.M (Orange)

**Alarm:** Relay output for port break and power failure**Reset:** Reset button is provided to restore default settings.

### Redundancy

**Network Redundancy:**

Super Ring with recovery time less than 300ms  
**Dual Homing** and **Couple Ring** for flexible ring topology  
RSTP, STP

**Power Redundancy:** Dual power inputs 24 VDC

### Management

**Configuration:**

Web-interface, TFTP update, configuration backup and restore, DHCP Client, warm reboot, reset to default, Admin password, Port Speed/Duplex Control, Status and Statistic display  
SNMP V1/V2c, Traps, RMON 1 (Statistics, History, Alarm, Events)  
**MIB:** MIB-II, Bridge MIB, Ethernet-like MIB, VLAN MIB, Private MIB  
**SNTP** for time management  
**VLAN:** Supports Port-based VLAN and IEEE802.1Q Tag VLAN  
Management VLAN adjustment

## Ordering Information

- **JetNet 4508:** Industrial 8-Port Managed Ethernet Rail Switch
- **JetNet 4508f-m:** Industrial 8-Port Managed Ethernet Rail Switch with two Multi Mode 100Base-FX
- **JetNet 4508f-s:** Industrial 8-Port Managed Ethernet Rail Switch with two Single Mode 100Base-FX
- **All items include:** Quick Installation Guide, Documentation CD-ROM, Wall mounting plate and six screws

**Quality of Service:** Four priority queues per port, 802.1p COS and Layer 3 TOS/DiffServ**IGMP Snooping:** for multicast filter and IGMP Query mode**Rate Control:** Ingress/Egress Broadcast/Multicast/Unknown DA control**Port Mirroring:** Online traffic monitoring on selected ports**IP Security:** Support IP address security to prevent unauthorized access**E-mail warning, SMTP:** Automatic e-mail warning by pre-defined events**System Event Log:** Support both Local mode and Server mode

### Performance

**Transfer Rate:**

14,880 pps for Ethernet port and 148,800 pps for Fast Ethernet port

**Transfer Packet Size:** 64 bytes to 1522 bytes (with VLAN tag)**MAC Address:** 2K MAC address table**Memory Buffer:** 1Mbits**Back-plane:** 1.6 Gbps

### Power Requirements

**Power Supply:**

Input Voltage: 24 VDC (12 to 48 VDC), dual inputs

Reverse Polarity Protection: Present

**Power Consumption:** 3.5 Watts

### Mechanical

**Installation:** DIN-rail kit and wall-mounting ear**Casing:** IP-30 protection, aluminum case**Dimensions:** 53 mm (W) x 135 mm (H) x 105mm (D)

### Environmental

**Operating Temperature:** -10 to 70°C (14 to 158°F)**Operating Humidity:** 5% to 95% (Non-condensing)**Storage Temperature:** -40 to 85°C (-40 to 185°F)

### Regulatory Approvals

**EMI:** FCC Class A, EN55022 Class A**EMC:**

EN61000-4-2, EN61000-4-3, EN61000-4-4

EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

**Safety:** UL, cUL, EN60950**Shock:** IEC 60068-2-27**Free Fall:** IEC 60068-2-32**Vibration:** IEC 60068-2-6**MTBF:** 319,175 hours \* MIL-HDBK-217F GB (MILITARY HANDBOOK) standard**Warranty:** Global 5 years