Dual-Redundant Industrial Switch User Manual

Preface

The purpose of this section is to ensure that the user is able to use the product correctly through this manual in order to avoid danger in operation or property damage. Before using this product, please read the product manual carefully and keep it for future reference.

Outlined

This manual applies to Dual-Redundant Industrial Switch.

This manual describes the functions and use of the various functional modules of the Dual-Redundant Industrial Switch, and guides you through the installation and commissioning of the Dual-Redundant Industrial Switch.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
Note	Provides additional information to emphasize or supplement important points of the main text.
Caution	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
Danger	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

Safety Instructions

Danger

To ensure reliable use of the equipment and the safety of personnel, please observe the following during installation, use and maintenance:

- During the installation and use of the equipment, all electrical safety regulations of the country and the region of use must be strictly observed.
- Keep the working environment well ventilated so that the heat generated by the equipment during operation can be discharged in time to avoid damage to the equipment due to excessive temperature.
- Always unplug the unit's power adapter from the AC power outlet before: A. Removing or reinstalling any part of the equipment; B. Disconnecting or reconnecting any electrical plug or connection of the equipment. Do not operate with electricity.

- There are AC high-voltage parts in the equipment, non-professionals should not disassemble them without permission to avoid the risk of electric shock. Do not repair the equipment privately to avoid aggravating the damage.
- Do not spill any corrosive chemicals or liquids on or near the equipment.
- If the unit emits smoke, odour or noises, turn off the power immediately and unplug the power cord, and contact your dealer or service centre.
- If the appliance is not working properly, contact the shop where you purchased the appliance or the nearest service centre and do not disassemble or modify the appliance in any way. (We cannot be held responsible for problems caused by unapproved modifications or repairs).

Caution

- Do not drop objects on the equipment or vibrate the equipment vigorously, and keep the equipment away from locations with magnetic field interference. Avoid installing the equipment in a place where the surface vibrates or is susceptible to shock (neglecting this may damage the equipment).
- Do not use the equipment in high temperature, low temperature or high humidity environments. Refer to the equipment's data sheet for specific temperature and humidity requirements.
- Use the unit indoors, not in an exposed installation where it may be exposed to rain or extreme humidity.
- When the equipment is not used for a long period of time or in a humid and dewy environment, the main power supply of the equipment should be switched off.
- When cleaning the equipment, please use a sufficiently soft dry cloth or other alternatives to wipe the internal and external surfaces, do not use alkaline detergent to wash, and avoid hard objects to scratch the equipment.
- Please keep all the original packaging materials of the equipment properly, so that in case of problems, use the packaging materials to pack the equipment and send it to the agent or return it to the manufacturer for processing. We will not be responsible for any accidental damage in transit not caused by the original packaging materials.

Note

- Requirements for the quality of installation and commissioning personnel

  Qualifications or experience in the installation and commissioning of audio and video systems and qualifications to perform related work, in addition to the knowledge and operational skills listed below.
  - Basic knowledge and installation skills of audio and video systems and components.
  - Basic knowledge and skills in low voltage cabling and wiring of low voltage electronics.
  - Basic audio and networking knowledge and skills and the ability to read and understand the contents of this manual.

TABLE OF CONTENTS

Chapter 1 Product Introduction 1
1.1 Introduction 1
1.2 Product Features 1
Chapter 2 Interface Description 2
Chapter 3 Application Scenarios 2
Chapter 4 Specification 2

Chapter 1 Product Introduction

1.1 Introduction

This is a professional dual-redundant power supply industrial Ethernet switch designed for broadcast, live sound, industrial automation, and AV system integration. The device features 16 snap-in (RJ45) Gigabit Ethernet ports and 4 SFP fiber optic ports, supporting high-speed data transmission and long-distance fiber connections (>10 km). The dual redundant power supply design ensures high availability, utilizing a DC 12V 1A power input for stable and reliable power delivery. This switch delivers an optimal balance of port density, redundancy reliability, and industrial-grade durability, making it ideal for backbone network deployments in harsh environments.

1.2 Product Features

- ✧ Dual redundant power supply: Supports dual power inputs (primary/backup) with automatic switching < 5 ms, ensuring zero-interruption operation;
- ✧ High-density ports: 16 Gigabit RJ45 snap-in ports (10/100/1000 Mbps auto-negotiation) + 4 SFP fiber slots (supports 100/1000 Mbps multimode/single-mode modules);
- ✧ Unmanaged design: Plug-and-play operation compliant with IEEE 802.3 standard, featuring automatic MDI/MDI-X crossover detection for simplified deployment;
- ✧ Industrial-grade protection: IP30-rated metal housing with extended operating temperature range (-40° C～75° C), supporting shock/dust resistance;
- ✧ Long-distance transmission: SFP ports support fiber links >10 km, RJ45 ports support Cat5e/6 cables >100 m;
- ✧ Low power consumption and heat dissipation: Passive cooling design, fanless, <15 W power consumption, suitable for noise-sensitive environments;
- ✧ Monitoring Indicators: LED displays for power status, link/activity, and SFP connection for easy field diagnostics.

Chapter 2 Interface Description

① Primary and Secondary: The primary-standby mode for Primary and Secondary corresponds to Dante's primary-standby configuration.

② SFP: Fiber port.

Chapter 3 Application Scenarios

- Broadcast and AV Systems: Distributes Dante/AES67 network signals to multiple devices, supports fiber backbone links, and ensures redundant backup.
- Industrial Automation: Connects PLC/SCADA systems in factory environments, enables long-distance fiber transmission, and withstands high temperatures/vibration.
- Live Performance: Stage network switching with 16 RJ45 ports for wireless AP/controller connections, SFP for remote cabling.
- Data Center Edge: Redundant power supplies ensure high availability, suitable for edge computing or surveillance networks.

Chapter 4 Specification

Category	Parameter Item	Parameter Description
Ports and Interfaces	RJ45 Ethernet Ports	16 x 10/100/1000 Mbps (Snap-in RJ45, auto-negotiation, supports full/half-duplex)
	SFP Fiber Ports	4 x 100/1000 Mbps SFP slots (supports LC connectors, multimode/single-mode modules)

	Transmission Speed	Gigabit Ethernet (IEEE 802.3ab), Fast Ethernet (IEEE 802.3u)
	Maximum Throughput	20 Gbps (non-blocking switching)
	Cable Support	RJ45: Cat5e/6/6a (>100 m); SFP: multimode 550 m / single-mode 10-120 km
	MDI/MDI-X	Auto-crossover detection, no need for straight-through/crossover cables
Performance and Switching	MAC Address Table	8K entries
	Packet Forwarding Rate	14.88 Mpps (64-byte packets)
	Jitter Buffer	1 Mbit (per port)
	Forwarding Mode	Store-and-Forward (automatic filtering of error packets)
Physical and Environmental	Dimensions (L x W x H)	481 mm x 88 mm x 44 mm
	Weight	1.41 kg
	Enclosure Material	Metal housing with IP30 protection, powder-coated
	Operating Temperature	-40°C～75°C (fanless)
	Storage Temperature	-40°C～85°C
	Humidity	5%～95% (non-condensing)
	MTBF	> 500,000 hours (at 25°C)
	Mounting Method	Rack-mount installation
Power and Safety	Power Input	DC 12V 1A (master/standby redundant)
	Failover Time	< 5 ms (auto failover)

	Power Consumption	< 15 W (typical, all ports active)
	Surge Protection	Built-in TVS diodes (IEC 61000-4-5 compliant, >2 kV)
	Grounding	Independent ground terminal (M4 screw)
Software and Management	Management Type	Unmanaged (plug-and-play)

Warranty Regulations

The warranty period of this product is 1 year.

In the warranty period of non-man-made damage caused by the product performance failure can enjoy three packages of service.

Warranty card by the sales unit stamped after the effective. The alteration is invalid!

The following conditions (including, but not limited to, this) are not covered by the three-package service:

1. No warranty card or missing valid invoice or the date has exceeded the validity period of the three packages of services;
2. Not in accordance with the requirements of the product instructions for use, maintenance, management and damage caused;
3. The product model or code on the warranty voucher does not match the physical goods;
4. Damage caused by the dismantling and repair of non-authorised service providers;
5. Normal discolouration, wear and tear and consumption during the use of the product are not covered by the warranty;
6. The product cannot be used due to the user's own network reasons, please consult customer service staff.