DVS4000 Series
Video Encoders
Quick Guide

Environmental Protection

This product has been designed to comply with the requirements on environmental protection. For the proper storage, use and disposal of this product, national laws and regulations must be observed.

Preface

Audience

This manual is intended for:

- Surveillance system planners
- Field technical support and servicing engineers
- Software installation, configuration, and servicing administrators
- Product users

Precautions

- If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, you might be required to take corrective actions.
- Do not remove the dismantlement-preventive seal from the chassis cover of the device without permission. If you want to open the

chassis, contact the local agent of our company for help. Otherwise, we shall not be held liable for any consequence caused thereby.

- Make sure the device is sturdy and well grounded and meets heat dissipation and lightning protection requirements. Avoid vibration when using the device.
- Provide a stable and compliant power supply before powering on the device.
- Before performing the verification (refer to section "Check Before Power-On"), make sure that the power is disconnected, for fear of bodily injury or equipment damage caused by incorrect cable connection.
- Power interruption may cause hard disk damage or abnormal functions. To shut down the device, strictly follow the instructions. If power interruption often occurs, configure an uninterrupted power supply (UPS).

Safety and Compliance Information

Conventions Used Symbol

The symbols in this chapter are shown in the following table. They are used to remind the reader of the safety precautions during equipment installation and maintenance.

Safety Symbol	Description
	Generic alarm symbol: To suggest a general safety concern.
	ESD protection symbol: To suggest electrostatic-sensitive equipment.
	Electric shock symbol: To suggest a danger of high voltage.

Safety Information

⚠️ **WARNING!**

Installation and removal of the unit and its accessories must be carried out by qualified personnel. You must read all of the Safety Instructions supplied with your equipment before installation and operation.

Warnings:

- If the product does not work properly, please contact your dealer or the nearest service center. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)
- To reduce the risk of fire or electrical shock, do not expose this product to rain or moisture.
- This installation should be made by a qualified service person and should conform to all the local codes.
- Please install blackouts equipment into the power supply circuit for convenient supply interruption.
- The separate earthing terminal must be permanently connected to earth.
- For AC supplied model: The plug-socket combination must be accessible at all times as it serves as the main disconnecting device.
- Before the power cable is installed or removed, the power must be turned off.
- To avoid heat accumulation, good ventilation is required for a proper operating environment.
- Improper use or replacement of the battery may result in hazard of explosion. Please use the manufacturer recommended battery type.

Caution: Fiber optic ports – optical safety.

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Class 1
LASER PRODUCT
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Never look at the transmit laser while the power is on. Never look directly at the fiber ports and the fiber cable ends when they are powered on.

Caution: Use of controls or adjustments to the performance or procedures other than those specified herein may result in hazardous laser emissions.

Regulatory Compliance

FCC Part 15

This equipment has been tested and found to comply with the limits for digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

LVD/EMC Directive

$\mathsf{C}\,\mathsf{E}$

This product complies with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.

WEEE Directive–2002/96/EC

The product this manual refers to is covered by the Waste Electrical & Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.

Contents

1 Overview

As new generation network video surveillance media terminals, DVS4000 series encoders (hereinafter referred to as the DVS4000) are designed mainly for remote video surveillance. They are applicable to monitoring and listening to remote sites in real time, and can be widely applied to real-time surveillance applications in security protection, transportation monitoring, and electricity industry.

For more information about their technical specifications, see Table 4-1.

Appearance

The DVS4000 appearance described in this manual is for reference only. Take the DVS4004-IN as an example.

Figure 1-1 DVS4001-IN front view
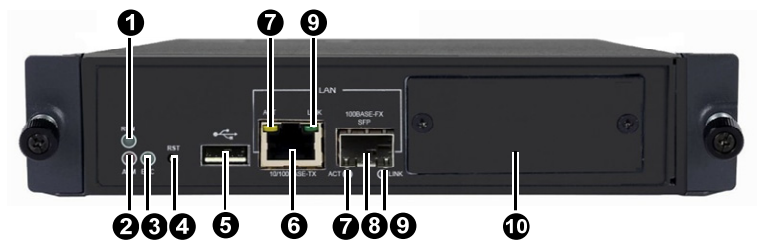
1: Running LED	2: Alarm LED	3: Encoding LED	4: Reset button
5: USB port	6: Ethernet port	7: Active LED	8: Ethernet optical port
9: Link LED	10:Blank filler panel for the subcard slot		

Figure 1-2 DVS4001-IN rear view
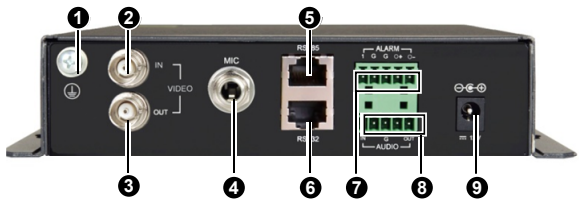
1: Grounding screw	2: Video in port	3: Video out port
4: MIC port	5: RS-485 port	6: RS-232 port
7: Alarm in port	8: Audio out port	9: 12 VDC power input

LEDs

Table 1-1 LEDs descriptions

LED	State	Meaning
RUN	Blinking	The device is starting up.
	On	The device is operating normally.
	Off	The device is powered off.
ALM	On	At least one device alarm (for example, temperature alarm) is present.
	Off	No device alarm is present.
ENC	On	There are input signals but they are not being encoded.
	Blinking	There are input signals and they are being encoded.
	Off	There are no input signals.
ACT	Blinking	The device is transmitting or receiving traffic.

LED	State	Meaning
	Off	The device is not transmitting or receiving traffic.
LINK	On	A link is present.
	Off	No link is present.

Ports and Buttons

Table 1-2 Description for the ports and button on the front panel

Port/ button	Quantity	Description	Remarks
RST	1	Reset button	- If you press the button for less than three seconds, the device reboots. - If you press and hold the button for more than three seconds and then release it, the device will reboot and restore the factory-default configuration.
USB	DVS4001-IN: 1 DVS4004-IN: 1	USB2.0	Connect s to storage device for local buffering For more information, see "Local Cache Function".

Port/button	Quantity	Description	Remarks
Ethernet port	DVS4001-IN: 1	10 Mbps/100 Mbps auto-negotiation Half duplex/full duplex auto-negotiation RJ-45 connector	Connects to an Ethernet
	DVS4004-IN: 2	10 Mbps/100 Mbps/1000Mbps auto-negotiation Half duplex/full duplex auto-negotiation RJ-45 connector	
Ethernet optical port	DVS4001-IN: 1	100 Mbps Full duplex SFP port	Connects to an Ethernet
RS-485/ 422	DVS4004-IN: 1	RJ-45 connector	Provides interactive control with the connected device, for example, PTZ cameras
RS-232	DVS4004-IN: 1	RJ-45 connector	Commissions and maintains the device

Port/ button	Quantity	Description	Remarks
Subcard slot	1	Subcard slot **Note**: Either an EPON subcard or a dual-port SFP subcard can be installed.	Holds subcard after the blank filler panel is removed **Note**: The DVS4001-IN support the EPON subcard only. The DVS4004-IN support the EPON subcard or dual-port SFP subcard.

> **NOTE!**
>
> Select an appropriate optical module according to the ambient temperature. If the Ethernet optical port is used outdoors, the upper limit of temperature on the used optical module should be above 85°C (185°F)..

Table 1-3 Description of the ports on the rear panel

Port	Quantity	Description	Remarks
VIDEO IN	DVS4001-IN: 1	Analog composite video input BNC port 75 ohm, 1V (P-P)	Receives analog video signals from cameras and DVDs
	DVS4004-IN: 4		
VIDEO OUT	DVS4001-IN: 1	Analog loopback composite video output BNC port 75 ohm, 1 V (P-P)	Outputs analog loopback video signals to analog signal display devices, like monitors

Port	Quantity	Description	Remarks
MIC	DVS4001-IN: 1	φ6.3 mm port (directional), output impedance > 600 Ω	Inputs audio signals Implements audio intercom
		6.3 mm (0.25 in.)-diameter port For more information, see the note below this table.	
RS-485	DVS4004-IN: 1	RJ-45 connector	Provides interactive control with the connected device, for example, PTZ cameras, third-party device
		Phoenix contact	
		Phoenix contact	
		Phoenix contact	
RS-232	DVS4001-IN: 1	RJ-45 connector	Commissions and maintains the DVS4001-IN
ALARM	DVS4001-IN: One input channel One output channel	Phoenix contact Boolean input, relay output	Inputs or outputs alarm signals
ALARM IN	DVS4004-IN: 4	Phoenix contact Boolean input	Inputs alarm signals

Port	Quantity	Description	Remarks
ALARM OUT	DVS4004-IN: 2	Phoenix contact Relay output	Outputs alarm signals
AUDIO	DVS4001-IN: One input channel One output channel	Phoenix contact, single channel output and input Input 35 kohm, 2V (P-P) Output 600 ohm, 2V (P-P)	Inputs or outputs audio signals **Caution**: After audio intercom is enabled on the first phoenix terminal of the DVS4001-IN MIC, the audio input function is unavailable.
AUDIO IN	DVS4004-IN: 4	Phoenix contact, left channel input	Inputs audio signals
		Phoenix contact, left channel input For more	
LINE(IN/OUT)	DVS4004-IN: 1	Phoenix contact	Implements bidirectional audio intercom **Note**: This port can be used simultaneously with the AUDIO IN port.
DC 12V	1	Power supply port, 12 VDC	Connects to the power adapter

Local Cache Function

- The capacity of the USB storage device must be at least 4 GB.

- The USB port of the storage device must be of USB 2.0 or later versions.

- The file system of the USB storage device uses FAT32 and can have only one partition.

If you need to use the local cache function, ensure that the USB storage device to be inserted has been formatted, because the terminal device does not support USB formatting.

After you insert the USB device, the local cache function will automatically start about 15 seconds later following a central storage failure.

Cached files will be periodically overwritten. Therefore, export cached files in time using the FTP client or start the image uploading function to

back up cached videos through a backup server managed by the central server. The exported or backed up video files can be played on the webpage of the central server.

2 Device Installation

Precautions

Checking Device Components

Unpack the container and remove the items out carefully. Check items against the packing list and ensure all items listed are included in the container.

⚠️ **WARNING!**

Do not remove the dismantlement-preventive seal from the chassis cover of an DVS4000 without permission. If you want to open the chassis, contact the local agent of our company for help. Otherwise, we shall not be held liable for any consequence caused thereby.

Checking the Installation Environment

When installed outdoors, the DVS4000 must be fixed in an outdoor protective box while meeting outdoor lightning protection and grounding requirements.

- Ensure that appropriate lightning protection facilities are chosen for device power supply, audio and video signals, and the RS-485 port.

- Ensure that the device is correctly grounded through a grounding screw. For details, refer to *DVS/DC Cable Connection Guide*.

When installed indoors, the DVS4000 must also meet lightning protection and grounding requirements by using the same methods as described above.

Installation Flow

Before installing the DVS4000, make sure it is disconnected from the power source.

Figure 2-1 Installation flow
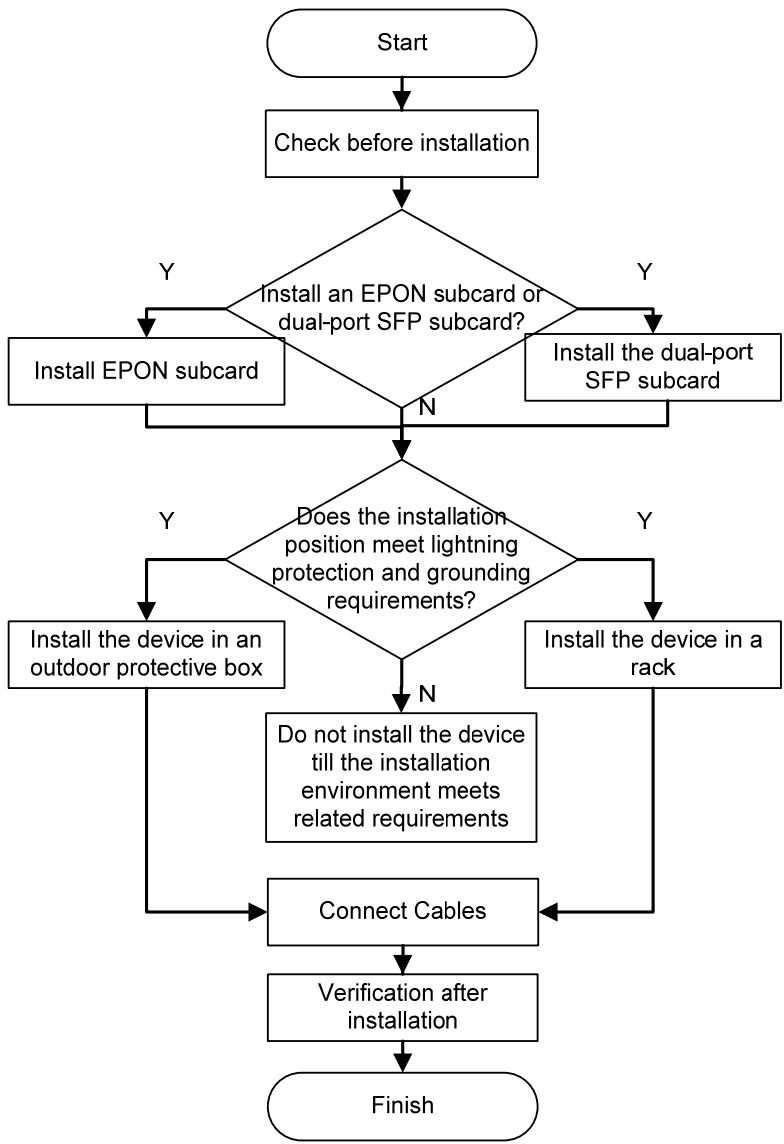
Installing EPON Subcard or Dual-Port SFP Subcard

As shown in [Figure 2-2](#) or [Figure 2-3](#), remove screws, take down the blank filler panel, insert the recommended EPON subcard or dual-port SFP subcard, and then fasten captive screws.

Figure 2-2 Installing EPON subcard (Take the DVS4004-IN as an example)

Figure 2-3 Installing the dual-port SFP subcard (Take the DVS4004-IN as an example)
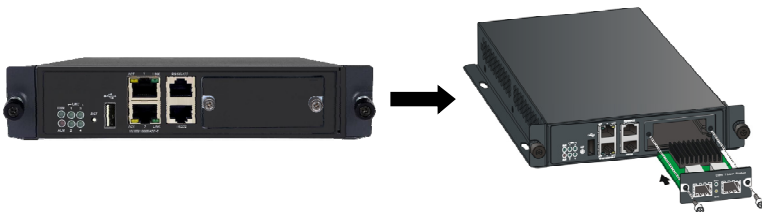
Installing the DVS4000 in an Outdoor Protective Box

The outdoor protective box must meet certain conditions. For details, refer to *DVS/DC Cable Connection Guide*.

Horizontal Placement

For an outdoor protective box on the ground, you need to place the DVS4000 horizontally inside the protective box.

Vertical Wall Mounting

For an outdoor protective box vertically mounted on the wall, you need to horizontally insert the DVS4000 into the protective box.

As shown in [Figure 2-4](#), place the two sides with waist-shaped wall mounting holes close to the inner wall of the protective box, and fix the device inside the protective box with screws. Then ventilation holes are at the top and bottom of the device to better facilitate air convection. Ensure that the top and bottom ventilation holes are at least 10 cm away from the surrounding wall.

Figure 2-4 Vertical view of the DVS4000
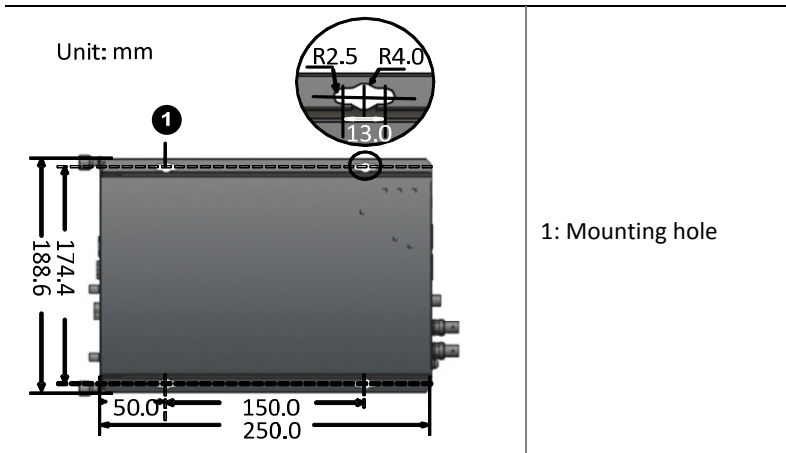
Installing the DVS4000 in a Rack

- You can install your DVS4000 to a standard 19-inch rack manufactured by our company or other vendors (the rack should be able to bear the weight of the DVS4000). The following sections take the standard 19-inch rack as an example.

- Before installing the DVS4000 in a rack, make sure the rack is stable and is grounded properly. No obstacle exists inside or around the rack to avoid hindering the installation.

Installing the DVS4000 in a Rack with a Frame

1. As shown in Figure 2-5, install the mounting brackets of the DVS4000.

Figure 2-5 Install the mounting brackets(Take the DVS4004-IN as an example)

2. To install the DVS4000 in a rack with frames.

Installing the DVS4000 in the Rack with Holders

1. As shown in Figure 2-5, install the mounting brackets of the DVS4000.

2. To install the DVS4000 in a rack with holders, refer to *1U DVS/DC Holder Installation Manual*.

Installing the DVS4000 in the Rack Directly

To install the DVS4000 in the rack directly, you need to fix the device to the rack securely. Keep a clearance around the air vents on the two sides of the DVS4000 for heat dissipation, and do not stack other devices on the DVS4000.

Connecting the Cables

> **ⓘ CAUTION!**
>
> - Before connecting the cables, ensure that the device is already powered off to avoid bodily injury or equipment damage caused by incorrect cable connection.
> - Ensure that all external cables of the DVS4000 meet relevant standards. For details about cable selection, refer to *DVS/DC Cable Connection Guide*.

Connect to other devices as needed. For how to connect to another device, see related documents of the device.

Take the DVS4004-IN as an example.

Connecting Cables to Ports on the Front Panel

Figure 2-6 Install cables to ports on the front panel for DVS4001-IN

	1: Connecting to a network through a network cable
	2: Connecting to a network through an optical fiber
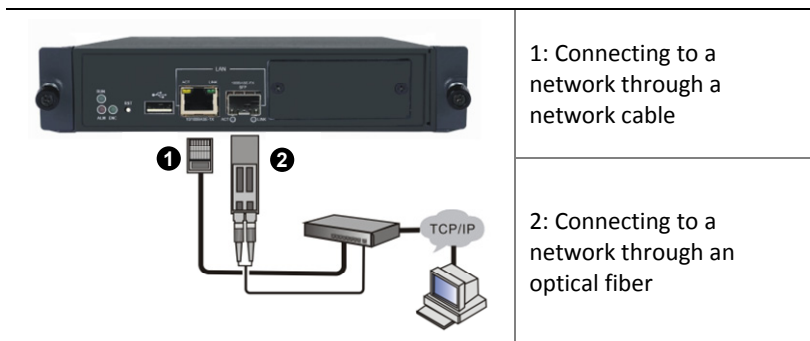
Connecting Cables to Ports on the Rear Panel

Figure 2-7 Install cables to ports on the rear panel for DVS4001-IN

1: PTZ camera	
2: Alarm input device	
3: Alarm output device	
4: Ground	
5: Analog signal display device such as the monitor	
6: Microphone	
7: Connecting to a serial device (such as a PC) through a serial cable	
8: Pick-up	
9: Speaker	
10: Power source	
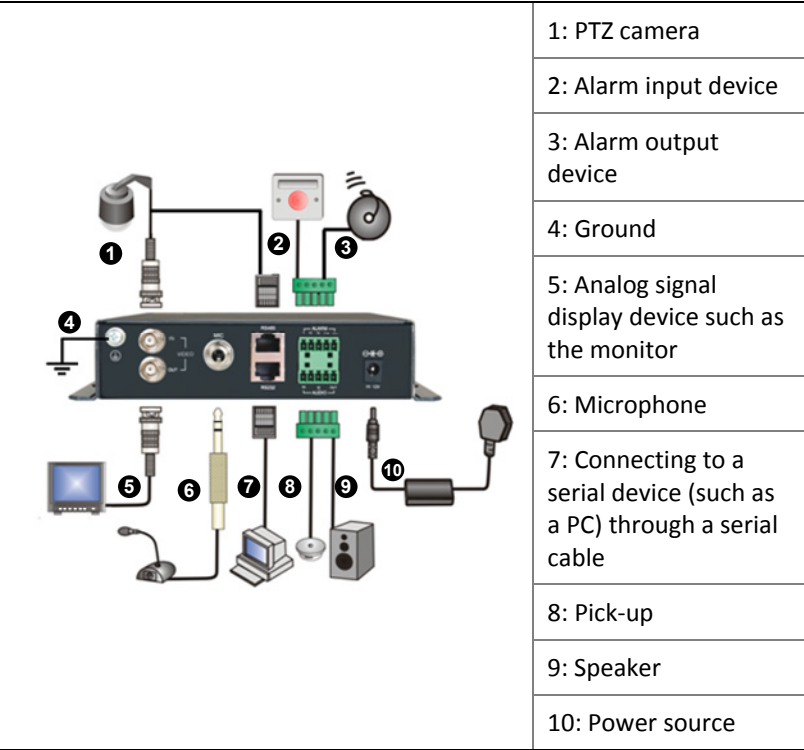
Audio Cable and Alarm Cable Connection

Take the DVS4004-IN as an example.

Figure 2-8 Audio cable and alarm cable connection for DVS4001-IN

	1: Normally-on/off Boolean alarm input device, such as an audio or temperature alarm device
	2: Normally-on/off Boolean alarm output device, such as an alarm LED (The alarm LED supports multiple connection modes. Here, only one connection mode is shown as an example.)
	3: Audio input device (for example, pick-up)
	4: Audio output device (for example, speaker)

> **CAUTION!**
>
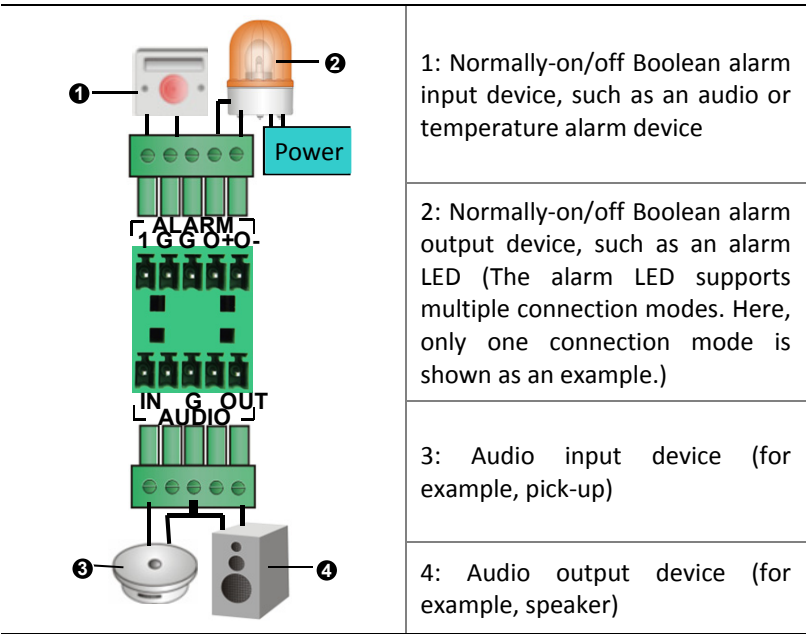> - To work with the DVS4000, the operating voltage and current of the Boolean alarm output device connected to the DVS4000 should not exceed 12 VDC/0.7 A, respectively.
> - If audio signals are input through the AUDIO IN port on the DVS4001-IN, enabling audio intercom on the MIC input port will cause the original audio input port to be disabled. Then users can only heard the sound of audio intercom. Services on the audio input port will be restored only after audio intercom is disabled.

Table 2-1 Phoenix contact port description for DVS4001-IN

Terminal	Description	Terminal	Description
1	Connect an alarm input device.	(O+,O-)	Connect an alarm output device
IN	Connect an audio input device (single audio channel).	OUT	Connect an audio output device (single audio channel).
G	Ground		

Connecting the PTZ

You can connect the PTZ through the RS-485 port in PTZ control mode on the DVS4000. For details about how to connect the PTZ control cable, refer to *DVS/DC Cable Connection Guide.*

Connecting the Third-Party Device

You can connect a third-party device through the RS-485 port in transparent mode on the DVS4000. For details about how to connect the serial cable, refer to *DVS/DC Cable Connection Guide.*

RS-232 Serial Cable Connection

You can connect a serial device such as a PC through the RS-232 port on the DVS4000. For details about how to connect the serial cable, refer to *DVS/DC Cable Connection Guide*.

Verifying the Installation

⚠️ **WARNING!**

After the DVS4000 is installed, verify the correctness of the installation to avoid bodily injury or equipment damage caused by incorrect cable connection

- Check that the DVS4000 is installed securely with all screws fixed tightly.
- Check that the DVS4000 is grounded properly, and all cables are connected correctly and firmly.
- Check that the power supply voltage is stable.

Starting Up the DVS4000

After completing the installation, connect the power supply to start up the DVS4000. Check the operation status of the DVS4000 according to Table 1-1.

3 Logging In to and Logging Out of the DVS4000

You can manage and maintain your DVS4000 conveniently through web interfaces.

Before logging in to the DVS4000, ensure that:

- The DVS4000 is operating normally.
- The client PC and the DVS4000 can communicate with each other.
- The client PC is installed with Microsoft Internet Explorer 7.0 or higher version.
- No proxy is set for the IE browser on the client PC.

> **NOTE!**
> - Of the DVS4000, the default IP address is 192.168.0.13/24 and the default gateway address is 192.168.0.1.
> - For your first login, use admin as both the username and password. We recommend you to change the default password by selecting Device > Password after your first login

Follow the steps below to log in to the web interface of the DVS4000:

1. Launch the IE browser on the client PC, type the IP address of the DVS4000 in the address bar and press **Enter**.

2. On the login page, type the username and password, and click **Login** to enter the Web interface.

You can select a node in the navigation tree and then click a tab on the right pane to enter the corresponding configuration page.

For information about initial configuration and other configurations, please click the Help in the navigation tree.

To log out of the DVS4000, click **Exit** in the navigation tree and confirm your operation.

4 Technical Specifications

For more information about technical specifications of the DVS4000, refer to the product brochure.

Table 4-1 Technical specifications

Item	Description
Physical dimensions (H × W × D)	40 ×189 × 270 mm (1.57 × 7.44 × 10.63 in.)
Weight	< 1.5 kg (3.31 lb.)
DC input voltage	12 VDC
Maximum consumption	DVS4004-IN:10W
	DVS4001-IN: 8 W (with EPON subcard) 6 W (without EPON subcard)
EPON subcard	Transmit wavelength: 1310 nm Receive wavelength: 1490nm Saturated optical receive power: –3dBm Receive sensitivity: –26dBm Optical transmit power: –1dBm to +4dBm
Operating temperature	DVS4004-IN:–10°C to 60°C(14°F to 140°F)
	DVS4001-IN:0°C to 65°C (32°F to 149°F)

Item	Description
Operating humidity (non-condensing)	5% to 95%
Storage temperature	−40°C to +70°C (−40°F to +158°F)
Storage humidity (non-condensing)	5% to 95%
Altitude	−60 to +4000 m (−196.85 to +13123.36 ft.)

CAUTION!!

The video encoding rate and resolution depend on the actually selected channel number and stream relation. For more information, see the corresponding Web configuration page on the device.

WARNING!

If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, you might be required to take corrective actions.

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