

Network Keyboard

FAQ



V1.0.0

Foreword

This manual mainly provides solutions and operation guidance for common device failures, parameter setting questions, operation errors and other issues encountered when using the device.

The descriptions in this manual need to be analyzed in conjunction with actual on-site device, and are not the only solution. If you have any questions, contact relevant technical support.

Safety Instructions

The following signal words might appear in the manual.

Signal Words	Meaning
 DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results.
 TIPS	Provides methods to help you solve a problem or save time.
 NOTE	Provides additional information as a supplement to the text.

Revision History

Version	Revision Content	Release Time
V1.0.0	First release.	April 2025

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1 NKB1000-E

1.1 How to reset factory settings?

Press and hold the Esc key for 15 seconds until the device restarts. The configuration will be cleared after the restart.

1.2 Failed to log in to the device through the network.

- Check whether the IP, port, user name and password of the front-end device or storage device is normal.
- If the above information is normal, check whether the program version of the front-end device or storage device is earlier than 2018.
- If the program version of the front-end device or storage device is earlier than 2018, select **Menu Settings > System > Login Mode** from the webpage of the network keyboard, and then set the mode to **Compatible Mode** with joystick. Save the settings, and then try to log in.

1.3 Unable to add NVR through RS-485 or RS-232 serial port.

The device program version after November 2024 does not support controlling NVR, DVR, and XVR through serial port.

After 2020, the baseline of NVR, DVR, and XVR program version no longer supports keyboard control through serial port. If you have any requirements, contact the product managers of the network keyboard, NVR, DVR, and XVR for customized development.

1.4 Abnormal when controlling the PTZ camera.

- Network method
 - ◇ Network abnormality.
 - ◇ Joystick failure.
 - ◇ There is wiring fault between the joystick and the main board.
- 485 method
 - ◇ The connection between NKB and PTZ camera 485 is abnormal.
 - ◇ NKB does not match the PTZ camera machine's 485 address bit.
 - ◇ NKB does not match the PTZ camera machine 485 protocol.
 - ◇ NKB does not match the 485 baud rate of the PTZ camera.
 - ◇ Joystick failure.
 - ◇ There is wiring fault between the joystick and the main board.

1.5 Failed to log in to the front-end device through ONVIF.

Some front-end devices require you to manually enable the ONVIF function and add an ONVIF account on the device webpage.

1.6 Local presets of front-end devices cannot be used through ONVIF.

Limited by ONVIF protocol, when adding front-end devices through ONVIF, you need to set presets on the network keyboard before using them.

1.7 Failed to use the tour group of front-end devices.

Problem: After adding front-end devices to the network keyboard through ONVIF protocol, if there is no tour group defined on the front-end device, the webpage of the PTZ camera shows tour group 1 when the network keyboard adds tour group 7. You can use the tour group 7 normally on the network keyboard, but cannot use tour group 1.

Possible reasons: For ONVIF protocol, you need to add the tour group in sequence starting from 1. Do not arbitrarily set the number (such as tour) to prevent inconsistent use due to mismatch between the network keyboard and the PTZ camera.

1.8 The stay time between presets of the tour group is inconsistent.

Problem: The front-end device is added to the network keyboard through ONVIF protocol, and the tour group is added through the network keyboard. The stay time and rotation speed of the presets in the tour group on the webpage of different series of front-end devices are inconsistent.

Possible reason: The preset stay time and rotation speed are the default settings of the PTZ camera, and cannot be set through the network keyboard.

1.9 The PTZ camera cannot stop rotation.

Problem: The network keyboard adds the PTZ camera through the PELCOD protocol of RS-485. After setting start rotation on the network keyboard, the PTZ camera will not stop rotating when it is set to stop rotation.

Possible reason: There is a problem with the PTZ camera program. Contact the after-sales of the front-end device about the PTZ camera version and update it.

1.10 Abnormal operation of the PTZ camera's scan function

Problem: After adding the PTZ camera through the PELCOD or PELCOP protocol of RS-485, the scan used does not match the actual route.

Possible reason: Compatibility issue with the PTZ camera. The PTZ camera processes the 1st and 2nd scans as 1 in the standard PELCO protocol by default.

1.11 Abnormal operation of the pattern function of the PTZ camera.

Problem: Add NVR or XVR through NET, and control the PTZ camera. The pattern can be started normally by using the network keyboard, but some PTZ cameras cannot be stopped when the pattern is ended.

Possible reason: Compatibility issue with the PTZ camera. Contact after-sales of the front-end device about the PTZ camera version and update it.

1.12 What platforms and functions are supported?

Table 1-1 Supported platforms and functions

Platform	Live View Control	Video Wall Control	PTZ Control
DSS Pro	√	√	√
C9100 (domestic)	√	√	√
ICC (domestic)	√	√	√

1.13 How to integrate third-party platforms?

- The keyboard has no SDK for third-party integration. The keyboard is a client-side product and is the top-level control device. It is not controlled by third-party devices or platforms.
- USB protocol document is available for NKB1000, and the third party can integrate with the network keyboard after development according to the protocol in the document.

You can connect the keyboard to the computer through a USB cable (not through network), and then control the third-party platform client through the HID protocol. No development is required on the network keyboard, and integration can be achieved after the third-party platform manufacturer makes developments according to the document.

1.14 What kinds of third-party devices are supported?

Table 1-2 Supported third-party devices

Protocol	SD (PTZ Camera)	DVR/NVR	NVD	Supported PTZ Function
ONVIF	Supported	Not supported	Not supported	Direction, zoom, and fixed step length

1.15 What are the maximum values of major functions?

Table 1-3 Maximum values of major functions

Function	Maximum Value
Number of users that can be added	64 (including admin)
Number of control IDs that can be added (per user)	2,048

Function	Maximum Value
Number of RS-485 addresses (per user)	256
Number of PTZ cameras that can be added (per user)	2,048
Number of decoders that can be added (per user)	2,048
Number of platform channels supported	No restrictions

2 NKB5000

2.1 How to upgrade the network keyboard?

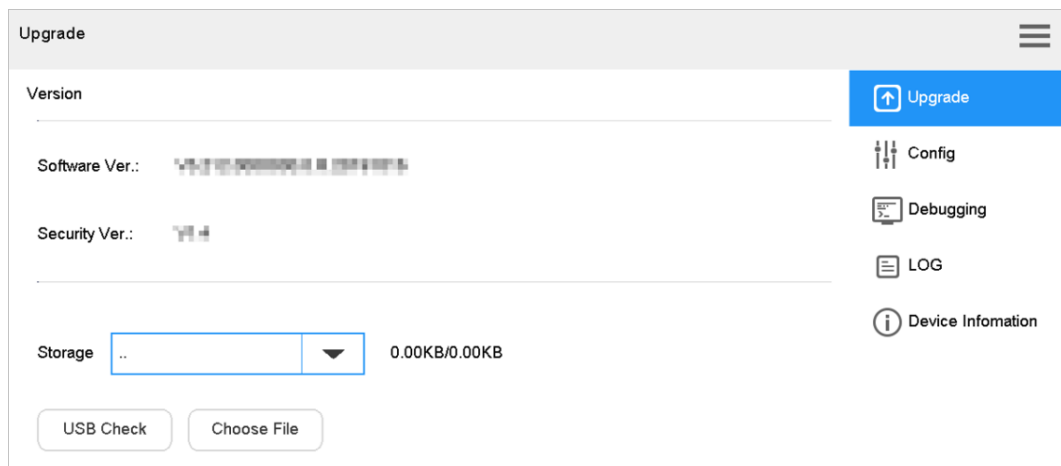
- Upgrade by ConfigTool (recommended)

The password must be entered correctly. If it is locked due to multiple incorrect attempts, restart the device, and then import the correct bin file.

- Manually upgrade through USB flash drive

Save the correct upgrade program in the USB flash drive, and do not modify the program name. Insert the USB flash drive, tap **USB Check** on the version upgrade page, select the upgrade package, and the device will automatically restart after the upgrade is complete.

Figure 2-1 Upgrade



- Upgrade by boot disk

It is applicable when the device program has crashed and cannot be started. Contact local after-sales or R&D technical support.

2.2 How to restore to factory settings if you forget your password or after you clear the configurations?

On the **Login** page, press and hold  at the lower-left corner of the device for 15 seconds. The device will show **Do you need to clear all configurations?** Tap **OK**.

2.3 The computer cannot start normally.

- Check whether the input power supply is 12 VDC 4 A.
- Check whether the contact port of the power cord is normal.
- Check whether the power switch is normal.
- Check whether the upgrade program is normal.

2.4 It automatically restarts or crashes frequently after a few minutes of startup.

The input voltage is unstable or too low.

2.5 The touch screen is not sensitive after startup.

- The touch screen is abnormal.
- The wiring between the touch screen and the main board is abnormal.

2.6 No image when viewing HDMI or VGA local output.

- Fault of the HDMI cable interface.
- If the device is offline, you can check and refresh the device status on the device page.
- The video resolution exceeds the decoding capability (the maximum decoding capability of a single channel is 4K, for multiple channels, refer to the decoding capability table).
- The front-end device has not enabled sub stream (main stream for single-split video wall, sub stream for 9 or 16 splits. For 4 splits, select main stream for video wall in HDMI1 and HDMI2 live view modes, and sub stream for video wall in HDMI3, HDMI4, and VGA5 live view modes.)

2.7 Playback anomaly.

- The added device does not support playback.
- There is no video record in the local of the added device during the specified period of time.
- The recordings in the added device have been overwritten.
- The front-end device uses smart265, which results in black screen of about 29 seconds.

2.8 Unable to log in to the platform.

- Wrong platform type is selected.
- Incorrect platform port.
- The platform user account and password are incorrect, or the platform account does not support reuse.
- If you log in to the platform through HTTP, you need to add the IP of the network keyboard to the HTTP allowlist on the platform, or enable HTTP on the platform.

2.9 What platforms and functions are supported?

Table 2-1 Supported platforms and functions

Platform	Logical/Business Organization	Channel Live View	Video Wall Control	Video Playback	PTZ Control
DSS Pro	NA	√	√	×	√
DSS Express	NA	√	√	×	√
CyberCity	×	√	√	×	√

Platform	Logical/Business Organization	Channel Live View	Video Wall Control	Video Playback	PTZ Control
ICC (overseas)	√	√	√	×	√
8 series platform (domestic)	×	√	√	×	√
C9100 (domestic)	×	√	√	×	√
J9100 (domestic)	×	√	√	×	√
ICC (domestic)	√	√	√	×	√

2.10 How to integrate third-party platforms?

The keyboard has no SDK for third-party integration. The keyboard is a client-side product and the top-level control device. It is not controlled by third-party devices or platforms.

HTTP protocol integration document is available for general functions such as video switch and PTZ. No development is required on the network keyboard, and integration can be achieved after the third-party platform manufacturer makes developments according to the protocol.

2.11 What kinds of third-party devices are supported?

Table 2-2 Supported third-party devices

Keyboard	SD (PTZ Camera)	DVR/NVR	NVD	Supported PTZ Function
—	ONVIF	ONVIF	Not supported	Direction, zoom, and fixed step length

2.12 Anomaly occurs when controlling the PTZ camera through the network keyboard.

- Network
 - ◇ Network anomaly.
 - ◇ Joystick failure.
 - ◇ There is wiring fault between the joystick and the main board.
- RS-485
 - ◇ The RS-485 connection between the network keyboard and the PTZ camera is abnormal.
 - ◇ The RS-485 address bits of the network keyboard and the PTZ camera does not match.
 - ◇ The RS-485 protocols of the network keyboard and the PTZ camera do not match.
 - ◇ The RS-485 baud rates of the network keyboard and the PTZ camera do not match.
 - ◇ Joystick failure.
 - ◇ There is wiring fault between the joystick and the main board.

2.13 What are the maximum values of major functions?

Table 2-3 Maximum values of major functions

Function	Maximum Value
Number of users that can be added	20 roles, 8 levels, 64 users (including admin)
Number of RS-485 addresses (per user)	256
Number of PTZ cameras that can be added (per user)	30,000
Number of decoders that can be added (per user)	2,048
Number of platform channels supported	10,000

3 NKB5200

3.1 How to upgrade the network keyboard?

Manually Upgrade through USB Flash Drive

The USB flash drive needs to be NTFS or FAT32 format.

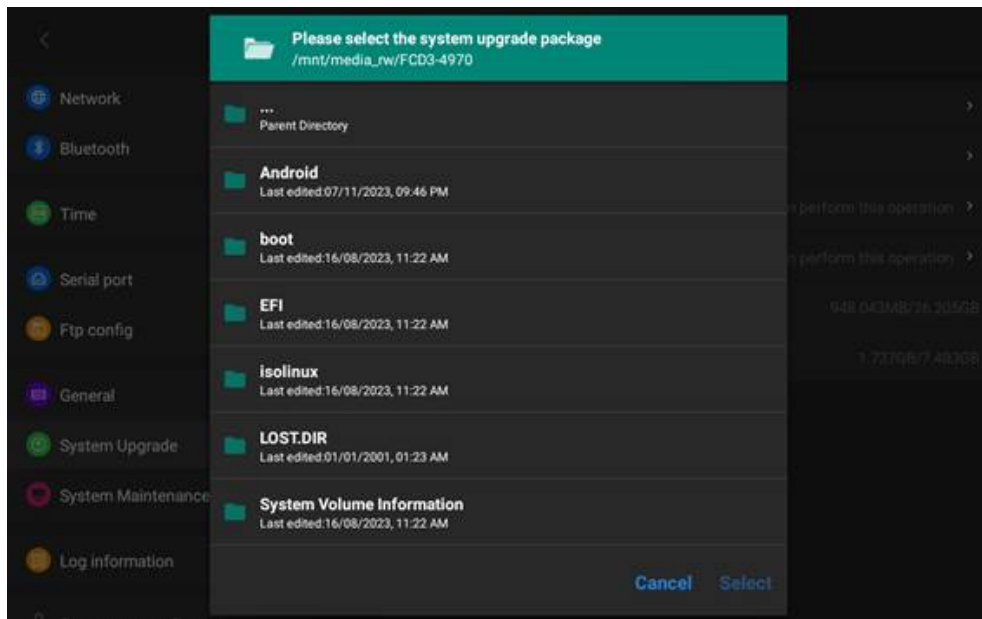
1. Save the correct upgrade file in the USB drive without changing the file name.
2. Insert the USB drive into the keyboard.
3. Log in to the keyboard, select **Settings** > **System Upgrade**, and then tap **Please select the system upgrade package**.
4. Select the upgrade package that needs to be upgraded, tap **Select** to upgrade.

Once the upgrade is complete, the keyboard will restart.



If the keyboard program crashes and cannot be started, contact after-sales or R&D technical support to upgrade using a MicroSD card.

Figure 3-1 Upgrade



Upgrade by Using MicroSD Card

If the keyboard program crashes and cannot be started, you can use a MicroSD card to upgrade. The SD card file system needs to support FAT32 format, and we recommend using the SD card with capacity of less than 32 GB.

1. Disconnect the power cord of the network keyboard, and then shut down the keyboard.
2. Insert the MicroSD card.



When inserting the MicroSD, face its front side (non-metal contact side) upwards.

3. Connect the keyboard power cable, turn on the keyboard, and then wait for the upgrade to complete.
4. When the **Remove MicroSD card** prompt appears, remove the MicroSD card, and the keyboard will automatically restart.



Contact after-sales for MicroSD card production instruction manual and tools.

3.2 The computer is turned on but the program cannot be started normally.

- The contact interface of the power cord is abnormal.
- Check whether the input power is 12 VDC 4 A.
- Check whether the PoE power supply uses 802.3at.

3.3 How to restore factory settings?

Procedure

Step 1 On the **Login** page, press and hold  on the lower-left corner of the network keyboard for 5 seconds until the prompt **Do you need to clear all configurations?** appears.

Step 2 Tap **OK**.



This operation will clear all configurations, please be advised. Versions from December 2022 or earlier need to be restored to factory settings through an SD card.

3.4 No image in local live view.

Possible Reasons

- The network keyboard on the device page was not connected successfully or the connection failed.
- The video resolution exceeds the decoding capability (1 channel of 3840 × 2160@30 or 4 channels of 1080P@30), or the bit stream format is not supported.
- Sub stream not enabled on the front-end device.



The single-split or 4-split video wall uses main stream by default, and the 9-split video wall uses sub stream by default.

Solutions

- Upgrade to the latest program.
- Log in to the keyboard, select **Settings** > **Device Management**, and then check whether the keyboard status is connected.
- Reduce the video resolution of the front-end device, or change the encoding format of the front-end device to H.264/H.265, and check whether the problem is resolved.
- Enable the sub stream on the front-end device.

3.5 Playback anomaly.

- The device controlled by the network keyboard does not support playback.
- There is no video record in the local of the controlled device during the specified period of time.
- The recordings in the controlled device have been overwritten.

3.6 The video cannot be displayed on wall on the video wall page.

- There are no split windows on the video wall.
- The channel stream type is incorrect. For example, the local capture signal of some decoding devices needs to be changed to a live view stream when displayed on the wall.

3.7 Unable to log in to the platform.

- The platform user account and password is incorrect, or the platform account does not support reuse.
- Platform port error.
- If you log in to the platform through HTTP, you need to add the IP of the network keyboard to the HTTP allowlist on the platform, or enable HTTP on the platform.

3.8 What platforms and functions are supported?

Table 3-1 Supported platforms and functions

Platform	Logical/Business Organization	Channel Live View	Video Wall Control	Video Playback	PTZ Control
DSS-Pro	NA	√	√	×	√
DSS Express	NA	√	√	×	√
CyberCity	×	√	√	×	√
DSS-C9100 (domestic)	×	√	√	×	√
DSS-J9100 (domestic)	×	√	√	×	√
ICC-B8900 (domestic)	×	√	√	×	√
ICC-U8000 (domestic)	×	√	√	×	√
Smart7016 (domestic)	×	√	√	×	√

3.9 Unable to display video on the wall through keyboard code operation.

Possible Reasons

- No keyboard codes are configured.
- Error of keyboard code configuration.

Solutions

- Check the configured keyboard code on the platform.
- Use the keyboard to log in to the platform again.

3.10 How to integrate third-party platforms?

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 - ◇ The RS-485 connection between the network keyboard and the PTZ camera is abnormal.
 - ◇ The RS-485 address bits of the network keyboard and the PTZ camera does not match.
 - ◇ The RS-485 protocols of the network keyboard and the PTZ camera do not match.
 - ◇ The RS-485 baud rates of the network keyboard and the PTZ camera do not match.
 - ◇ Joystick failure.
 - ◇ There is wiring fault between the joystick and the main board.

3.13 What are the maximum values of major functions?

Table 3-3 Maximum values of major functions

Function	Maximum Value
Number of users that can be added	32 (admin included)
Number of RS-485 addresses (per user)	256
Number of PTZ cameras that can be added (per user)	1,000
Number of platform channels supported	1,000

3.14 What is the maximum number of streams that can be decoded?

Stream type: Supports H.265 and H.264 video decoding.

Decoding capability: 1-channel 4K@30 or 4-channel 1080p@30.

Appendix 1 Security Recommendation

Account Management

1. Use complex passwords

Please refer to the following suggestions to set passwords:

- The length should not be less than 8 characters;
- Include at least two types of characters: upper and lower case letters, numbers and symbols;
- Do not contain the account name or the account name in reverse order;
- Do not use continuous characters, such as 123, abc, etc.;
- Do not use repeating characters, such as 111, aaa, etc.

2. Change passwords periodically

It is recommended to periodically change the device password to reduce the risk of being guessed or cracked.

3. Allocate accounts and permissions appropriately

Appropriately add users based on service and management requirements and assign minimum permission sets to users.

4. Enable account logout function

The account logout function is enabled by default. You are advised to keep it enabled to protect account security. After multiple failed password attempts, the corresponding account and source IP address will be locked.

5. Set and update password reset information in a timely manner

The device supports password reset function. To reduce the risk of this function being used by threat actors, if there is any change in the information, please modify it in time. When setting security questions, it is recommended not to use easily guessed answers.

Service Configuration

1. Enable HTTPS

It is recommended that you enable HTTPS to access web services through secure channels.

2. Encrypted transmission of audio and video

If your audio and video data contents are very important or sensitive, it is recommended to use encrypted transmission function in order to reduce the risk of your audio and video data being eavesdropped during transmission.

3. Turn off non-essential services and use safe mode

If not needed, it is recommended to turn off some services such as SSH, SNMP, SMTP, UPnP, AP hotspot etc., to reduce the attack surfaces.

If necessary, it is highly recommended to choose safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up complex passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up complex passwords.

4. Change HTTP and other default service ports

It is recommended that you change the default port of HTTP and other services to any port between 1024 and 65535 to reduce the risk of being guessed by threat actors.

Network Configuration

1. **Enable Allowlist**

It is recommended that you turn on the allowlist function, and only allow IP in the allowlist to access the device. Therefore, please be sure to add your computer IP address and supporting device IP address to the allowlist.

2. **MAC address binding**

It is recommended that you bind the IP address of the gateway to the MAC address on the device to reduce the risk of ARP spoofing.

3. **Build a secure network environment**

In order to better ensure the security of devices and reduce potential cyber risks, the following are recommended:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network;
- According to the actual network needs, partition the network: if there is no communication demand between the two subnets, it is recommended to use VLAN, gateway and other methods to partition the network to achieve network isolation;
- Establish 802.1x access authentication system to reduce the risk of illegal terminal access to the private network.

Security Auditing

1. **Check online users**

It is recommended to check online users regularly to identify illegal users.

2. **Check device log**

By viewing logs, you can learn about the IP addresses that attempt to log in to the device and key operations of the logged users.

3. **Configure network log**

Due to the limited storage capacity of devices, the stored log is limited. If you need to save the log for a long time, it is recommended to enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

Software Security

1. **Update firmware in time**

According to the industry standard operating specifications, the firmware of devices needs to be updated to the latest version in time in order to ensure that the device has the latest functions and security. If the device is connected to the public network, it is recommended to enable the online upgrade automatic detection function, so as to obtain the firmware update information released by the manufacturer in a timely manner.

2. **Update client software in time**

It is recommended to download and use the latest client software.

Physical Protection

It is recommended that you carry out physical protection for devices (especially storage devices), such as placing the device in a dedicated machine room and cabinet, and having access control

and key management in place to prevent unauthorized personnel from damaging hardware and other peripheral equipment (e.g. USB flash disk, serial port).