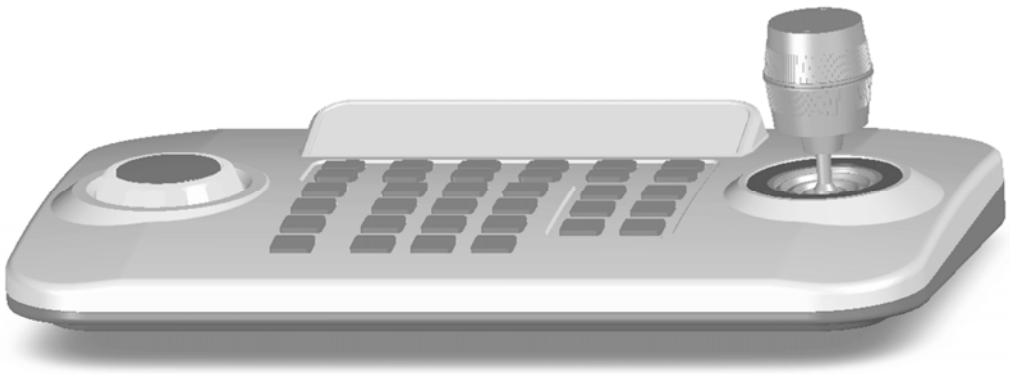
KSC-3000U

USB SYSTEM CONTROLLER

USER MANUAL



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Disclaimer

The accuracy of the information contained in this document has been verified by Kevis Inc. You are fully responsible for the results obtained from the use of this manual. The information in this document is subject to change without notice.

Warranty

Our warranty covers mechanical and electrical failures that occur with normal use.
The warranty is valid for one year. The following conditions are excluded from the warranty.

- When system failure occurs due to improper manipulation or modification.
- When the product is damaged by flooding or fire.
- When product malfunction occurred due to wear of the parts.

Features and Design of the product is subject to change without notice due to improving the performance of the product.

USE PRECAUATION

Thank you for choosing our product. Please read this document carefully before use.
To prevent risk or damage to the property you must follow these instructions.

Warning - Violation of the instructions may cause death or injury

Caution – Violation of the instructions may cause personal injury or property damage.

Warning

- **Do not exceed the standard capacity (Voltage/Current) of a multi-plug or power outlet extension when using it for the product.**

  There is a danger of electric shock or fire hazard.

- **Do not place any container filled with water or chemicals over or near the product.**

  If water or chemicals enter the computer, this may cause fire or electric shock.

- **Do not place heavy objects or step on the power cord or AC adapter to avoid damage.**

  If the cord is damaged, there is a danger of electric shock or fire.

- **Do not install the product on a slant or a place prone to vibrations.**

  This increases the risk that a malfunction or damage to the product will occur.

  If the product falls there is a risk of injury.

- **If the system makes a noise, disconnect the power cord from the wall outlet and contact the place of purchase or Kevis inc.**

  There is a danger of electric shock or fire hazard.

Caution

- **Avoid installation where strong magnetic, electromagnetic fields or close to wireless device.**
- **Avoid installation where strong shock or vibration may occur.**
- **Do not use in too heavy dust, smoke or humid environments.**
- **Do not put the product in direct sunlight.**
- **Always keep the operating temperature and humidity.**
- **Do not place conductive material (such as screw driver, coin, etc…) nor vessel full of water.**
- **Do not place a heavy object over the product.**
- **Unplug the power during thunder storm, lightning.**
- **Make sure to use grounded power outlet.**

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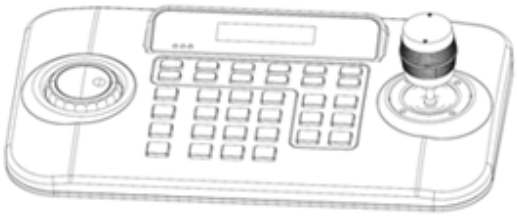
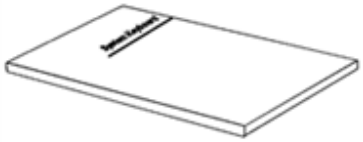
1. Package Contents

Check the Product Box for the following items:

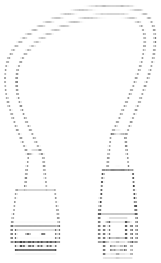


KSC System Controller

12V Adapter



User Manual



A to B USB Cable

Packing List

1. KSC-3000U System Controller 1pcs
2. DC 12V Power Adapter 1pcs
3. User Manual 1pcs
4. A to B USB Cable 1pcs

2. Product Features

1) **Two RS-485 Ports**
   RS-485 Ports are used for Master and Sub communications.
   Each individual address of the Master Port can be set with different protocol.

2) **Multi-Protocols**
   Variety protocols are built-in for ease of remote control.

3) **Unified Protocol**
   Various devices like DVR, PTZ, and Dome can be controlled simultaneously.

4) **HID USB MOUSE & KEYBOARD & GAME JOYSTICK**
   The system controller can be used as a Mouse, Keyboard or Joystick for PC or NVR without external driver installation.
   Alphanumeric characters input are supported through numeric keypad in Keyboard Mode.
   Mouse scroll and sensitivity setting is supported in Mouse Mode.
   * External power is not required when USB is connected.

5) **Hot-Key**
   All hotkeys for the PC applications can be supported with controller's shortcut keys in Hotkey Mode. Create and modify shortcut keys using the system controller.

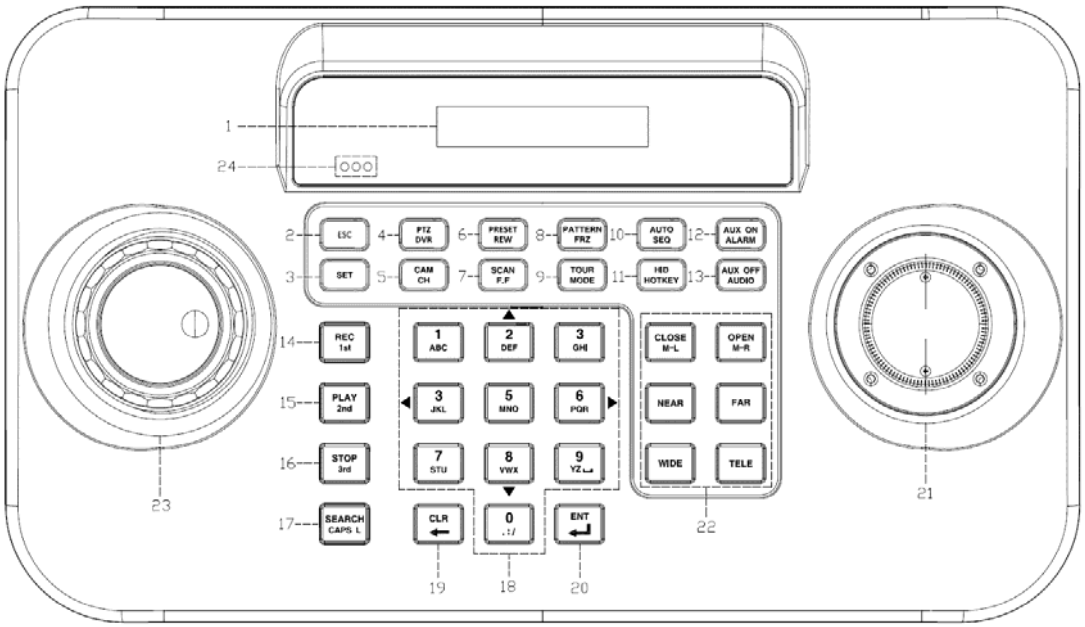
6) **Programmable HID JOYSTICK buttons**
   All buttons on the system controller can be used as the joystick buttons and programmable except the followings.
   - ESC (when exiting from HID mode)
   - USB HID (when changing from 3 different HID Modes)

7) **Multiple controllers supporting**
   Max. 9 controllers can be connected and used simultaneously through Port 2

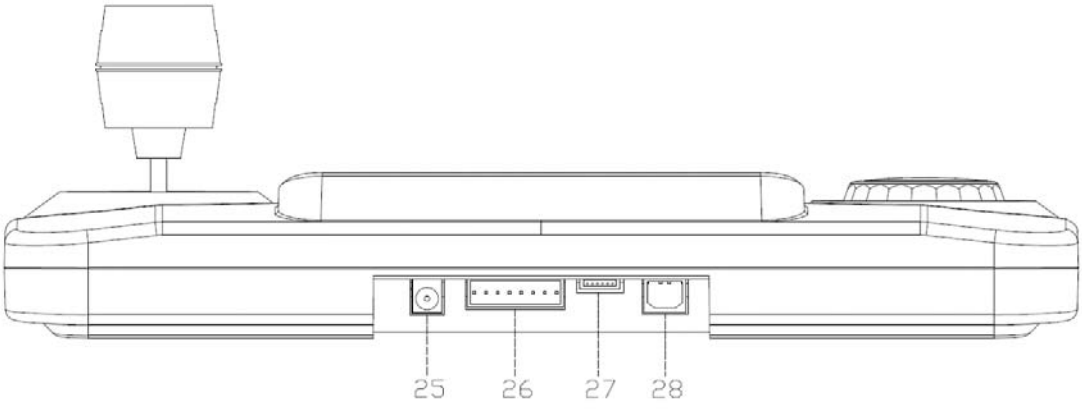
8) **Ease of operation**
   Built-in 3-Axis proportional joystick, LCD, Rubber buttons, Jog Shuttle for ease of operation

9) **Extra Features**
   Self-diagnostic mode, Stop Watch, protocol analysis, and a variety of add-ons can be utilized for on-site facility inspection.

3. Description



TOP View



Rear View

1) **LCD (Display)**
   Shows number entered, system status, function status and general status.

2) **ESC**
   Used to escape from the current mode or cancel the current selection.

3) **SET**
   Used to set PTZ or DVR feature values with the numeric keys.

4) **PTZ/DVR**
   Used to change mode to PTZ or DVR.

5) **CAM / CH**
   Used to select a PTZ camera or a DVR channel with the numeric keys.

6) **PRESET / REW**
   PRESET (PTZ Mode): Used to save or call PTZ presets.
   REW (DVR Mode): Used to rewind playback video or data.

7) **SCAN / F.F**
   SCAN (PTZ Mode): Used to call a PTZ scans.
   F.F (DVR Mode): Used to fast-forward playback video or data.

8) **PATTERN / FRZ**
   PATTERN (PTZ Mode): Used to call PTZ patterns.
   FRZ (DVR Mode): Used to freeze the camera screens on live view.

9) **TOUR / MODE**
   TOUR (PTZ Mode): Used to call PTZ tours.
   MODE (DVR Mode): Used to change display mode.

10) **AUTO / SEQ**
   AUTO (PTZ Mode): Used to call PTZ auto pan.
   SEQ (DVR Mode): Used to turn on/off display sequence feature.

11) **USB HID**
   Change HID mode in the following order 'Mouse -> Joystick -> Keyboard'.

12) AUX ON / ALARM

AUX ON (PTZ Mode): Used to turn on auxiliary feature.

ALARM (DVR Mode): Used to turn on/off alarm feature.

13) AUX OFF / AUDIO

AUX OFF (PTZ Mode): Used to turn off auxiliary feature.

AUDIO (DVR Mode): Used to enable or disable audio.

14) REC / 1st

REC (DVR Mode): Used to start/stop force recording.

1st: Input first character on numeric key when entering text.

15) PLAY / 2nd

PLAY (DVR Mode): Used to playback video or data.

2nd: Input second character on numeric key when entering text.

16) STOP / 3rd

STOP (DVR Mode): Used to stop playback video or data.

3rd: Input third character on numeric key when entering text.

17) SEARCH / CAPS LOCK

SEARCH (DVR Mode): Used to go to search mode.

CAPS LOCK: Caps Lock ON/OFF when entering text.

18) 0 ~ 9

Used to enter the numbers for PTZ/DVR selection, setup menu opening or used for entering alphanumeric characters.

19) CLR

Used to clear the inputted value or used as backspace key in HID Keyboard Mode

20) ENT

Used to enter or select values

21) JOYSTICK

Used to precise control of Pan/Tilt/Zoom and move DVR/Keyboard-menu cursor.

In HID Mode, it is used as a mouse cursor and keyboard-hotkey combinations.

22) LENS CONTROL

Used for camera lens control.

Iris buttons (Close/M-L, Open/M-R) are also used as mouse buttons in HID mouse mode.

23) JOG/SHUTTLE

Used for easy control of the DVR playback in DVR mode.

Lens control is also available based on the Menu setting.

24) LED INDICATOR

Shows the communication and power status.

25) DC JACK

Used for DC 12V input

26) RS-485 CONNECTOR

Used for RS-485 connection

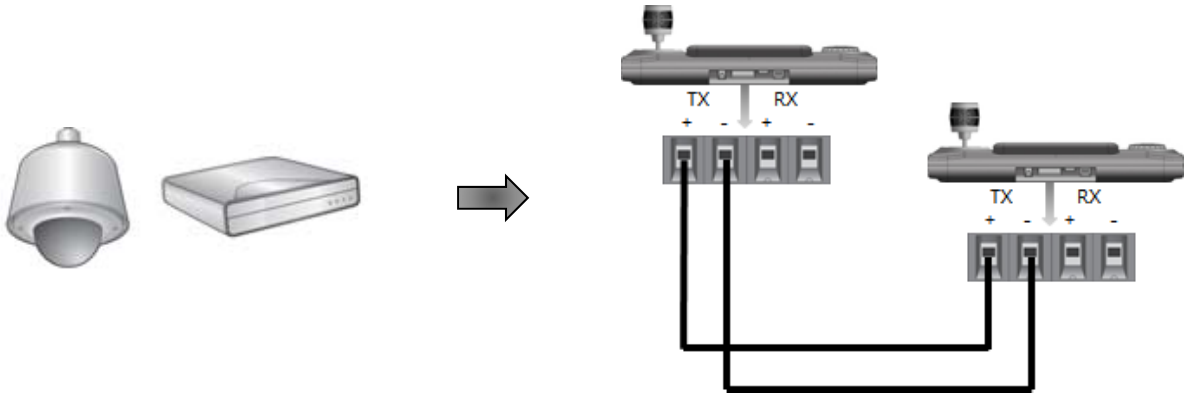
27) PROGRAM CONNECTOR

Used to update product firmware. (Factory use only)

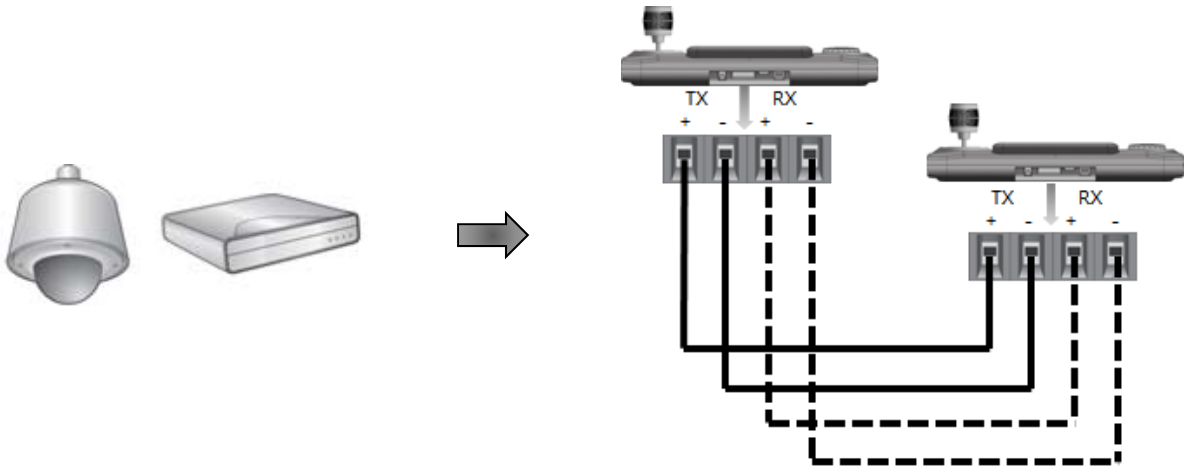
28) USB CONNECTOR

Used for PC or DVR connection

4. Installation & Connection



Half Duplex Mode

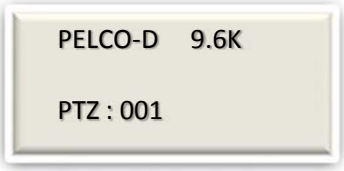


Full Duplex Mode

5. Setting

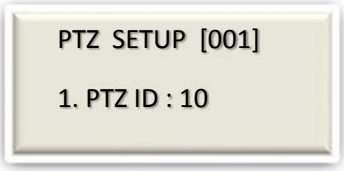
Tip: Move the joystick up or down to move the setting menus.
To change the setting values, move the joystick left or right.

1) PTZ Setup



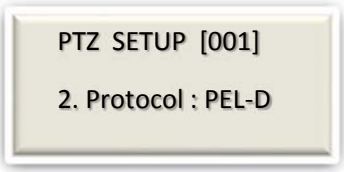
In the control mode, Press "**1**" and hold "**Set**" button for approximately 2 second.

↓



Enter the **PTZ ID** by using Joystick (Left/Right) or Numeric Keypad.
Ex) PTZ 10 = "1","0" + "Enter"

- Move the joystick down for the next setting menu.



Select a **PTZ Protocol** by using Joystick (Left/Right).

- Move the joystick down for the next setting menu.

Select a **Baud rate** for the PTZ communication.

- Move the joystick down for the next setting menu.

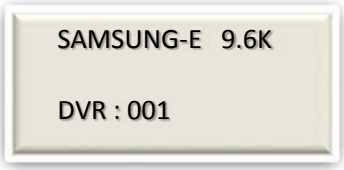
Select a **Parity bit**.

- Move the joystick down for the next setting menu.

When finished, Press "**Enter**" to **save** and **exit**.

You may press "**ESC**" anytime to **exit** from the PTZ setup menu.

2) DVR Setup



In the control mode, Press "**2**" and hold "**Set**" button for approximately 2 second.

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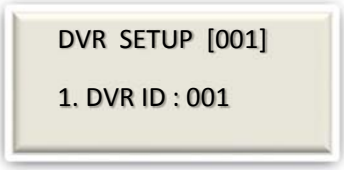
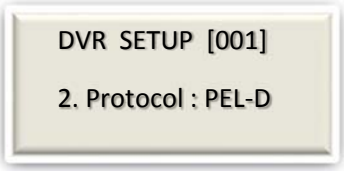


Enter the **DVR ID** by using Joystick (Left/Right) or Numeric Keypad.
Ex) DVR 35 = "3","5" + "Enter"

- Move the joystick down for the next setting menu.

Select a **DVR Protocol** by using Joystick (Left/Right).

- Move the joystick down for the next setting menu.



Select a **DVR Protocol** by using Joystick (Left/Right).

- Move the joystick down for the next setting menu.

Select a **Baud rate** for the DVR communication.

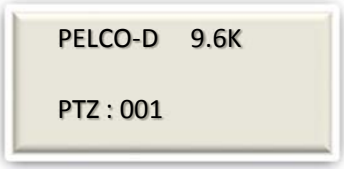
- Move the joystick down for the next setting menu.

When finished, Press "**Enter**" to **save** and **exit**.

You may press "**ESC**" anytime to **exit** from the DVR setup menu.

3) Main Menu Setup

✓ Main menu setup is related with System Control.



In the control mode, Press "**3**" and hold "**Set**" button for approximately 2 second.

↓

If the system is password protected,
Login Password is required. **Default password** is "**123456**" The password may be changed by user.
Please refer to the password set menu down below.

Select **Keyboard ID** or **Address**.

- Available options: Standalone, Master, Sub 2 ~ Sub 9

Note:
When using products from other companies, select standalone option.

➢ Move the joystick down for the next setting menu.

Select a **RS-485** communication type for **Port 1**.

- Available options: Half, Full Duplex

➢ Move the joystick down for the next setting menu.

Select a **RS-485** communication type for **Port 2**.

- Available options: Half, Full Duplex

➢ Move the joystick down for the next setting menu.

Select the **brightness** of the **LCD backlight**.

- Available options: Min, L-1~L-6, Max

➢ Move the joystick down for the next setting menu.

Select a **wait time** option to go into **sleep mode**.

- Available options: Off, 1Min, 3Min, 5Min, 10Min, 30 Min

➢ Move the joystick down for the next setting menu.

Select to **turn On/Off** the **button sound**.

- Available options: Off, On

➢ Move the joystick down for the next setting menu.

Select the **command transmission cycle time** for Joystick.

- Available options: 40, 50, 100, 150, 200, 250, 300ms

Note:
If transmission cycle is short, the response speed is fast, but PTZ may have a problem to command processing.

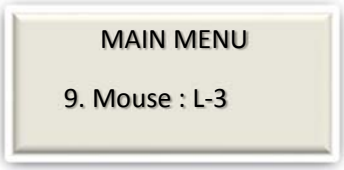
➢ Move the joystick down for the next setting menu.

Select the **lens control action** for Jog/Shuttle in PTZ Mode.

- Available options: Off, J-Z/S-Z, J-F/S-F, J-Z/S-F, J-F/S-Z

Note:
J(Jog) / S(Shuttle) / Z(Zoom) / F(Focus)
Example of use: Telephoto lens control.

➢ Move the joystick down for the next setting menu.



Select the **mouse sensitivity.**

- Available options: Min, L-1~L-4, Max

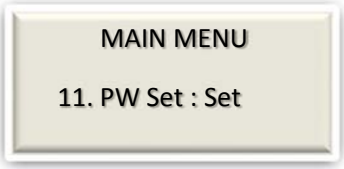
➢ Move the joystick down for the next setting menu.

Select the time for **command re-transmission cycle.**

- Available options: Off, 1~5Sec

Warning:
Supported PTZ use only.

➢ Move the joystick down for the next setting menu.

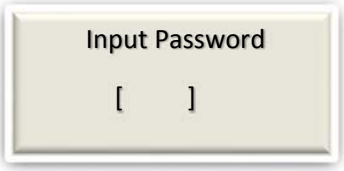


To change the current password, press "**Enter**" or Move the joystick to the right

Otherwise, move the joystick down for the next setup menu.

→ ↓

Enter the **new password**.



Re-enter the **new password** to confirm.
Then, press "**Enter**" to **save** or Press "**ESC**" to **exit without saving**.

- Move the joystick down for the next setting menu.

Select the **password protection coverage**
- Available options: Off, Menu, M+DVR, M+PTZ, All

Note:
M+DVR = Menu & DVR
M+PTZ = Menu & PTZ

- Move the joystick down for the next setting menu.

Select the **password lock time**.
- Available options: Off, 10Sec, 30Sec, 1, 3, 5, 10, 30 Min

Note:
Password lock is applied on Menu Setup immediately.
Otherwise, Password lock is applied after Password Lock Time.

✓ To escape from the password lock mode, press "Clear", then enter password.

- Move the joystick down for the next setting menu.

The system controller will show its **firmware version** on the screen.

- Move the joystick down for the next setting menu.

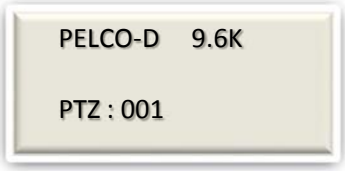
To load the **factory default setting**, press "**ENT**" or move the joystick to the right.

Otherwise, move the joystick down for the next setup menu.

- Move the joystick down for the next setting menu.

Press “**ENT**” to **exit** from the Main Menu Setup, otherwise move the joystick up/down for the main menu setting again.

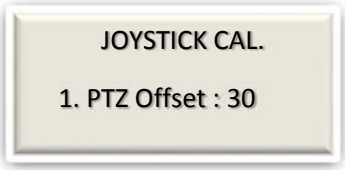
4) Joystick Calibration



In the control mode, Press “**4**” and hold “**Set**” button for approximately 2 second.

Warning:
Incorrect settings can cause malfunction of Joystick.

↓



To set the **center position of the joystick**,
wait for 30 seconds or press "**Enter**" without touching the joystick.

↓

Move the **joystick up** to the maximum position and hold, then press “**ENT**” button.

↓

Move the **joystick down** to the maximum position and hold, then press “**ENT**” button.

↓

Move the **joystick left** to the maximum position and hold, then press “**ENT**” button.

↓

Move the **joystick right** to the maximum position and hold, then press "**ENT**" button.

↓

Turn the **joystick head counterclockwise** to the maximum position and hold, then press "**ENT**" button.

↓

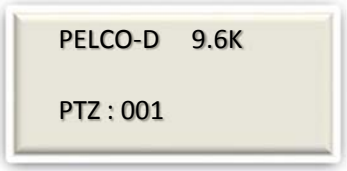
Turn the **joystick head clockwise** to the maximum position and hold, then press "**ENT**" button.

↓

Select "**Yes**" to **save** the calibration data and exit from the menu, or select "**No**" to **exit without saving**.

5) USB Hotkey setup

- ✓ All controller buttons are programmable as the hotkeys for HID USB Hotkey Mode except "ESC" and "USB HID"

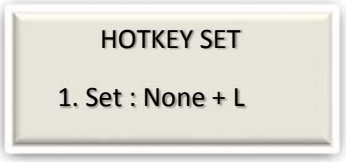


In the control mode, Press "**5**" and hold "**Set**" button for approximately 2 second.

↓

Select **a button of the system controller** to make a hotkey with the joystick Up/Down, and press "**ENT**"

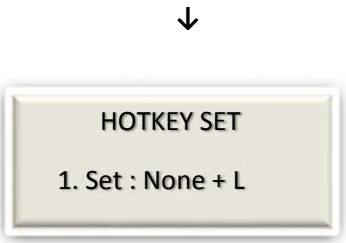
↓



Select the **first combination key** for the hotkey, when first combination of a hotkey is flashing.

- Available options: None, Ctrl, Alt, Shift, CtlAl (Ctrl+Alt), ShAlt (Shift+Alt), ShCtl (Shift+Ctrl), SCtAl (Shift+Ctrl+Alt)

Then, press "**ENT**" to select second combination key.



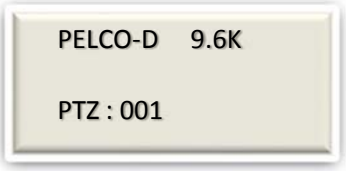
Select a **second combination key** for the hot key, when second hotkey combination is flashing.

- Available options: A, B, C, D ,E ,F ,G, H ,I ,J ,K ,L ,M, N, O, P, Q, R ,S ,T, U, V, W, X, Y, Z, 1, 2 ,3, 4, 5 ,6 ,7 ,8 ,9, Enter, Backspace, Tap, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, Insert, Delete, Home, Page up, Page Down, End, Space, Esc, +, - , ~, [,], |, ,, . ?

When done, press "**ENT**" to save and exit.

6) HID Joystick setup

- ✓ All controller buttons are programmable as the Joystick buttons for HID USB Joystick Mode except "ESC" and "USB HID"



In the control mode, Press "**6**" and hold "**Set**" button for approximately 2 second.

Select **a controller button** to assign a joystick button number with the joystick Up/Down.

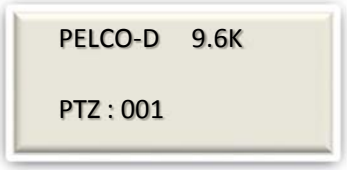
Select a **joystick button number** with the joystick Left/Right.

Note:

- Supports up to 36 joystick buttons.
- Jog/Shuttle and Throttle can be used as a joystick button.

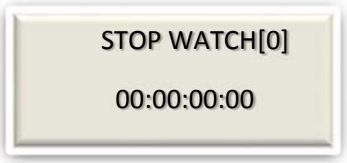
7) Stopwatch Setup

- ✓ Stopwatch is used as a time measurement of the PTZ operation.



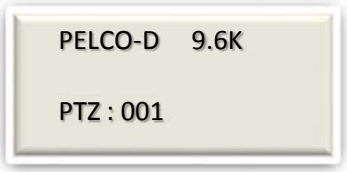
In the control mode, Press "**7**" and hold "**Set**" button for approximately 2 second.

↓



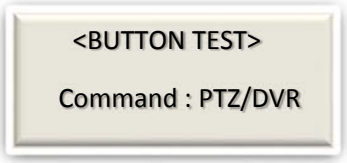
"**ENT**": Start/Stop
"**CLR**": Reset
"**0**": Record lap times to the memory blocks (1~9)
"**1**"**~**"**9**": Call recorded times of each lap from the memory blocks.
Note:
Stopwatch is supported on the Master mode only.

8) Button Test



In the control mode, Press "**8**" and hold "**Set**" button for approximately 2 second.

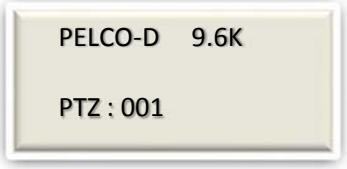
↓



Press **any key** or Operate **Jog/Shuttle** for testing, the name of the buttons or Jog/Shuttle information will appear on the display with beep sound.
Press "**ESC**" to **exit** from the Button Test.

9) Upload setting values

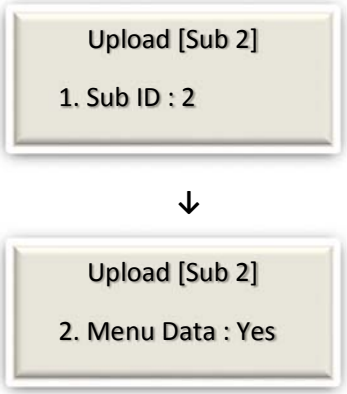
- ✓ If multiple controllers are used, master controller can send setting values to sub controller.
- ✓ If sub controller is not connected, Upload setting menu is not available.



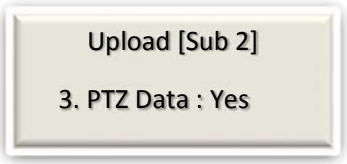
In the control mode, Press "**9**" and hold "**Set**" button for approximately 2 second.

↓

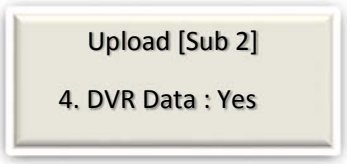
Select **destination controller** to **upload**.



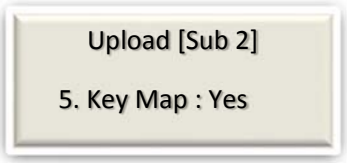
Select “**Yes**” to **upload** Menu data or select "N**o**" to **skip** the upload **Menu data**.
When done, press “**ENT**” to continue.



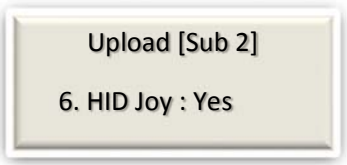
Select “**Yes**” to **upload** PTZ data or select "**No**" to **skip** the upload **PTZ data**.
When done, press “**ENT**” to continue.



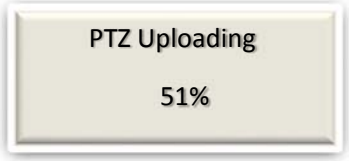
Select “**Yes**” to **upload** DVR data or select "**No**" to **skip** the upload **DVR data**.
When done, press “**ENT**” to continue.



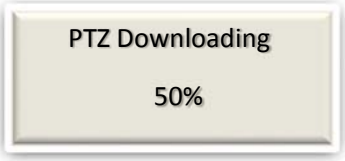
Select “**Yes**” to **upload** Key Map data or select "**No**" to **skip** the upload **Key Map data**.
When done, press “**ENT**” to continue.



Select “**Yes**” to **upload** HID Joystick data or select "**No**" to **skip** the upload **HID Joystick data**.
When done, press “**ENT**” to continue.

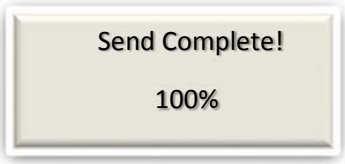


Master controller’s Uploading screen



Sub controller’s Downloading Screen

↓



Completed screen.

10) System Information

In the control mode, Press "**10**" and hold "**Set**" button for approximately 2 second.

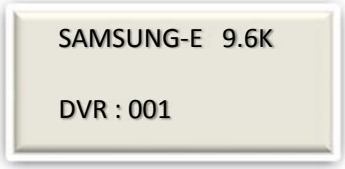
↓

System controller will start showing system information listed below in order for every second.

- Model Number
- Firmware version
- Firmware release date
- Manufacture's website

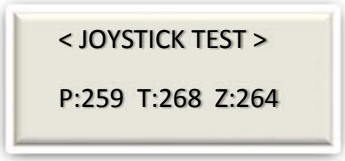
Press "**ESC**" to **exist** from the system information.

11) Joystick Test



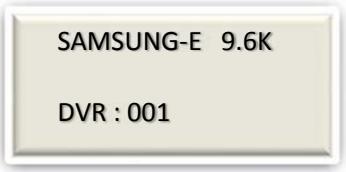
In the control mode, Press "**11**" and hold "**Set**" button for approximately 2 second.

↓



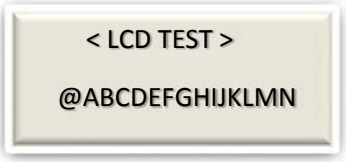
Move the **joystick** to check the operating status.
Press "**ESC**" to **exit** from the system information.

12) LCD TEST



In the control mode, Press "**12**" and hold "**Set**" button for approximately 2 second.

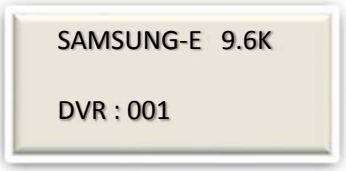
↓



System controller will start showing test strings.
Press "**ESC**" to **exist** from the LCD TEST.

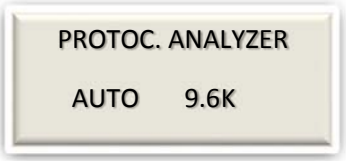
13) Protocol Analyzer (Option)

- ✓ Protocol Analyzer is used to analyze the RS-485 network protocol commands.
- ✓ Protocol Analyzer supports following 6 protocols
  - SAMSUNG-E series, PTZ/DVR SAMSUNG-T series, PTZ/DVR, PELCO-D, PELCO-P



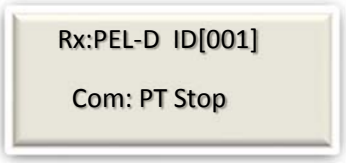
In the control mode, Press "**13**" and hold "**Set**" button for approximately 2 second

↓



Protocol analyzer screen will switch to analysis screen automatically after few seconds.

↓



System controller will start showing protocol commands.
Baud rate can be changed with the numeric key as below

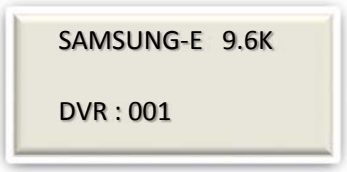
#1: 2400 / #2: 4800 / #3: 9600 / #4: 19200 / #5: 38400 / #6: 57600 bps

Press "**ESC**" to **exit** from the Protocol analyzer.

Note:
Protocol Analyzer analyzes Port 1 line only.

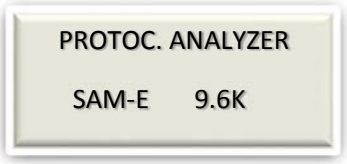
14) Protocol Code Analyzer (Option)

- ✓ Protocol Analyzer is used to analyze the RS-485 network protocol (Hex)codes.



In the control mode, Press "**14**" and hold "**Set**" button for approximately 2 second

↓



Protocol analyzer screen will switch to analysis screen automatically after few seconds.

↓

System controller will start showing protocol (Hex) code.
Baud rate can be changed with the numeric key as below

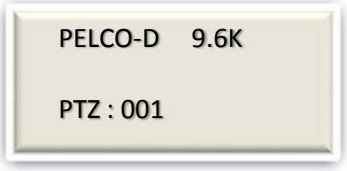
#1: 2400 / #2: 4800 / #3: 9600 / #4: 19200 / #5: 38400 / #6: 57600 bps

Press "**ESC**" to **exist** from the Protocol analyzer.

Note:
Protocol Analyzer analyzes Port 1 line only.

6. Operation

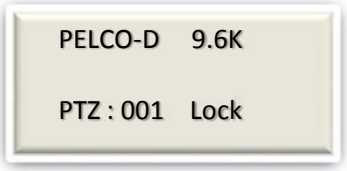
1) LCD Screen



The Main screen shows protocol, Baud Rate, Current (Control) Mode, PTZ/DVR ID.

2) Password

- ✓ Password-related setup can be enabled from the main menu setup.
- ✓ Depending on the password related setup (Password Rule and Time), password authentication may be required to control or setup the system controller.



A warning beep will sound if the joystick is moved or buttons are pressed while it is in password lock mode.

To exit from the password lock mode, press "**Clear**", and enter **password**.

3) PTZ Mode

- ✓ PTZ control
  - You can move your PTZ with the Joystick
  - Moving speed of the PTZ can vary depending on the slope of the stick.
- ✓ Lens control
  - Lens can be controlled with Lens control buttons.
  - Turning the head of the joystick can control the zoom.
  - Precision lens control is possible with the jog/shuttle (menu setting is required)

- Call Preset

  Enter **Preset number**, then press "**PRESET**"
  Example) Call Preset #18
  "1"+"8"+"Preset"

- Save Preset

  Enter **Preset number**, then **Press and Hold "PRESET"** for approximately 2 second
  Example) Set Preset #18
  "1"+"8"+"Preset"(2 Second)

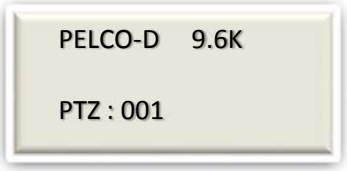
- Call PTZ Funtions
  - Scan
  - Pattern
  - Tour
  - Auto
  - Aux On
  - Aux Off

  Press **function number**, then Press **Function Key**
  Example) Call Tour #1
  "1"+ "Tour"

- OSD Menu

  Press "**Set**" to open PTZ's OSD Menu.
  Note:
  Opening the OSD menu can vary depending on the type of PTZ.

- Change PTZ ID



Enter PTZ **ID number**, then press "**CAM**"

4) DVR Mode

- PTZ function controll

The DVR is controllable with the DVR function buttons on the system controller.
Enter a **channel number**, and Press "**CH**"

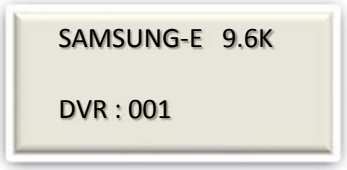
- 1CH Full Screen Mode

Example) 16CH
"1""6"+ "CH"

- Open DVR Menu

Press "**SET**" to open DVR's **Setup Menu**

- Change DVR ID

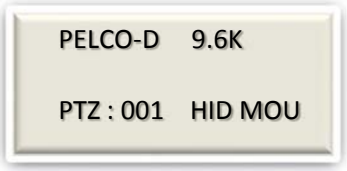


Enter DVR **ID number**, then press "**ENT**"

5) HID Mode

5-1 Mouse/Keyboard

✓ The system controller can be used as a Mouse, Keyboard or Joystick for PC or NVR without external driver installation.



Press "**USB HID**" to **change HID mode**.

Press "**ESC**" to **exit** from HID mode.

- Curser

Use the **joystick** to control the **mouse cursor**.

- Button

CLOSE/M-L : Left button
OPEN/M-R: Right button

- Scroll

Turning the head of the joystick for **mouse scrolling**

- Text input

Use the **numeric keys** and **combination-keys** to enter the **text**.

Example) Apple
A: "1st" + "1"
p: "CAPS L" + "1nd" + "6"
p: "1nd" + "6"

l: “3rd" + “4”
e: “2nd” + “2”

“**CLR**” for **Backspace key**.
“**ENT**” for **Enter key**.

5-2 Joystick

- ✓ Joystick mode is used for NVR control, DVR control, PC gaming, etc...
- ✓ All buttons on the keyboard can be used as the joystick buttons and programmable except for the following.
  - ESC (used for exit from HID mode)
  - USB HID (used for changing HID Mode)

Note:
Available functions of the joystick may vary depending on the NVR/DVR models.

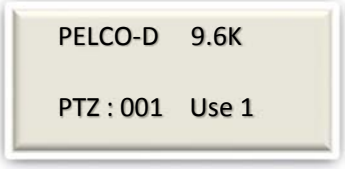
6) Restore factory settings

Warning:
Restoring the Factory Default Setting will delete all configuration information of the system controller.

- Password Reset — **Press and hold** "**SET**" button, and **connect power**.
- Restore PTZ protocol setting — **Press and hold** "**CAM**" button, and **connect power**.
- Restore DVR protocol Setting — **Press and hold** "**REC**" button, and **connect power**.

7) Interlocking system controller (Multiple controller uses)

- ✓ For multiple controller use, all controllers must have unique ID number.
  In this case,
  - The lowest ID number for a controller must be greater than or equal to 1
  - Cannot be used with other manufactures’ controller.
- ✓ Connection :
  - Connect PTZ/DVR to Port 1
  - Connect system controllers to Port 2

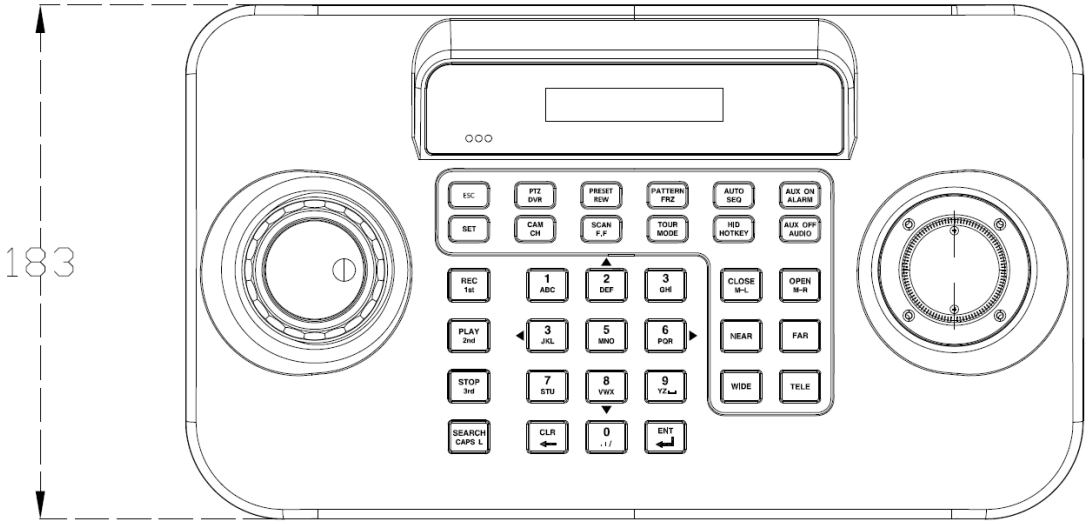


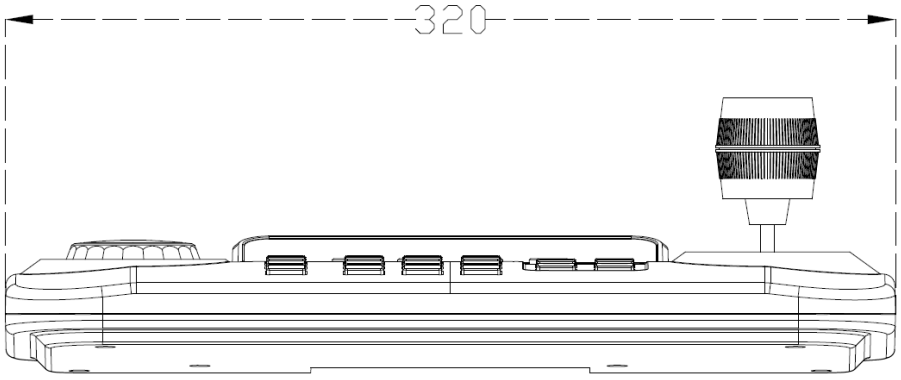
If more than one controller is used, the controller that has been used first takes priority to control all other controllers and will show “Use X” message on screen.

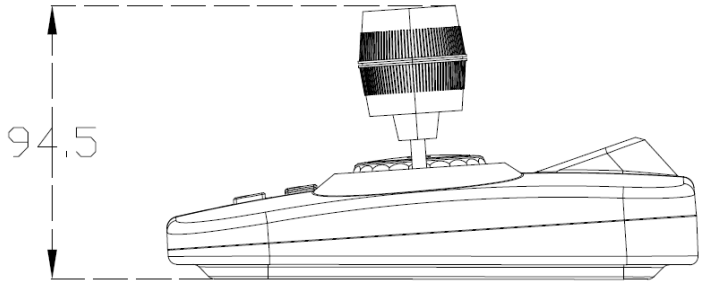
When the controller has been completed its use, "Use X" message will disappear from the other controllers’ screen.

When a controller displays “Use X” on its screen, the controller is not available to be used, but can take control forcibly by pressing the "CLEAR" button. In this case, the communication failure may occur.

7. Drawing







8. Specification

KSC-3000U USB SYSTEM CONTROLLER SPECIFICATION		
COM PORT	PORT 1	TERMINAL BLOCK HALF DUPLEX / FULL DUPLEX
	PORT 2	TERMINAL BLOCK HALF DUPLEX / FULL DUPLEX
PROTOCOL	PELCO-D / PELCO-P / SAMSUNG-E / SAMSUNG-T / VICON / PANASONIC / BOSCH / GE / HONEYWELL / ELMO / AD / ERNA / VCL TP / YOUJIN / W-DRX / SUNGJIN	
BAUDRATE	2400 / 4800 / 9600 / 19200 / 38400 / 57600 BPS	
CONTROLLER ADDRESS	STANDALONE, MASTER, SUB 2~9	
PTZ No	0 ~ 255	
DVR No	0 ~ 255	
DVR CONTROL	SAMSUNG DVR (SAMSUNG-E, SAMSUNG-T)	
FUNCTION KEY	ESC / SET / PTZ / CAM / PRESET / SCAN / PATTERN / TOUR AUTO / HID / AUX ON / AUX OFF	
DVR KEY	SET / DVR / CH / REW / F.F / FREEZE / MODE / SEQ / ALARM AUDIO / REC / PLAY / STOP / SEARCH / JOG SHUTTLE	
LENS KEY	CLOSE / OPEN / NEAR / FAR / WIDE / TELE / JOG SHUTTLE	
JOYSTICK	UP / DOWN / LEFT / RIGHT / TELE / WIDE	
NUMERIC KEY	0 ~ 9 / CLEAR / ENTER	
USB PORT	B TYPE / SUPPORT USB 1.1 ~ USB 3.0	
USB DEVICE	HID MOUSE / HID KEYBOARD / SUPPORT HOT-KEY / HID JOYSTICK	
LCD VIEW	2 x 16 CHARACTER YELLOW BACKLIGHT LCD	
LED INDICATE	POWER / RX / TX	
POWER	DC 12V(200mA) / DC JACK / USB 5V (500mA)	
POWER CONSUMPTION	1.2W <	
I/O CONNECTOR	TERMINAL BLOCK 8P / FIRMWARE CONNECTOR	
OPERATION TEMPERATURE	0℃ ~ 50℃	
OPERATION HUMIDITY	0 ~ 90%	
DIMENSION	320(W) x 183(H) x 94.5(D) (mm)	