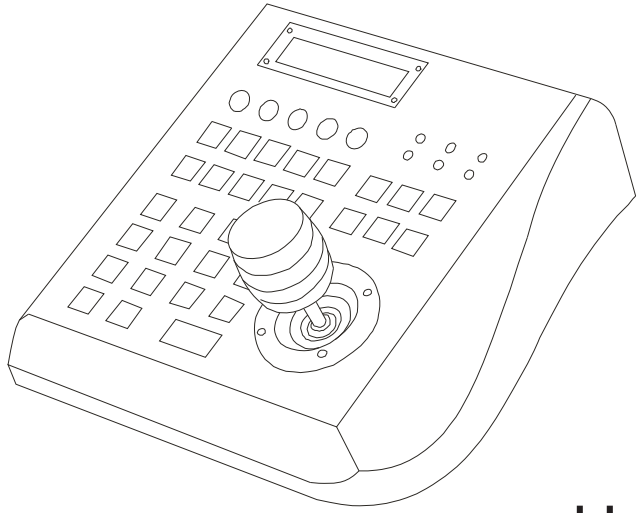
3-Axis
Multi-functional
Programmable
Controller



User's Manual

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

CAUTION

RISK OF ELECTRIC SHOCK.

DO NOT OPEN.

This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

FCC COMPLIANCE STATEMENT

FCC INFORMATION: THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGHEND TO PROVIDE REASONABLE PROTECTION AGAINST HAMRFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENGERGY 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.

CAUTION: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USERS'S AUTHORITY TO OPERATE THE EQUIPMENT.

CE COMPLIANCE STATEMENT

WARNING: THIS IS A CLASS A PRODUCT. IN A DOMESTIC ENVIRONMENT THIS PRODUCT MAY CAUSE RADIO INTERFERENCE IN WHICH CASE THE USER MAY BE REQUIRED TO TAKE ADEQUATE MEASURES.

This Symbol indicates that this product should not be treated as household waste. When discarding this product, it must be sent to appropriate facilities for recycling or recovery. By separating this product from other household waste, you are helping to reduce the volume of waste incinerators and the natural resource will be conserved.

CAUTION: BEFORE ATTEMPTING TO CONECT OR OPERATE THIS PRODUCT, PLEASE READ THE LABEL ON THE BOTTOM AND USER'S MANUAL CAREFULLY

CONTENTS

ENGLISH

Technical specification are subjects to change without prior notice. This Manual may contain printing or clerical errors. All trademarks mentioned belong to their respective owners.

1.PRECAUTION

- **Refer all work related to the installaion of this product to qualified service personnel or system installers.**

- **Do not attemp to disassemble the appliance.** To prevent electric shock, do not remove screws or cover. There are no user-serviceable parts inside. Contact qualified service personnel for maintenance

- **Handle the appliance with Care.D**o not strike or shake, as this may damage the appliance. It should be protected against extreme pressure, vibration and humidity during transportation and storage. Damages caused by improper transportation avoid the warranty.

- **Do not operate the apliance beyond its specified temperature, humidity or power source ratings.** Do not use the keyboard in an extreme environment where high temperature or high humidity exists. Use it within -5°C to +40°C(23°F to 140°F) and a humidity below 90%. The input power source is 9V-12V DC, and requires at least 500mA.

- **Read this user's manual carefully before operating the appliance.**Make sure that local electric safty standard are followed when using or installing the appliance

- **Do not install this Product in a flammable and explosive environment.**

- **Make sure that the installation is done according to your local electricity and safety regulation**

- **Before installation and mentainence, make sure that the appliance is disconnected from the power source.**

- **Do not use any power source other than 12V DC, in order to prevent damages to this device.** For details, please refer to the section "Specifications" for further details.

- **Handle the device during the installation carfully.** Falls or extreme vibration may cause irrepairable damages and avoid the warranty.

- **Do not install or operate the appliance near any high-voltage devices or high-voltage cable.** The safety distance should remain at least 50 m.

- **This product should be operated indoor only.**

2.FEATURES

ENGLISH

This keyboard is a multi-funcational, programable keyboard controller for Pan-Tilt-Zoom device, Digital Video Recorder and Matrix devices, and can be programmed with individu protocol setting for each connected device. It is equipped with a 3-Axis joystick for performing Pan,Tilt and Zoom action with single hand.

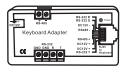
Main Features

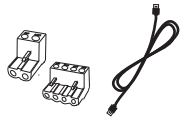
- Manage up to 9999 devices*
- controls PTZ, DVR and Matrix in different protocol with pre-programmed setting
- 3-Axis joystick
- Multiplexer operation with DVR and PTZ
- Password-protected for administrative access
- Supports major telemetric protocols
- Dual serial interface with RS232 and RS485
- Supports major DVR brand
- variable PTZ Speed
- Aluminium finishing
- Ergonomic Design

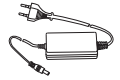
3.PACKING LIST

Please unpack the equipment and make sure all listed items and accessories are included in the box:


Controller

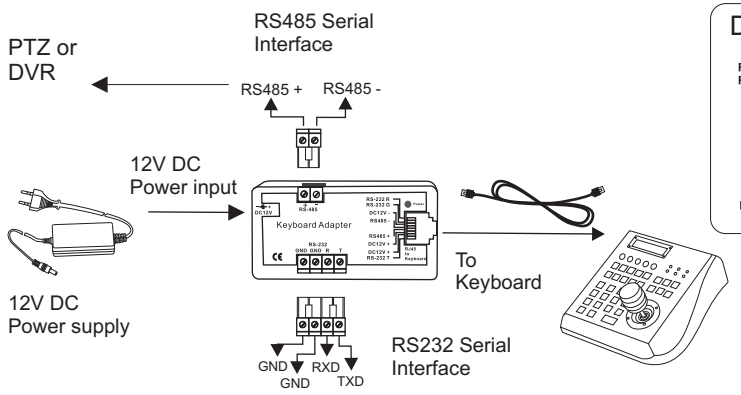

Connection Box


1 x 4-Pin RS232 Clip
1 x 2-Pin RS485 Clip
1 x Keyboard Cable


AC-DC Power Supply Optional

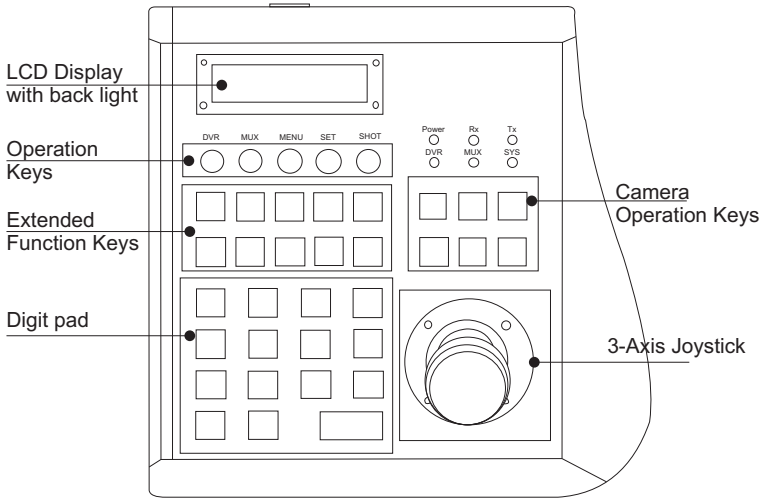
1x User Manual

4.CONNECTION



5. OPERATION

Key Description



Camera Operation Keys:

Zoom WIDE/ TELE : Zoom-in and -out
FOCUS FAR/ NEAR : Manual focus
IRIS OPEN/ CLOSE : Manual irisl

Operation Keys:

DVR : Enter the DVR control mode
MUX : Multiplexer mode
MENU : Enter setup menu or PTZ mode
SET : Set preset position
SHOT : Recall preset position

Extended Function Keys:

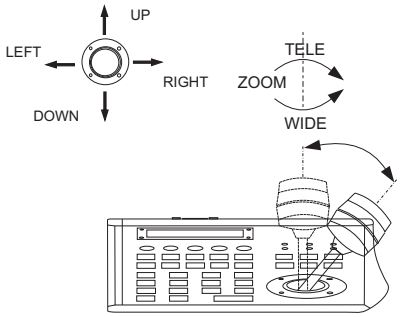
ALM : Alarm Function
GRP : Tour function
OFF : Function Off
ON : Function on
AUTOPAN : Auto pan function
AUX : Auxiliary function
RUN : Function Start
HOLD : Hold
PREV : Previous device
NEXT : Next device

Digit pad:

0-9 : Digit input from 0 to 9
* : * Key
MON : Monitor switch
CAM : Camera switch
CLR : Clear & Cancel
ENTER : Enter key

3-Axis PTZ Joystick:

LEFT / RIGHT: Pan movement
UP / DOWN: Tilt movement
TURN: Zoom in / Out



5. OPERATION

ENGLISH

-Vxx<01>
System Keyboard

After power on, keyboard will start the initialization and self-test. The LC-Display will show initial screen. Press Menu to start the operation.

MON---	CAM-	ALM-
001	0001	0001

Operation Screen:
MON: Selected Monitor
CAM: Selected Camera
ALM: Selected Alarm input.

Keyboard Sounds

The keyboard provides acustic signal when a button is pressed. Depends on application it can be activated or deactivated:

1. Turn ON the Keyboard Sounds: **Press** ON **+** 1 at the same time

2. Turn OFF the Keyboard Sounds: **Press** OFF **+** 1 at the same time

User Mode & Admin Mode

The keyboard will enter automatically into USER MODE after power up, which allows performing PTZ and DVR control, and restrict user access to keyboard setup menu. Following message will show:

ADMIN AUTHORITY		
001	0001	0001

Enter Administrator Mode:

PASSWORD:
****

1. Press ON + 2 at the same time

2. enter your password with the number key and confirm with [ENTER]
The Default Password is 9876543210

After entering the Administrator mode, press [MENU] to enter the setup menu

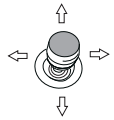
5. KEYBOARD SETUP

In order to get all advantages and functions, it is strongly recommended to setup your keyboard before operation.

Navigation:

CLR	Return to the previous level
ENTER	Confirmation or save setting
0 9	Digit input for changing function value
MENU	Back to Menu

change the value or options by turning the control-stick to the LEFT or RIGHT end



- Scroll the main menu
- Navigate the cursor between the sub items

Move UP, DOWN, LEFT or RIGHT.

SET MUX PROTOCOL: Setup the Protocol for Multiplexer. Supporting: ROBOT, VC, SONY, BOSCH and PELCO.

```
SET  MUX PROTOCOL
>ROBOT
```

SET MTX BAUD RAT: Set up the Baud rat for Matrix**.** Supporting: 1200bps,2400bps, 4800bps, 9600bps and 19200 bps.Press ENTER to save or CLR to exit

```
SET  MTX  BAUD    RAT
>9600bps
```

SET DVR PROTOCOL: Setup the DVR Protocol.
Supported: NVIDO, VC, DSCP, HIK, TUMIN, MITSU, DH and INTLX

```
SET  DVR:
>SET_PROTOCOL>
```

→

```
ALL  : >NVIDO
01   : >NVIDO
```

ALL: Protocol setting for all DVR ID
01: individual setting for DVR ID 01

SET DVR BAUTRATE: Setup the baud rate for DVR:
Supported: 1200bps,2400bps, 4800bps, 9600bps and 19200 bps

```
SET  DVR:
>SET_BAUDRATE>
```

→

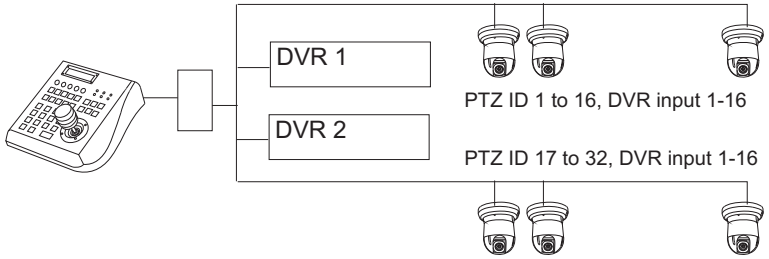
```
ALL  : >9600bps
0001 : >9600bps
```

ALL: Baud rate setting for all DVR ID
01: individual setting for DVR ID 01

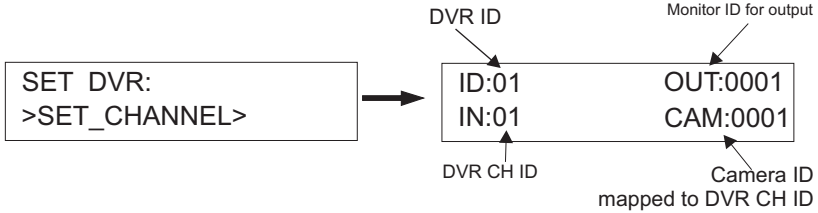
5. KEYBOARD SETUP

SET DVR CHANNEL: When multiple DVRs are used, the keyboard can map the DVR-channel input to a certain PTZ's ID. Once the DVR's channel is changed, the PTZ which responding to this channel will be selected automatically.

Example:



In DVR mode, when DVR2 is selected and input channel is switched to No. 2, the keyboard will automatically set the current camera to ID 18, which is physically connect to the 2nd input of the DVR.



SET CAM PROTOCOL: Setup the Protocol for CAM. Each camera can be program with different Protocol. After setting, press ENTER to save or CLR to exit the setting.

```
SET  CAM PROTOCOL
>SET_PROTOCOL>
```

→

```
ALL  : >PELCO D
0001 : >PELCO D
```

ALL: Protocol setting for all CAMERA ID
01: individual setting for CAMERA ID 01

SET CAM BAUDRATE: Set up the Baud rate for CAM. Supported settings: 1200bps, 2400bps, 4800bps, 9600bps and 19200 bps. After setting, press ENTER to save or CLR to exit the setting.

```
SET  CAM PROTOCOL
>SET_BAUDRATE>
```

→

```
ALL  : >9600bps
0001 : >9600bps
```

ALL: Protocol setting for all CAMERA ID
01: individual setting for CAMERA ID 01

5. KEYBOARD SETUP

SET KEY ID: Set up the ID of the controller from 01 to 63.
Input the No. by digit-key. After setting, press ENTER to save or CLR to exit the setting.

```
SET  KEY ID
>01<01 ➡63>
```

SET KEY LEVEL: Set up the control levels of the controller from 00 to 15. Input the No. by digit-key. After setting, press ENTER to save or CLR to exit the setting.

```
SET  KEY LEVEL
>01<00 ➡15>
```

SET MON RANGE: Set up the range of monitors from 0000 to 0239.
Input the No. by digit-key. After setting, press ENTER to save or CLR to exit the setting.

```
SET  MON RANGE
>0000➡ 0239
```

SET CAM RANGE: Set up the range of intelligent dome cameras from 0000 to 9999.
Input the No. by digit-key. After setting, press ENTER to save or CLR to exit the setting.

```
SET  CAM RANGE
>0000➡ 9999
```

SET ALM RANGE: Set up the range of alarm positions from 0000 to 9999.
Input the No. by digit-key. After setting, press ENTER to save or CLR to exit the setting.

```
SET  ALM RANGE
>0000➡ 9999
```

RESET DEFAUL_I?: Set the keyboard setting to factory default.(default password: is "0123456789". Press ENTER to reset or CLR to exit. This process can take up to 30 sec. till the controller is available again. Note that after Baud-Rate changing, its is necessary to restart the keyboard.

```
RESET DEFAULT_I?
  **********
```

→

```
RESET DEFAULT_I?
PLEASE WAIT . . .
```


6.Working with PTZ

Start PTZ mode
By default, the keyboard usually starts in PTZ mode (display shows as below). You can also press [MENU] to change to PTZ mode.

```
MON---      CAM-      ALM-
001         0001      0001
```

PTZ Mode

Select / Change current camera
You can change the camera by pressing [CAM] + n + [ENTER]. N represents the channel number which should be selected

```
CAM + n
001         0001      0001
```

Change selected camera

Preset function

Add Preset [SET] + n + [ENTER]. n= 1 to 255*
Call a preset: [SHOT] + n + [ENTER]. n= 1 to 255*
Delete a preset: [CLR] + n + [ENTER]. n= 1 to 255*

*The maximum preset number depends on the PTZ device. Please refer to the user's manual for further information.

```
SET + n
001         0001      0001
```

```
SHOT + n
001         0001      0001
```

Tour - Sequence
A sequence can store up to 24 preset points with individual dwell time and speed. You can store a sequence by using this function. (only availiable in B01 / B02 Protocol)

Press [GRP] + n + [SET]. n= 1 to 4

After entering sequence programming mode, the display shows the preset input and setting for speed and time.

```
Seq      Pos   Spd   Ti
001      000   000   000
```

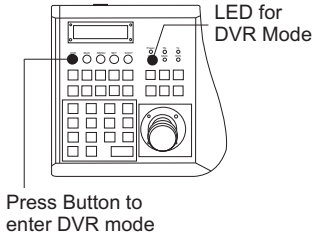
Seq: Sequence number
Pos: Preset number
Spd: Move speed between 1-8
Ti: Stop time between 0-60 sec
Press [ENTER] to confirm and save the setting.

Repeat the preset pos input with speed and time setting, and confirm with enter. After exiting the programming mode, the settings will be saved to dome's memory.

7. Working with DVR

Enter DVR mode

To control DVR, press the DVR-Button and enter the DVR-mode. The LED with "DVR" tag indicates the current status, and the LC Display shows the current selected DVR ID:




```
DVR_ID:01
```

If you have more than 1 DVR installed and configured, you can switch to other ID by pressing [NEXT] + n +[ENTER]. For returning to PTZ mode, press [MENU]

Depends on the DVR Model, the function keys might be different. please refer to later chapter for key assignment.

Virtual PTZ control in DVR mode

In this mode, you can control the DVR and PTZ simultaneously: by selecting the input on the DVR, the PTZ ID assigned to this channel will be automatically selected and ready for PTZ control (DVR and PTZ ID assignment need to be set prior to operation. Please refer to the former chapter "Keyboard Setup" for details.)

Press [DVR] key (in DVR mode) to enter virtual PTZ

```
DVR_ID:01        IN:01
PTZ              Cam:0001
```

DVR_ID:01.....ID of the DVR
IN:01.....Input 1 of the DVR
PTZ.....Indicates the virtual PTZ mode
Cam:0001.....Camera or PTZ ID

Switch the camera input channel: Press [N]* + [ENTER]
For returning to the DVR mode, press again the [DVR] key.

Change the PTZ assignment in DVR mode

If you are already in Admin-mode, you can change the assignment of the PTZ ID to the DVR input directy by pressing [NEXT] key.

```
Set DVR ID:
01 < 00   99>
```

Select the DVR you need to control or modify

DVR ID — output to matrix

```
ID:01        OUT:0001
IN:01        CAM:0001
```

DVR Input Channel — Assign to Camera ID

Press again [NEXT to]Change the assignment for DVR input and camera ID (admin access required)

7. Working with DVR

Function key for NVIDO DVR

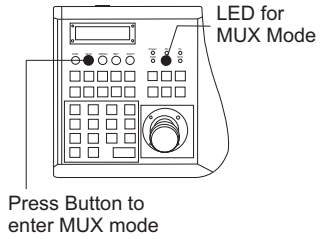
Function	Key
Enter DVR Menu	Set
Enter Key	Enter
4 Cut	Hold
9 Cut	Prev
16 Cut	IRIS close
Zoom	Wide/Tele Key
Slow playback	Aux
Start Recording	ALM
Playback	ON
Key Pause	Autopan
Key Stop	IRIS Open
Key Rewind	GRP
Key Forward	OFF
Keyboard Infomation	Run
Power ON/OFF DVR	*
Ch. Display 1N (N=0-9)	1+N+ Enter
Ch. Display 0N (N=1-9)	0+N+Enter
Key Plus	3D Joystick Right
Key Minus	3D Joystick Left
Key Audio	Focus Near
Key Search	Focus Far
Key Next	DVR ID Setting
Clear Keyboard screen	CLR
Keylock	SHOT
Key Left	Joystick Left
Key Right	Joystick Right
Key Up	Joystick Up
Key Down	Joystick Down

Note:
- please setup the communication baud-rate and ID in the DVR correctly before connection.
- To prevent signal interference, it is strongly recommended to use RS-485 distributor for connection

MULTIPLEXER

Control Multiplexer in MUX mode

Press the MUX button to enter the Multiplexer mode.



MUX_ID:01

PTZ with Multiplexer in MUX mode

In MUX mode, press the button [MUX] again, to enter virtual PTZ mode. You can control the PTZ by switching the input channel. the camera ID will also be switched accordingly

MUX_ID:01	IN:01
PTZ	Cam:0001

MUX_ID:01.....ID of the MUX
IN:01.....Input 1 of the MUX
PTZ..... Control PTZ
Cam:0001.....ID of the Camera

Press [N] + [Enter] to change the channel

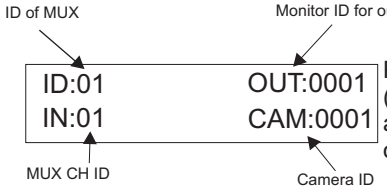
Setup the virtual PTZ control in MUX mode

MUX_ID:01

In MUX mode, press [AUTOPAN] to change the selected Multiplexer

Set MUX ID: 01 < 00 66>

2. Select the MUX ID (if many installed) for setup.

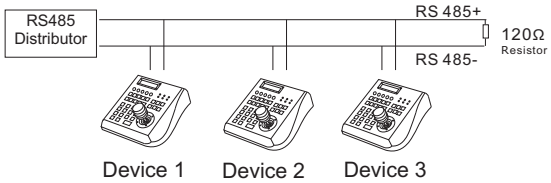


Press [AUTOPAN] again to setup the PTZ. (admin access required). press [ENTER] after every assignment to save the changes. otherwise the configuration may be lost.

Appendix

RS-485 Termination

Devices using RS485 control are usually connected in daisy-chain. which reqiuers termination with 120Ω resistor on both ends. Following picture illustrates the connection methods. please note that a daisy-chain connection type shall not exceed 7 meters.



Star-Connection

The star-form connection is mostly used. it enables the connection of different dome cameras in longer distance. It is recommended to use RS485 distributor to ensure the telemetric data transmission: