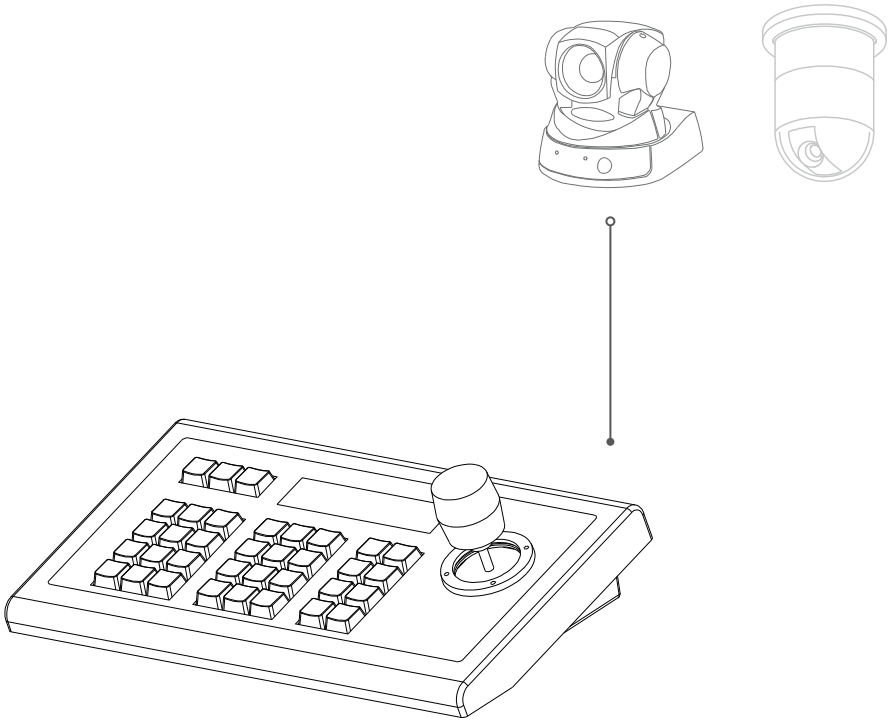
Marshall Electronics Broadcast A/V Division

VS-PTC-150
Keyboard Controller



User Manual

Thank you for using this product.
If you want to get a better product's functions, please read the user manual carefully when you use the product.
Keep the User's Guide. If a problem occurs during the use, please contact our manufacturer.

Keyboard Controller Introduction

Keyboard PTZ Controller is a remote RS-232 & RS-422 control tool for operating Marshall's CV620/CV350/CV360/CV342/CV500 cameras and other model cameras on the market. This controller can be programmed to control Pan, Tilt, Zoom, Focus, Iris, Presets, OSD Menu, Lights, Wipers and other control features allowable on RS-232/RS-422 enabled cameras. This product is designed with Number Keys, Function Keys, LCD Screen, and PTZ Joystick. Included in this box is a RS-232 cable that will connect directly to the RS-232 IN on the rear of the Marshall PTZ Camera-CV620, 12V Power Cable, and RS-422 harness.

Features of Keyboard Controller

* Pan, Tilt, Zoom simultaneous control via RS-232
* Unique control code learn function, which enables users to customize control codes.
* Devices connected to RS-422/RS-485 harness can be set with different protocols and control codes.
* Update new firmware online by connecting controller via RS-485 bus on rear panel to computer.
* One Key Control to retrieve the protocol and baudrates assigned to each ID addresses.
* All parameters can be set to individual control key operations.

Basic Features of Keyboard Controller

* RS-485 control bus can control 255 cameras or control devices.
* RS-232 port can control 7 cameras in a daisy chain setup.
* Standard RS-422/RS-485 I/O ports are lightning-proof, low interference, and can be run at distances of 1200m.
* Uplink port can provide links to maximum 15 slave keyboard controllers in other areas of operation.
* Password protected LOCK/UNLOCK.
* Key Sound ON/OFF
* Progressive speed dome control
* Multi-dimensional PTZ knob control
* Rugged industrial build

CAUTION:

- **LCD Screen is fragile and can be damaged by pressure, or long-exposures to sunlight or strong light.**
- **PTZ Joystick is fragile, please make sure product is packed with original packaging material when shipping or moving, as it can be damaged if mis-handled.**
- **The keyboard controller should be stored within the specified range of temperature, moisture or humidity.**
- **Please follow the directions contained in this manual for setup and operation.**

Keyboard Controller Specifications

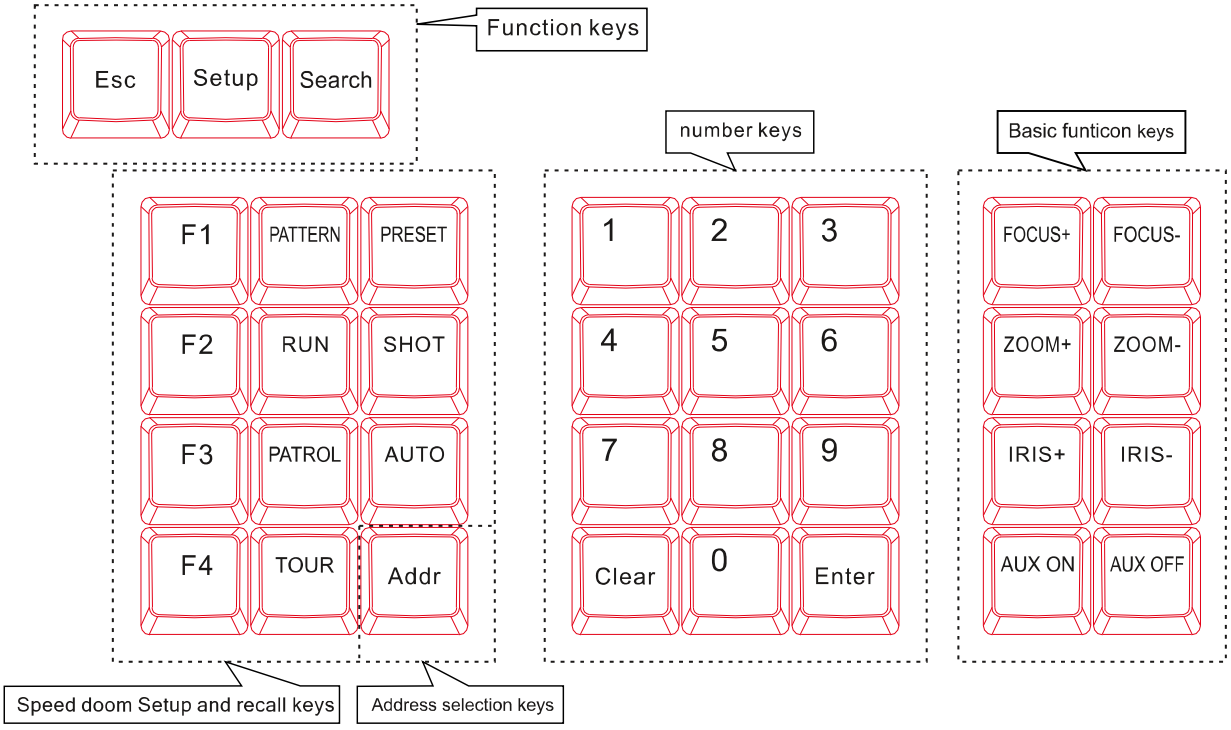
Item	Parameters
Power supply	DC12V±10%/50HZ
Temperature	-10°-55°
Humidity	≤90%RH (No cream node)
Communication	RS422 Full-duplex, 232 Serial Port
Baud Rate	1200bps, 2400bps, 4800bps, 9600bps, 19200bps
Interface	5PIN Pressure Line Terminal and 232 Interface
That way	The LCD screen
Exterior size	318 (L) x 180 (W) x 118 (H)mm

List of Items

Name	Quantity	Remarks
5PIN Isobar plugs	1	
DC-12V Power	1	INPUT: 100-240VAC ~ 50/60Hz
Users Manual	1	
Certificates	1	
Warranty cards	1	

CONTENTS

1. Function Keys of Keyboard Controller



Function keys:

[Esc] Back to previous menu.

[Setup] Press for 3 sec to set up key parameters.

[SEARCH] Inquire The Protocol & Baud Rate Of Current Address.

Pan-Tilt-Zoom Setup and recall keys:

(this function might be not available for all protocols if the PTZ does not have this function)

[F1] Auto focus, only used when camera is set to Manual Focus on IR-Remote or OSD Menu

[F2] On/Off OSD Menu screen, only used in Sony camera control mode.

[F3] Control camera facing forward, used to center camera forward.

[F4] On/Off power, used to turn camera ON & OFF.

[PATTERN] Changes from Auto Focus to Manual Focus, then Focus [+] and Focus [-] buttons are used.

[RUN] Turns backlight ON/OFF

Function keys:

[PATROL] PTZ reset.

[PRESET] Preset the original position of PTZ. This key should be used together with number key and [Enter] key.

[SHOT] Recall the preset position of PTZ. This key should be used together with number key and [Enter] key. (Some special function are achieved via recalling preset, e.g. recall PTZ menu, recall integrated menu, pattern patrol, pattern scan, linear scan, et.)

[AUTO] Control PTZ Automatically.

[Addr] Address selection key. Select decoder address, PTZ address.

Number keys:

[Clear] Clear input.

[0] ~ [9] Number Key: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

[Enter] Enter confirm input.

Basic keys for PTZ and decoder:

[FOCUS +] Manual focus on distant object.

[FOCUS -] Focus on closer object,

[ZOOM +] Zoom in to object, i.e enlarge object.

[ZOOM -] Zoom out the lens to larger view field.

[IRIS +] Increase aperture manually.

[IRIS -] Downsize aperture.

[AUX ON] AUX key turns on. Turn on AUX key. This key should be used together with number key and Enter key.

[AUX OFF] AUX key turns off. Turn off AUX key. This key should be used together with number key and Enter key.

2. The LCD Screen

All key operations will be displayed on LCD instantly. LCD will switch to Low-Power mode if the smart controller does not receive any input for more than 30 seconds. Screen will return to the initial state.

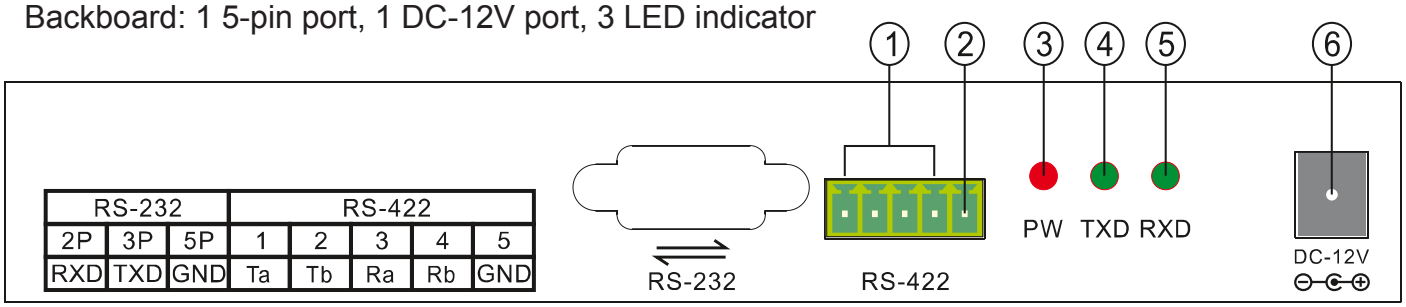
3. Operation Knob Control

When control PTZ and mounting plate:

Operating	Output Control	Operating	Output Control	Operating	Output Control
	Upward		Downward		Left
Operating	Output Control	Operating	Output Control	Operating	Output Control
	Right		Clockwise		Counterclockwise

4. Connections of Keyboard Controller

Backboard: 1 5-pin port, 1 DC-12V port, 3 LED indicator



Detailed functions of each portion:

Item	Marked	Interface	Description
①	RS-422	Control output (Ta, Tb, Ra, Rb)	Connect to camera RS422, Bus(Ta) to RXD IN-, (Tb) to RXD IN+, (Ra) to TXD IN-, (Rb) to TXD IN+.
②	Ground	Grounding (G)	Grounding of communication cable
③	PW	Power indicator	Always on, RED
④	TXD	Send data indicator	Data sending status:flicking,green
⑤	RXD	Receive data indicator	Data receiving status:flicking,green
⑥	DC-12V	DC power input	DC power input

5. Single Key and Combined Keys

Single key:
When single key is pressed, the corresponding PTZ will respond.
Single key operations include: [FOCUS+], [FOCUS-], [ZOOM+], [ZOOM-], [IRIS+], [IRIS-] and control knob.

Combined key:
2 or more keys, or key and knob are pressed, the corresponding PTZ will respond.
The operations include: [PATTERN], [RUN], [PATROL], [TOUR], [PRESET], [SHOT], [Addr], [AUX ON], [AUX OFF]

6. Detailed Introduction to Combined Keys

1. Enter PTZ mode:

If LCD display CAM: XXX P:XXXXX BR:XXXX , indicating the control key board is working in PTZ mode, if no, please [Esc] to back to PTZ mode.

2. Choose PTZ address:

In PTZ mode, press [Addr] and input the PTZ address number, then press [Enter].
E.g. To control PTZ code 28,
Operation: Press [Addr], LCD will display: CAMXXX CAM
Input 28 via number keys, LCD will display: CAMXXX CAM 28
Press [Enter], LCD will display: CAM0: 28 P:XXXXX BR:XXXX

3. Set and recall pattern scan:

Setup: Choose the address to set pattern scan. Then press [PATTERN] key, the LCD will display: CAM: XXX Set PATTERN NO:
E.g if we want to set the 1st pattern scan, press [1] and [Enter],
LCD will display: CAM: XXX PATTERN start record
Operate the control knob to stop or remain at certain position or zoom in/out lens, etc.
After Setup is compete, press [PATTERN] to stop recording pattern again, and
LCD will display: CAM:XXX PATTERN end

Recall: Press RUN, LCD will display: CAM: XXX run PATTERN no:
The speed dome will operate per the 1st pattern, LCD display: CAM:XXX pattern P:XXXXX BR:xxxx

If you run any Single Key operation this will stop pattern scan and return to normal command status.
Notes: Only one pattern scan operation can be saved when setup with Pelco-D (RS-422) or Pelco-P (RS-422) protocols. Multiple patterns can be saved using VISCA and other protocols.

5. Set and recall patrol

Setup: Choose the address code of PTZ to set patrol.
Then press [PATROL] key, LCD display: CAM: XXX / Set patrol no :
E.g. if we want to set the 1st patrol, press [1] and [Enter], LCD display: Set patrol no: 001 / Add preset: 001
(Indicating we are setting the 1st preset point of No.001 patrol), move knob leftwards or rightwards to choose which preset point added to the track of this patrol.
Move knob downwards, LCD will display: Set patrol no : 001 / patrol TIME: 003
(indicating the1st preset added in the 1st patrol). Move knob leftwards or rightwards to change the time of staying at this preset point.
Move knob downwards, LCD will display: Set patrol no : 001 / patrol speed: 01 , (indicating the stay time of 1st preset point is 3S), move knob leftwards or rightwards to change the move time from one preset point to another.
When Setup is complete, press [PATROL] key, LCD will display: Set patrol no : 001 / save patrol ? ,
and press [Enter] to save and back, press [Esc] not to save and back.
If you want to continue to set more, repeat the above operations, press [Esc] to exit Setup.
Recall: Press [TOUR], LCD display: CAM: XXX / RUN PAtrol no: , enter the patrol # to recall. Run any single key operation will exit patrol and back to normal status.

Notes:
1. LEFT and RIGHT on the control Joystick is used to maneauver menu selections, values, or direction. Downward is used to scroll DOWN, maneaver, or enter. Up is used to scroll UP in menu selections, values, or options.
2. In Setup process, press [Esc] to EXIT Setup.
3. Time of ALL Patrol program settings is the same, so first item is time of Setup. Speed of patrol is Default.
4. Time and speed of All Patrol RULES is the same, so first item is time of Setup and second item is Speed of Setup.

6. Set and recall preset point:

Set up: Choose the address of PTZ to set or recall.

Then press [PRESET], LCD display: CAM:XXX Set preset :

Operate knob to move to corresponding point, and zoom lens to specified position, then press the preset point # to set, e.g 6, press 6 and [Enter], If you want tocontinue to set more, repeat the above operations, press [Esc] to exit Setup.

Recall: Press [SHOT], LCD will display: CAM:XXX call preset : , input the preset point #to recall, e.g [6], then press [Enter], to recall more repeat the above operations, [Esc] to exit recall.

7. Turn on/off AUX:

Turn on: Choose the address of PTZ or decoder to turn on.

Then press [AUX ON], LCD display: CAM: XXX aux on: , to turn on the AUX #1, press [1] and [Enter].

Turn off: Press [AUX OFF], LCD display: CAM:XXX aux off : , to turn off AUX #1, press [1] and [Enter].

Note: The above combined key might be no available form some protocols, or some products do not have this function. Therefore, some operations might not work on some devices. If you have similar problems, please refer to the manual of device to achieve some specific function.

8. Keyboard controller lock

This function is to manage keyboard controller via password to allow authorized user to operate. This function must be activated in keyboard controller setting menu.

Refer to details in 3.1.2.2.

In normal mode, press [Esc], LCD display: locked locked pw. ----

Input 4-digit password, press [Enter], the LCD backlight OFF.

Press any key, LCD display: locked open lock ----

Input password, press [Enter], the keyboard controller will be unlocked.

9. Control code memory function

Though the keyboard controller has integrated some protocols, but in many cases, there are still non-compatible protocols, even the same code of the same protocol, some characters might be still different.

E.g. For function of PELCOD patrol recording, some manufacturer use code FF TA 0007 00 00 CK, some FF TA 00 07 E0 E0 CK.

Note: FF is the prefix, no revising allowed.

TA is destination address, no revising allowed.

CK is check code, no revising allowed.

Thus code of PATROL FF TA 00 07 00 00 CK can be revised as FF TA 00 07 E0 E0 CK easily.

[PATTERN RECORD], [PATTERN STOP], [RUN], [PATROL], [TOUR], [AUTO] can be revised.

10. Code format introduction

Two code formats, one is simple code, the other is number & character code.

Simple code, refers to codes in fixed format, e. g FF TA 00 07 00 00 CK.

Codes with customized number, means fixed code used with customized number, which is denoted with -- , e.g. PELCOD has four formats for PATROL.

FF TA – - 07 00 00 CK

FF TA 00 – - 00 00 CK

FF TA 00 07 – - 00 CK

FF TA 00 07 00 – - Ck

Note: only one set of code can be numbers.

E.g. If we want to input FF TA -- 07 00 00 CK, input [1] and [Enter] when prompted.

Then in our final directive was issued to the FF TA 01 07 00 00 CK.

11. Enter code learn and revise code

For example, change PELCOD AUTO key code A0 TA 00 07 00 63 AF CK into A0TA -- 07 00 00 AF CK.

In normal mode, press [Setup] for 3 sec, LCD display: [Keyboard set] password

Input password (default 8888), press [Enter], LCD display: Set >>1 2 3 CAM set

Move knob rightwards two times,or move knob leftwards, LCD display: Set >>1 2 3 learn set

Press [Enter], LCD display: Set>>lear>>protocol Pelcod

Move knob rightwards or leftwards, LCD display: Set>>lear>>protocol PelcoP
Press [Enter], LCD display: Set>>lear>>button [pattern record]
Move knob rightwards three times, LCD display: Set>>lear>>button [auto]
Press [Enter], LCD display: A0 ta 00 07 00 63 af ^
Cursor will stop at the first 0.
Move knob downwards, LCD display: A0 ta - 0 07 00 63 af ^
Move knob rightwards, LCD display: A0 ta - 0 07 00 63 af ^ , cursor stops at the 2nd 0.
Move knob downwards, LCD display: A0 ta -- 07 00 63 af ^
Move knob rightwards for 5 times, LCD display: A0 ta -- 07 00 63 af ^
Move knob downwards for 6 times, LCD display: A0 ta -- 07 00 03 af ^
Move knob rightwards, LCD display: A0 ta -- 07 00 03 af ^
Move knob downwards for 3 times, LCD display: A0 ta -- 07 00 00 af ^
Press [Enter], buzzer will ring and LCD display: A0 ta -- 19 00 be af set success ,
next LCD will restore to [AUTO].
After Setup is completed, press [Esc] for 3 times to back to normal mode.
Note: When no learn code in memory, press [AUTO], LCD display: CAM:xxx A P;XXXXX BR:xxxx
the code sent by keyboard controller is A0 TA 00 07 00 63 AF CK. When learn code is available, the code sent by keyboard controller is A0 TA 01 07 00 00AF CK.

4. Learning to delete or re-installed

When certain key of certain protocol has been learned code, re-Enter learn mode, theLCD will display: Set>>lear>>in code del learn ? , Press [Enter] to delete, to learn more, move knob rightwards or leftwards, LCD will display: Set>>lear>>in code input instruction?

8. Keyboard Controller Parameter Setup and Inquiry

1. Keyboard controller protocol and Baud rate Setup

E.g. To set protocol of address 28 as PelcoP, Baud rate 9600.

The operations are:

In normal mode press [Setup] for 3 sec, LCD will display: [Keyboard set] password:

Input password (default 8888), press [Enter], LCD display: Set >> 1 2 3 cam set

Press [Enter], LCD display: Set >> cam 001 P:PelcoD

Press [2], [8] and [Enter] key, LCD display: Set >> cam 28 P:PelcoD

Move knob left, LCD display: Set >> cam 28 P:Pelcop

Press [Enter], buzzer rings, LCD display: Set >> cam 28 set success

Move knob downwards, LCD display: Set >> cam 28 BR: 2400

Move knob rightwards twice, LCD display: Set >> cam 28 BR: 9600

Press [Enter], buzzer rings, LCD display: Set >> cam 28 BR: 9600

After Setup is completed, press [Esc] for 3 times to back to normal mode. Note: To set the same protocol and baud rate for front device, Enter this screen: Set >> cam 0-255 P:PelcoD

Then set the protocol and baud rate.

3. Keyboard controller system parameter Setup

System parameters include password, restore default settings, key tone ON/OFF, key ID Setup, keylock, etc. We will describe the Setup process by taking restoring default settings and key lock as examples.

3. Restore default settings

In normal mode, press [Setup] for 3 sec, LCD display: [Keyboard set] password:

Input password (default 8888), press [Enter], LCD display: [Keyboard set] password:

Move knob rightwards, LCD display: Set>> 1 2 3 sys set

Press [Enter], LCD display: Set>>sys 1 2 3 4 5 edit pw

Move knob rightwards, LCD display: Set>>sys 1 2 3 4 5 factory

Press [Enter], LCD respond: Set>>sys>>factory sure?

Press [Enter] again, buzzer rings, LCD display: Set>>sys>>factory set success

Restoredefault settings successfully(to abort the process, press [Esc] for 2 times to back to normal mode).

Keyboard controller lock ON/OFF

In normal mode, press [Setup] for 3 sec, LCD display:	[Keyboard set] password:
Input password (default 8888), press [Enter], LCD display:	Set>> 1 2 3 cam set
Move knob rightwards, LCD display:	Set>> 1 2 3 sys set
Press [Enter], LCD display:	Set>>sys 1 2 3 4 5 edit pw
Move knob upwards, LCD display:	Set>>sys 6 lock set
Press [Enter], LCD display: Indicate the status of key lock.	Set>>sys>>lock set lock off
Move knob rightwards, LCD display:	Set>>sys>>lock set lock on
Press [Enter], LCD display:	Set >>sys >>lock set lock Pw: ----
Input 4-digit password, press [Enter], LCD display:	Set >>sys >>lock set set success
Press [Esc] for 2 times, exit Setup and back to normal mode.	

Keyboard controller parameter Setup framework

CAM SET	SET >> CAM XXX	P: (PROTOCOL)	PELCOD, PELCOP, SONIC1, SONIC2, B01, SSUNG,PIH717, HIK, KRE301, RULE, SAE, VISCA, PTC250, DAHUA, KALATE
		BR: (Baud Rate)	1200, 2400, 4800, 9600, 19200
	SET >>CAM 0-255	P: (PROTOCOL)	Ibid
		BR: (Baud Rate)	
SYS SET	EDIT PW	OLD PW	Figure 4
		NEW PW	Figure 4
		AGAIN PW	Figure 4
	FACTORY	SURE?	[Enter] Confirmed [Esc] Withdrawal
	LOAD ISP	SURE?	[Enter] Confirmed [Esc] Withdrawal
	SOUND	SOUND ON	Choose with Knob
		SOUND OFF	Choose with Knob
	KB ID:	KEYBOARD ID	Number [0] - [15]
	LOCK SET	LOCK OFF	Choose with Knob
		LOCK ON	[Enter] Enter a password state

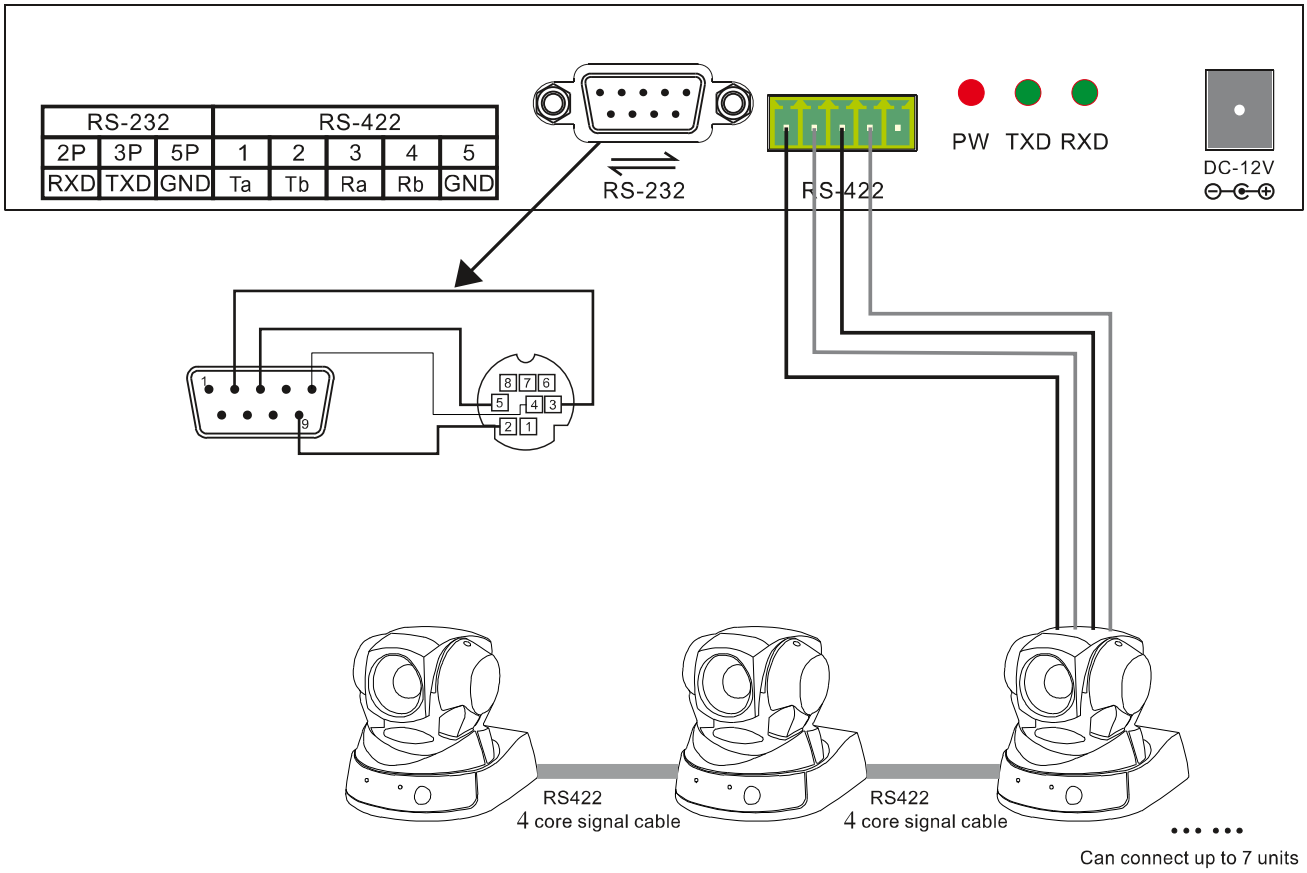
LEARN SET	SET > LEAR > PROTOCOL PelcoD	[PATTERN RECORD], [STOP PATTERN], [RUN PATTERN], [AUTO], [ATROL NO], [PATROL TIME], [PATROL SPEED], [RUN PATROL], [DIRECT ZOOM], [DIRECTPAN], [DIRECT TILT]
	SET > LEAR > PROTOCOL PelcoP	

Keyboard controller parameter inquiry

In normal mode, press [Search] to inquiry about keyboard controller status and parameter framework.

P: xxxxx **B: xxxx**	The agreement addresses the control and baud rate		
> PTZ SEARCH	>Address: 001	Protocol	Address correspondence agreement
		Baud Rate	Address correspondence Baud Rate
> SYSTEM SEARCH	KEYBOARD ID: XX	Two of the keyboard controller ID	
	SYS SN: XXXXXXXX	8 fuselage numbers	
	MODEL: XXXXXXXXXX	Ten of the largest Model	
	LOCK XXX(ON/OFF)	That set up the current situation Keyguard	
	SOUND XX(ON/OFF)	Key tone or sound can be turned ON or OFF.	

Typical connecting diagram



Introduction:

1. Control code output: should be connected to Ta of keyboard controller, RS485- to Tb. Uplink control: Ra of keyboard controller to Ta of slave device, Rb to Tb.

2. Vice-control equipment: the DVR can be RS485 output, keyboard controller, RS485 output.
Function features: Both master keyboard controller and other slave devices can control the PTZ, to enable customer to enjoy remote control and the easy on-site operations.

9. FAQ

Symptom: Keyboard controller cannot control the PTZ.

Analysis 1: check the hardware: RS485.

Methods:

Step 1: RS485 A and B is reversed.

Step 2: Check RS485 cable continuity is OK or not.

Analysis 2: Check the software settings: keyboard controller and PTZ address, protocol, baud rate.

Methods:

Step 1: Press “SEARCH“ to check the current protocol and baud rate is correct or not.

Step 2: Restore the settings to default setting and reset.

Analysis 3: Check PTZ LED will flicker or not when communicating with PTZ.

Methods:

Step 1: If PTZ LED flickers, the keyboard controller is free of problems.

Step 2: If PTZ LED does not flicker when communicating, the RS485 port might be defective.

Symptom: Slave device cannot control PTZ.

Analysis 1: Check hardware RS485 cable.

Methods:

Step 1: Check RS485 A and B is reversed or not.

Step 2: Check RS485 cable continuity is OK or not.

Analysis 2: Check the AUX LED on master keyboard controller will flicker or not when communicating.

Methods: If PTZ LED flickers, then the settings of slave device might be the problem. Please check address, protocol and baud rate.

9. FAQ - continued

Symptom: Some PTZs can be controlled but some not.

Analysis 1: Check hardware
Methods: Check the continuity of each branch cable

Analysis 2: Check software settings
Methods: Check the protocol and baud rate of each address code.

Analysis 3: Might be the connecting diagram
Methods:
Step 1: connect to RS 485 a 120Ω at far end.
Step 2: Install RS485 hub at the connect of figure star.

Symptom: One operation of keyboard controller, a few PTZs respond simultaneously.

Analysis: Check the address code of front device.
Methods: Check whether those PTZ that respond simultaneously have the same address code or not. Set different address.

Symptom: Forget key lock password.

Methods: In any status, press Setup till system setting menu appear, reset password.

Symptom: No key tone.

Methods: Turn on key tone in system settings.

11. Warranty

Marshall Electronics warranties to the first consumer that this V-PTC-150, keyboard controller will, under normal use, be free from defects in workmanship and materials, when received in its original container, for a period of one year from the purchase date. This warranty is extended to the first consumer only, and proof of purchase is necessary to honor the warranty. If there is no proof of purchase provided with a warranty claim, Marshall Electronics reserves the right not to honor the warranty set forth above. Therefore, labor and parts may be charged to the consumer. This warranty does not apply to the product exterior or cosmetics. Misuse, abnormal handling, alterations or modifications in design or construction void this warranty.
No sales personnel of the seller or any other person is authorized to make any warranties other than those described above, or to extend the duration of any warranties on behalf of Marshall Electronics, beyond the time period described above.

Due to constant effort to improve products and product features, specifications may change without notice.

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