SEADA SDC-TR01 Control Keyboard User Manual

SEADA SDC-TR01 Control Keyboard User Manual

Attentions

The descriptions in this manual may differ from the version you are using. If you are having trouble during using this manual, please contact our technical support for assistance. The contents of this manual will be updated, and our company reserves the right to leave it without notice.

Description

SDC-TR01 camera control keyboard is designed to work with all PTZ cameras via RS232/422/485 with PELCO-P, PELCO-D or VISCA protocols. Each unit of SDC-TR01 control keyboard incorporates an LCD display, making for professional video conferencing with control of maximumly 255 PTZ cameras.

This compact control keyboard is equipped with an ergonomic 4D joystick, allowing adjustment for PTZ camera movements. The intuitive keyboard-style buttons support precise and quick control over various features such as camera switch, focus, exposure and backlight compensation.

SDC-TR01 control keyboard can be widely used in video conferencing, distance learning/training, telemedicine and distance interview in schools, hospitals, workshops and so on.

Contents

Product Overview

Product Features

- Support RS422/485/232 control interfaces
- Support up to 255 cameras
- Support VISCA, PELCO-P, PELCO-D, protocol
- Support 4D joystick to control camera PTZ function
- Support controls of camera rotation, zoom, exposure, focus and so on
- Support displaying the real-time working status on its LCD display
- Support button sound prompt function
- Support recovery from short circuit on RS422 with its over-current protection ability
- Support up to 1200m communication distance on RS485 (0.5mm Twisted Pair Cable)

Technical Parameters

Communication Mode	Serial Port: RS422, RS232, RS485
Communication Protocols	Serial Port: Visca, Pelco-D, Pelco-P
Communication Baud Rate	2400, 4800, 9600, 19200bps
Interface Method	5pin crimping terminal, RS232 interface
Joystick	4 Dimension (Control up, down, left, right, zoom, lockjoystick)
Display Method	Blue screen LCD display
Prompt Sound	Button sound prompt on/off
Input voltage	DC12V
Power Consumption	6W MAX
Operating TemperatureRange	-10°C-50°C
Operating Humidity Range	10%-90%
Storage TemperatureRange	-20°C-70°C
Storage Humidity Range	10%~90% non-condensing
Dimension	320mm (L) x 180mm (W) x 107mm (H)
Upgrade Method	RS232-USB upgrading
Warranty	2 years

Precautions

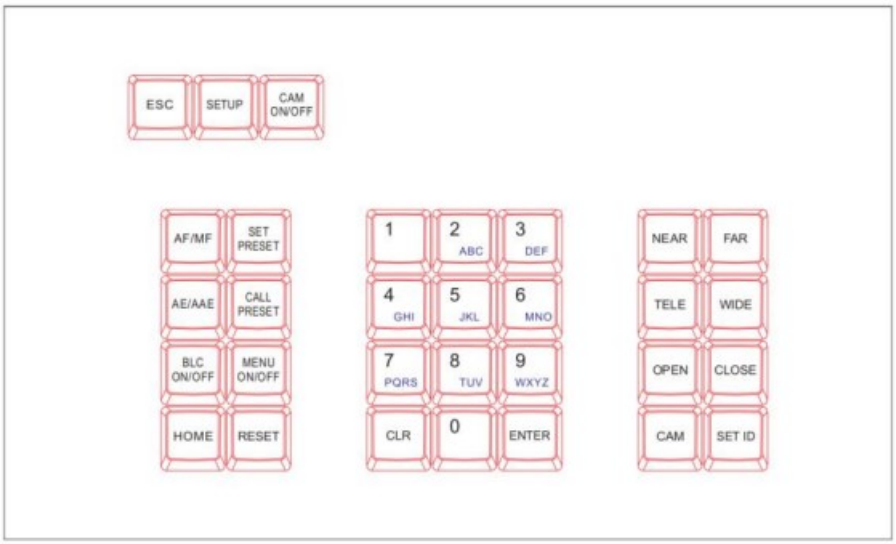
- LCD Screen is fragile, do not squeeze or leave under harsh lighting for too long.
- The joystick rocker is fragile. Do use the original package or properly packaged if the item is damaged before shipping back.
- Keep the Control Keyboard in a temperature and humidity-controlled environment.
- Strictly follow the manual for correct connection

Accessories List

Name	**Quantity**	**Unit**
5PIN Plug	1	Pc
DC-12V2A Power Adapter	1	Pc
DB9F to MD6M Cable	1	Pc
Download Card	1	Pc

System Diagram

Keyboard Buttons Analysis



Button Functions

ESC Exit and back to former menu.
SETUP Parameter settings button: Long press (3 seconds) to enter the parameter setting status.
CAM ON/OFF Camera power on/off button.
AF/MF Auto focus / manual focus: Manual focus needs to work together with [FOCUS]+ or [FOCUS-] button.
SET PRESET Preset settings button, working together with number keys and the [ENTER] button.
CALL PRESET Call presets button, working with the number keys and the [ENTER] button.
AE/AAE Auto Exposure / Aperture priority button, working together with OPEN and
CLOSE buttons
BLC ON/OFF : Back light compensation ON/OFF button.
MENU ON/OFF : MENU ON/OFF button.
HOME : HOME button.
RESET : Pan/tilt reset button.
CLR Clear button: clear the current inputs.
0 ~ 9 Number keys: 0,1,2,3,4,5,6,7,8,9.
ENTER Confirmation key: Confirm the current inputs.

NEAR Focus in: manually focus in to make far distance objects clearer. FAR Focus out: manually focus out to make near distance objects clearer.
TELE Narrow-angle button/ Zoom-in button: increase lens magnification, reduce the lens field of view, enlarge the monitor target.
WIDE Wide-angle button/Zoom out button: reduce lens magnification, expand lens field of view and monitoring range.
OPEN Aperture plus button: Increase aperture manually. When the aperture is at its maximum, the LCD screen text is displayed in full white. When the camera menu mode is turned on, the next level menu is entered.
CLOSE Aperture minus button: Reduce manual aperture. When the aperture is at its minimum, the LCD screen is displayed as black. When the camera menu mode is turned on, the menu is returned to the previous menu.
CAM Address selection button: Select the address of the control device (decoder or camera), it needs to use together with the number keys and [ENTER] button.
SET ID Set ID button: long press 3s to set the cascade camera protocol address.

LCD screen display

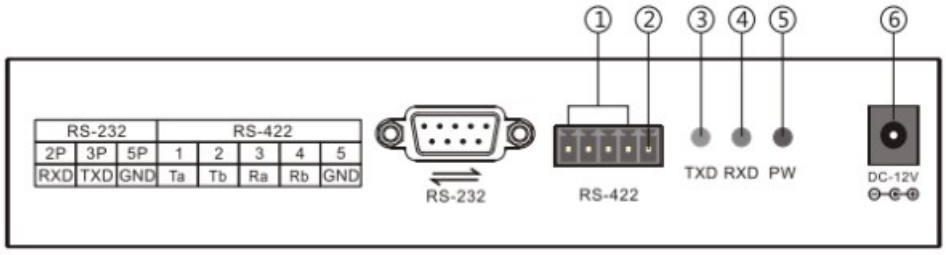
All button operations will be displayed on LCD screen. It would enter power saving mode (with darkest light), with initialising status displayed if no operation for 30 seconds

Joystick Control

Operation	Output Control	Operation	Output Control	Operation	Output Control
	UP		Down		Left
Operation	**Output Control**	**Operation**	**Output Control**	**Operation**	**Output Control**
	Right		Zoom In		Zoom Out

Back Panel Interfaces

Back Panel Details: 1x 5PIN crimping terminal interface, 1 x RS232 interface, 1xDC-12V power socket, 3 x indicator lights as picture below:



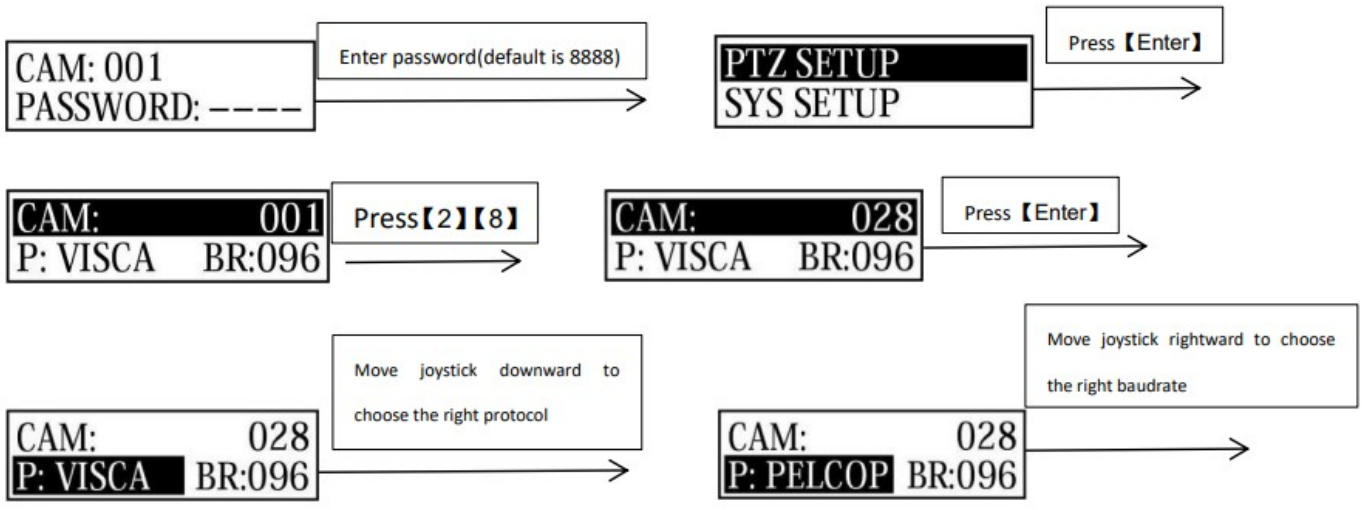
Functional number description

Number	Label	Physical interface	Description
①	RS-422	Control output (Ta, Tb, Ra, Rb)	1. To connect RS485 bus: (Ta) to connect RS485+, (Tb) to connect RS485-; 2. to connect RS422 Bus: (Ta) to connect RXD IN-, (Tb) to connect RXD IN+, (Ra) toconnect TXD IN-, (Rb) to connect TXD IN+
②	Ground	Control line to ground (G)	Signal control line to ground.
③	PW	Power indicator	The light will always be red when keyboard is working.
④	TXD	Sending data indicator	The light will flicker in green when sending data
⑤	RXD	Receiving data indicator	The light will flicker in green when receiving data.
⑥	DC-12V	Power input	DC12V power input

Parameter Setting and Query

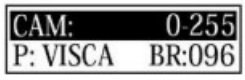
PTZ Setup

E.g., With address 28, steps for Pelco-P protocol and baud rate 9600 are as follows: Press SETUP button for 3 seconds under normal working mode, it displays as follows:



Then press ENTER , there will be a 1sec beep sound when setting done. Press ESC 3 times to back to normal working mode.

Note: Steps to set all devices to be with same protocol and baud rate are as follows:

Enter the setup page 

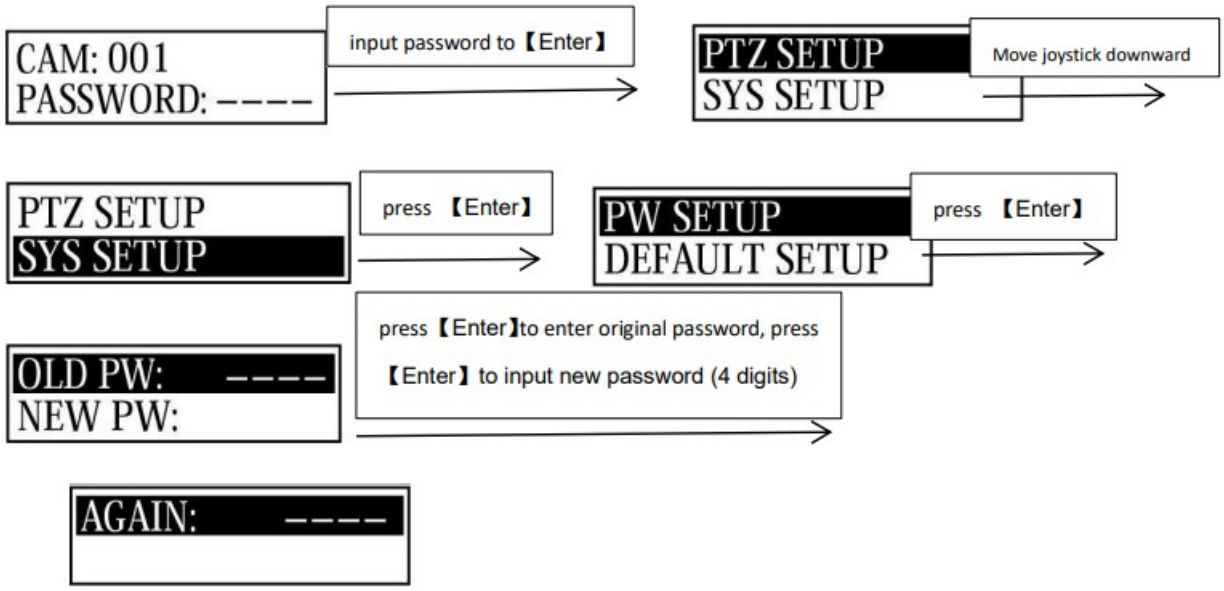
and choose the corresponding protocol and baud rate. All devices within 0-255 addresses will be set with the same protocol and baud rate.

System Setup

System setup includes password setting, restore factory setting, Indicate sound switch setting, Keyboard ID and Keyboard lock switch setting. Here shows the steps to restore factory setting and set keyboard lock switch.

Password Setting

Press SETUP button for 3 seconds under working mode, it displays as follows:

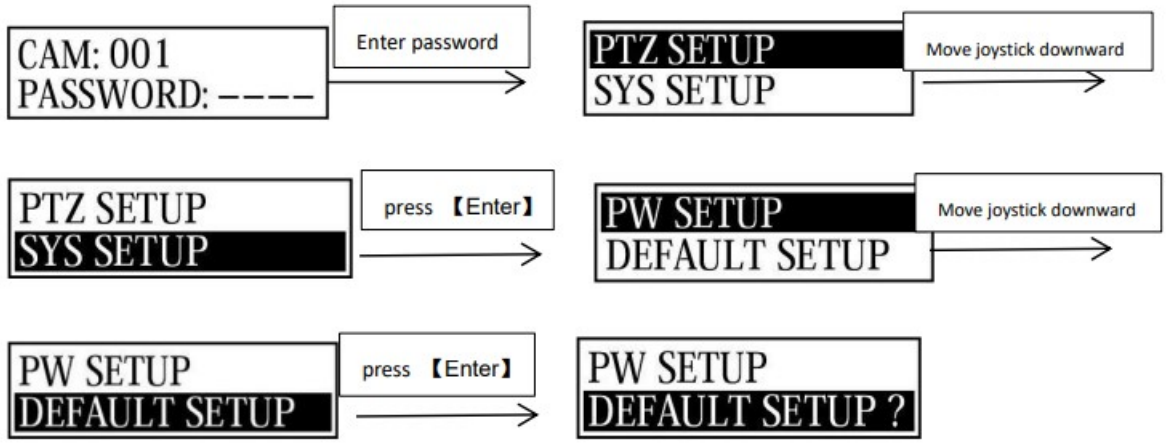


Then input the new password again, press ENTER , there will be a 1sec beep sound when setting done.

Press ESC twice to back to normal working mode.

Restore Factory Setting

Press SETUP button for 3 seconds under working mode, it displays as follows:



Press ENTER , there will be a 1sec beep sound when setting done.
Press ESC twice to back to normal working mode.

Keyboard Parameter Setting Frame

>PTZ Setup	Camera address: XXX (to be set)	PROTPCOL	PELCO-D, PELCO-P,RULE, etc.
		Baud Rate	2400, 4800, 9600,19200
	Camera address:0-255 (all set the same)	Same as above	
>SYSTEM Setup	>SET PASSWORD	OLD PW: old password	4 digits
		NEW PW (new password	4 digits
		AGAIN PW: (confirm password	4 digits
	>LOAD DEFAU(Restore factory setting)	confirm	Press ENTER to confirm, and ESC to exit.
>SYSTEM Setup	>SOUND SETUP(button sound switch setting)	ON	Move joystick right/left and press ENTER to confirm
		OFF	
	>HOST ID SET	Keyboard address	Number **0** – **15**
	>LEARN SETUP(keyboard lock setting)	ON	Move joystick right/left and press ENTER to confirm to set password
		OFF	

Keyboard Parameter Query

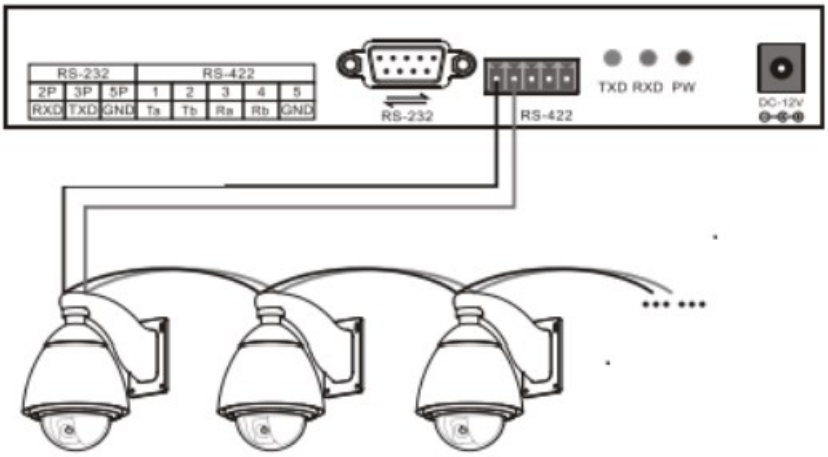
Protocol: X Baud rate: X	current control protocol and baud rate.		
Camera query	Camera protocol: 001	protocol	Corresponding protocol
		Baud rate	Corresponding baud rate
System query	Model number: XXXXXXXX	Max 10 digits	
	Serial number: XXXXXXXX	8 digits serial number on camera	
	Device number: XX	2 digits keyboard ID number	

	Keyboard lock (ON/OFF)	Display the current setting of the keyboard lock
	Sound (ON/OFF)	Display the setting of the current button sound prompts

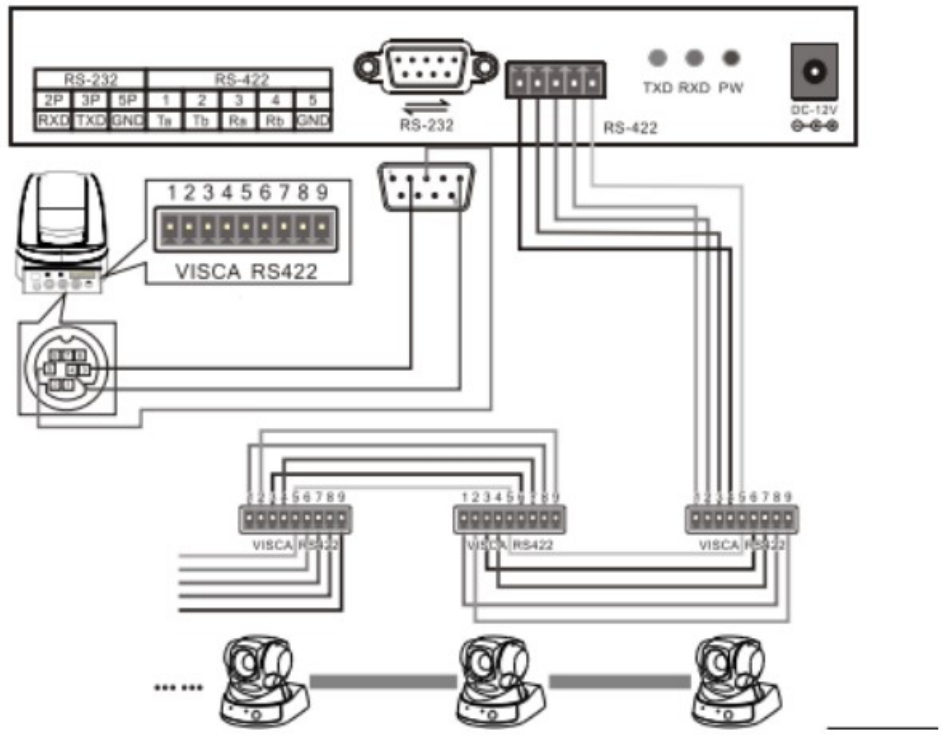
Typical wiring diagram

Typical wiring diagram

Connection with surveillance dome camera



Connection with video conference camera



1. Control output: connect camera RS485+ with keyboard Ta, RS485- with Tb.
2. Deputy control device: either RS485 output from DVR or keyboard is available

Connection Analysis

Connection between keyboard and camera

With RS422 bus connection way, the keyboard third pin (Ra) is connected with the camera third pin TXD IN-, the keyboard fourth pin (Rb) with the camera fourth pin TXD IN+, the keyboard first pin (Ta) with the camera first pin RXD IN-, the keyboard second pin (Tb) with the camera second pin RXD IN

Keyboard/CAMERA

- Ra: TXD INRb: TXD IN+
- Ta: RXD INTb: RXD IN+

With RS232 connection way, the keyboard (10pin connecting terminal) first pin RXD is connected with the third pin TXD of camera RS232 port, the keyboard second pin TXD with the camera fifth RXD, the keyboard third GND with the camera forth pin GND. (It is also available to connect camera with the standard RS232 port on the keyboard.)

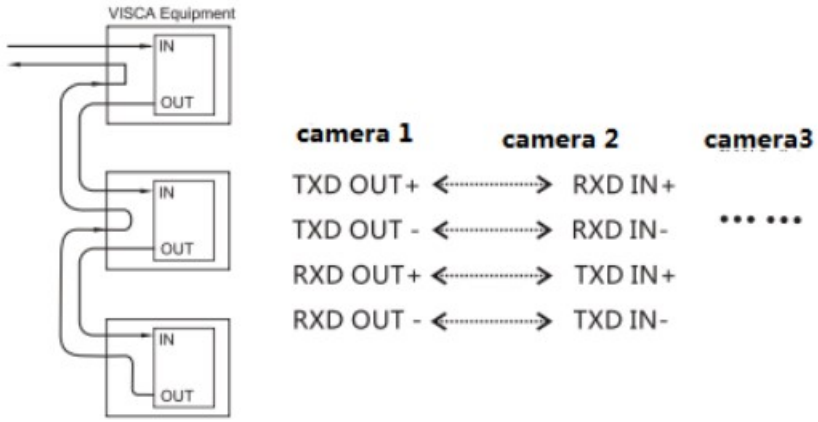
Keyboard/CAMERA

- RXD: TXD
- TXD: RXD
- GND: RXD

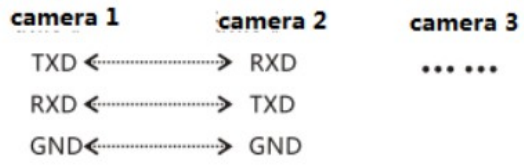
The camera can be controlled by any connection way mentioned above.

Connection between cameras

With the RS422 bus cascade connection, the output of camera 1 is connected with the input of camera 2, and the output of camera 2 is connected with the input of camera 3, and so on so forth. As shown below:



The RS232 cascade connection way is almost the same as that of RS422. The output of camera 1 is connected with the input of camera 2, the output of camera 2 is connected with the input of camera 3, and so on so forth.



Appendix

RS485 bus introduction:

RS485 bus, RS is the abbreviation of English “recommended standard”, 485 is the identification number. The RS485 serial bus is widely used in applications where the communication distance ranges between dozens of meters to 1km more. RS485 uses balanced transmitting and split receiving, so it can reject common mode interference. In addition to the high sensitivity of the bus transceiver, it can detect voltages as low as 200mV, so the transmitted signal can be recovered beyond the kilometres away. As RS485 adopts half-duplex working mode, and only one point is allowed to be under sending status any time, the transmitting circuit must be controlled by the enable signal. RS485 is very convenient for multi-point interconnection, which help save many signal lines. RS485 can be used to make a distributed system, which allows up to 128 drivers and 128 receivers to be connected in parallel, depending on the chip used by the driver and receiver, and the bus drive capability is limited

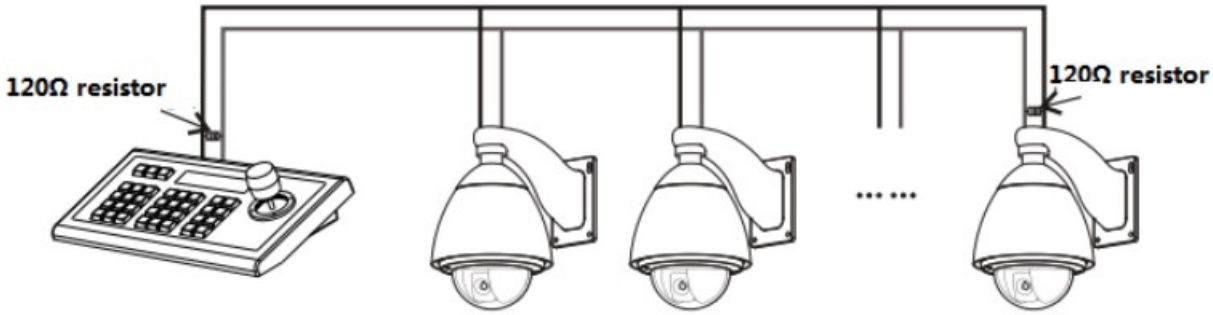
by the weakest one. However, in practical applications we can extend it with the RS485 distributor

Transmission distance

When a 0.56mm (24AWG) twisted pair cable is used as the communication cable, the theoretical value pf the maximum transmission distance varies with different baud rate: 1800 meters can be transmitted when the baud rate is 2400 bps, and 600 meters under 19200 bps. When using a thinner communication cable or using the product in an environment with strong electromagnetic interference, or when too many devices are connected with the bus, the maximum transmission distance will be shortened accordingly, or the maximum distance is longer.

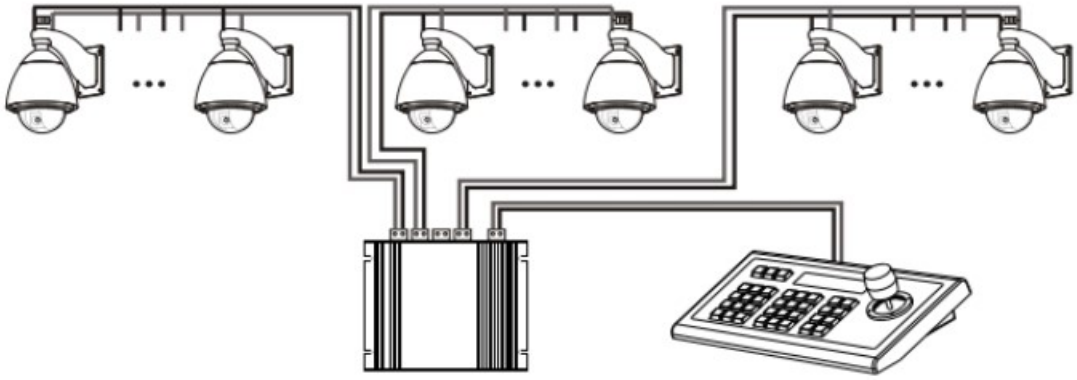
Connection method and terminating resistor

The RS485 industrial bus standard requires daisy chain connection between devices. The two ends must be connected with a 120Ω termination resistor. The two balance distances must be within 7m.



Problems in Actual Application

The star link mode will always be used in actual constructions, requiring the terminating resistor to be linked with the two devices in the farthest distance. But it does not meet the RS485 industry standards. When the distance between each device is too short, signal reflection and anti-interference ability reducing would frequently happen, which will decrease the reliability of the control signal. It means the camera will not be under control or under control intermittently. In this case, the application of RS485 distributor is recommended, which can effectively convert the star link mode to one qualified by the RS485 industry standards. It will help avoid problems and improve the communication reliability.



Troubleshooting

Troubles	Analysis	Solutions
PTZ S surveillance Camera cannot be controlled by SDC-TR01	1.check RS485 cable	Step 1: Whether the RS485 A and B are reversed, Step 2: check wh ether the RS485 line is short-circuit ed when power off.
	2.check the correspondence of camera protocol and baud rate setti ngs with those ofSDC-TR01	Step 1: Check whether the current protocol and baud rate are correspondent. Step 2: Restore the SDC-TR01default settingsand then reset it.
	3.Check whether the PTZ indicator light flickering when control.	Step 1: If the PTZ indicator light flic kers when control, then there is no problem with SDC-TR01.Step 2: If t he PTZ indicator light does not flas h when control, there is some probl em with the RS485 output of the ke yboard .Please return to factory for repairing.
Video conference camera cannot b e controlled by SDC-TR01	1.check the control cable	Make sure a right connection of the control cable.
	2.check the correspondence of camera protocol and baud rate setti ngs with those ofSDC-TR01	Check whether the current protocol and baud rate of each address are correspondent. Please refer to cam era user manual.
Not all cameras can be controlled b y SDC-TR01.	1. Inspect accessories.	Inspect all connection cables.
	2.Check settings.	Check whether the current protocol and baud rate of each address are correspondent.

	3.Probably a problem with star wiri ng.	Step 1: At the farthest end of RS48 5, connect an impedance of 120Ω.Step 2: Add RS485 distributo r to the star connection
Some cameras rotate at the same t ime when control.	1.Inspect camera address setting.	Check if the address codes of the c ameras that are moving together ar e the same, please stagger the add ress code settings. (Note: you need to restart after modifying the dialing switch to take effect)
Forget the locking password	Long press the [SETUP] key to enter the system settings and reset the pa ssword, if happened at any time.	
Button silent	Enter the system settings and turn on the button sound.	

Copyright Statement

Website: www.seada.co.uk

Email: sales@seada.co.uk

Documents / Resources

	SEADA SDC-TR01 Control Keyboard [pdf] User Manual SDC-TR01 Control Keyboard, SDC-TR01, Control Keyboard, Keyboard

References

- Video and HDMI Video Wall Controller | Seada