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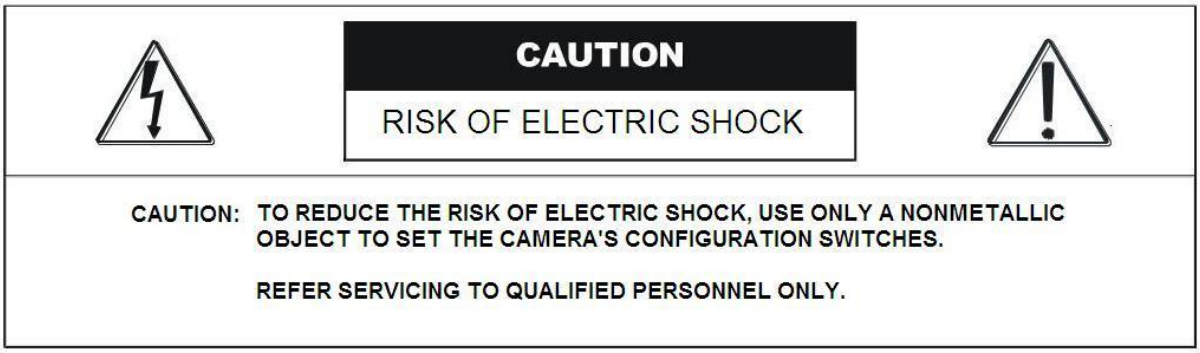
Model No.: **RCPTS700-1**

PAN/TILT DOME CAMERA

INSTRUCTION MANUAL

V0.1

Thank you for purchasing this product. Before installing the camera, please read this instruction manual carefully to ensure proper usage.



1. Safety Precautions

- Take care when installing the camera. Do not connect power unless the camera's gimbal is free to turn normally. After initial configuration, do not apply power to the camera until the installation is complete.

- Wiring: Use appropriate cables and wires for video, power, and RS-485 connections.

- Electrical Safety: The camera's installation must be in accordance with all applicable electrical codes and ordinances.

- Cleaning: Use only water and a soft, clean cloth to clean the camera's transparent dome, taking care not to scratch it. Use only a soft cloth, water, and a mild detergent to clean the camera's painted metal enclosure and mounting bracket.

- Ensure that the camera's transparent dome is tightened securely before use. Do not allow any liquid or foreign material into the body of the camera, as doing so may cause irreparable damage.

- Do not operate the camera beyond the specified temperature

range of -13°F (-25° C) to +122°F (+50°C). Only operate the camera in environments with non-condensing humidity levels less than 90%.

- Do not install the camera near the air outlet of an air conditioner or heater, or in any environment with rapid temperature fluctuations.

- Do not install the camera in any environment where the humidity might change rapidly, or in an environment with excessive smoke or dust.

- Avoid pointing the camera's lens directly at any intense source of light, such as the sun, as sensor damage may result.

2. Description

The indoor pan/tilt camera uses a highly sensitive 1/3" CCD color image sensor that provides long life and high reliability and is not subject to distortion from magnetic fields.

This camera is easy to install and is an excellent choice for your CCTV system.

3. Features

- 1/3" CCD color image sensor.
- Auto White Balance.
- Day Mode / Night Mode operation (Color image when adequate light is present, Black and White image in low light conditions)
- Precise stepper motor controlled pan/tilt mechanism allows remote operation, using an RS-485 signal, from a DVR or a joystick keyboard controller.
- Continuous horizontal 360° panning rotation (left/right) and 90° tilt angle (up/down) motion.
- Settable RS-485 address (ID) allows additional cameras to use the same RS-485 wiring.

- Automatic protocol detection: Pelco-D and Pelco-P.
- Settable baud rate.
- Adjustable motor speed.
- 212 presets (saved horizontal and tilt angle views) can be saved and retrieved.

- Auto Tour - The camera can automatically tour through any of 8 different ordered lists, each containing as many as16 presets.
- Auto Scan – The camera will pan continuously or back-and-forth between set limits.
- Sensitive to infrared light for use with external infrared light sources in dark environments.

4. Contents

Item	Name	Quantity
1	Camera	1
2	Instruction Manual	1
3	Bag	1
3A	Fixed Retaining Screws for Mounting	4
3B	Plastic Anchors	4
5	100ft. Cable (Video, Power, RS-485)	1
6	Wall Adapter 120VAC to 12VDC@1A	1

5. RS-485 Address, Protocol, and Baud Rate Setting.

Address (ID) setting:

Set DIP switches 1 (least significant bit) through 8 (most significant bit) to set the RS-485 address of the camera. The address can be set from 0 through 255, and must be matched to the RS-485 address (often called the “ID”) in use by the controlling DVR or joystick keyboard. Once set, the camera’s address does not need to be changed. If more than one RS-485 device is connected using the same RS-485 wiring, make sure that each device has a different address.

A switch in the “up” (or “ON”) position is set to 1.
A switch in the “down” (or “OFF”) position is set to 0.

Note that some DVRs or joystick keyboards may not support an address of 0 (00000000 on DIP switches).

The address is interpreted by the camera as reversed binary, such that address 1 would be set as 10000000, and address 128 would be set as 00000001. The first several RS-485 addresses are as follows:

DIP Switch	Address	DIP Switch	Address	DIP Switch	Address	DIP Switch	Address
00000000	0	11110000	15	01111000	30	10110100	45
10000000	1	00001000	16	11111000	31	01110100	46
01000000	2	10001000	17	00000100	32	11110100	47
11000000	3	01001000	18	10000100	33	00001100	48
00100000	4	11001000	19	01000100	34	10001100	49
10100000	5	00101000	20	11000100	35	01001100	50
01100000	6	10101000	21	00100100	36	11001100	51
11100000	7	01101000	22	10100100	37	00101100	52
00010000	8	11101000	23	01100100	38	10101100	53
10010000	9	00011000	24	11100100	39	01101100	54
01010000	10	10011000	25	00010100	40	11101100	55
11010000	11	01011000	26	10010100	41	00011100	56
00110000	12	11011000	27	01010100	42	10011100	57
10110000	13	00111000	28	11010100	43	01011100	58
01110000	14	10111000	29	00110100	44	11011100	59

Baud rate setting:

Set DIP switches 9 and 10 to set the RS-485 baud rate of the camera. The baud rate can be set to 2400, 4800, 9600, or 19200 bps. Make sure that the baud rate of the camera matches the baud rate of the controlling DVR or joystick keyboard.

A switch in the “up” position (“ON”) is set to 1.
A switch in the “down” position (“OFF”) is set to 0.

Baud rate DIP switch table:

DIP Switch	2400 bps	4800 bps	9600 bps	19200 bps
9	0 (Down or OFF)	1 (Up or ON)	0 (Down or OFF)	1 (Up or ON)
10	0 (Down or OFF)	0 (Down or OFF)	1 (Up or ON)	1 (Up or ON)

NOTE: The camera must be powered down and then powered up to enable any changes made to the DIP switch settings.

Protocol setting:

No camera settings are needed, as the camera will automatically detect Pelco-D or Pelco-P protocols. Make sure that the controlling DVR or joystick keyboard has been set to use only Pelco-D or Pelco-P as the RS-485 protocol.

If your DVR or joystick keyboard has additional RS-485 settings, make them match the following:

Data Bit: 8 Stop Bit: 1 Parity: NONE

6. Function Numbers

Function Set/Call (Store/Retrieve):

A preset point ("Preset") is a memorized pan/tilt camera position. Many presets can be set (created) and then called (retrieved) easily to avoid having to use a mouse or joystick to move the camera precisely to a desired view.

The camera supports a maximum of 212 presets.

The method to set and call presets will depend on the method of camera control (for example, REVO Remote Pro on a PC, REVO Mobile on a mobile device, direct DVR control or control via a joystick keyboard.) Refer to the user's documentation for the controlling device. In general, the preset number (which is stored in the camera) and the function (set or call) will be supplied to the camera using the controlling device.

To set (create) a preset position, first move the camera's pan axis and tilt axis to the desired view, then use the controller's preset "set" command and the desired preset number. The view will be stored in the camera.

To call (view) a preset position, use the controller's preset "call" command and the desired preset number to tell the camera to move to the previously stored view.

For example, if the REVO Mini Keyboard is being used to control the camera, "set" and "call" can be performed by doing the following:

- A "set" command can be made by inputting the desired function number on the keyboard, then pressing the "PRESET" button.

- A "call" command can be made by inputting the desired function number on the keyboard, then pressing and holding the "SHIFT" button, then pressing the "PRESET" button, and then releasing both buttons at the same time.

NOTE: Not all function numbers are used to store preset (camera view) positions. Some function numbers are used for special camera functions. Please refer to the following chart.

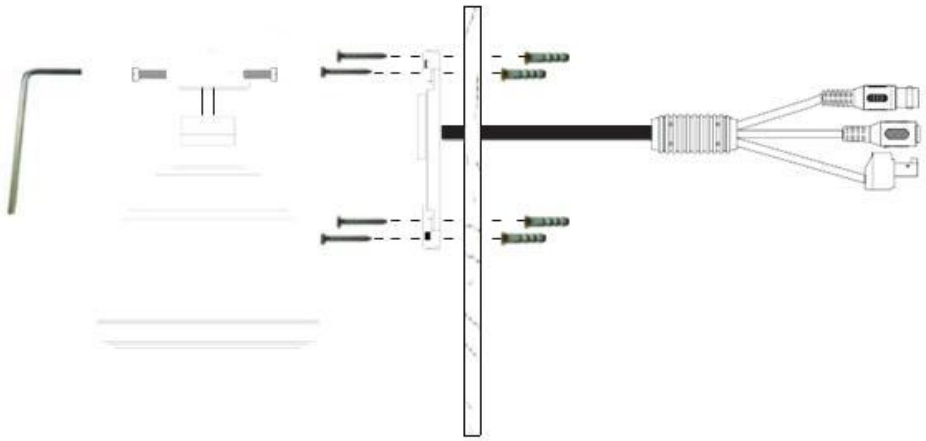
Function Number	Function	Function Description
1 - 16	Presets	“Set” to save view, “Call” to move camera to view.
17 - 32	Presets	“Set” to save view, “Call” to move camera to view.
33	Preset	“Set” to save view, “Call” to move camera to view.
34	Reset Camera’s Origin	“Call” to reset the camera’s motors to their factory origins. Do this if the presets fail to point properly.
35	Left Limit Auto Scan	“Set” to define the camera’s left-most limit during Auto Scan.
36	Right Limit Auto Scan	“Set” to define the camera’s right-most limit during Auto Scan.
37	Preset	“Set” to save view, “Call” to move camera to view.
38	Auto Scan	“Call” begins an Auto Scan between the left and right limits set with functions 35 and 36. “Set” clears the left-most (35) and right-most (36) limits for Auto Scan.
39	Preset	“Set” to save view, “Call” to move camera to view.
40	Reset Camera	“Set” resets the camera to factory defaults, and erases all settings except right and left limits (35 and 36). NOTE: THIS WILL DELETE ALL SAVED PRESETS!
41	Auto Tour 1	“Call” moves the camera automatically between presets 1 through 16. “Set” deletes all presets between 1 and 16.
42	Auto Tour 2	“Call” moves the camera automatically between presets 17 through 32. “Set” deletes all presets between 17 and 32.
43	Auto Tour 3	“Call” moves the camera automatically between presets 65 through 80. “Set” deletes all presets between 65 and 80.
44	Auto Tour 4	“Call” moves the camera automatically between presets 113 through 128. “Set” does not delete presets between 113 and 128.
45	Auto Tour 5	“Call” moves the camera automatically between presets 129 through 144. “Set” does not delete presets between 129 and 144.
46	Auto Tour 6	“Call” moves the camera automatically between presets 145 through 160. “Set” does not delete presets between 145 and 160.
47	Auto Tour 7	“Call” moves the camera automatically between presets 161 through 176. “Set” does not delete presets between 161 and 176.
48	Auto Tour 8	“Call” moves the camera automatically between presets 177 through192. “Set” does not delete presets between 177 and 192.
49	Not Used	Not Used
50	Preset	“Set” to save view, “Call” to move camera to view.

Function Number	Function	Function Description
51	Pause Time Auto Tour	“Set” this function number to change the Auto Tour pause time to 2 seconds.
52	Pause Time Auto Tour	“Set” this function number to change the Auto Tour pause time to 4 seconds.
53	Pause Time Auto Tour	“Set” this function number to change the Auto Tour pause time to 6 seconds.
54	Pause Time Auto Tour	“Set” this function number to change the Auto Tour pause time to 8 seconds.
55	Pause Time Auto Tour	“Set” this function number to change the Auto Tour pause time to 10 seconds.
56	Not Used	Not Used
57	Preset	“Set” to save view, “Call” to move camera to view.
58	Preset	“Set” to save view, “Call” to move camera to view.
59	Preset	“Set” to save view, “Call” to move camera to view.
60	Motor Speed Pan/Tilt	“Set” this function for fast dome motor speed. “Call” this function for very slow dome motor speed.
61	Speed Auto Scan	“Set” this function to set the Auto Scan pan speed to 6° per second.
62	Speed Auto Scan	“Set” this function to set the Auto Scan pan speed to 9° per second.
63	Speed Auto Scan	“Set” this function to set the Auto Scan pan speed to 15° per second.
64	Speed Auto Scan	“Set” this function to set the Auto Scan pan speed to 40° per second.
65 - 80	Presets	“Set” to save view, “Call” to move camera to view.
81 - 112	Presets	“Set” to save view, “Call” to move camera to view.
113 - 128	Presets	“Set” to save view, “Call” to move camera to view.
129 - 144	Presets	“Set” to save view, “Call” to move camera to view.
145 - 160	Presets	“Set” to save view, “Call” to move camera to view.
161 - 176	Presets	“Set” to save view, “Call” to move camera to view.
177 - 192	Presets	“Set” to save view, “Call” to move camera to view.
193 - 254	Presets	“Set” to save view, “Call” to move camera to view.

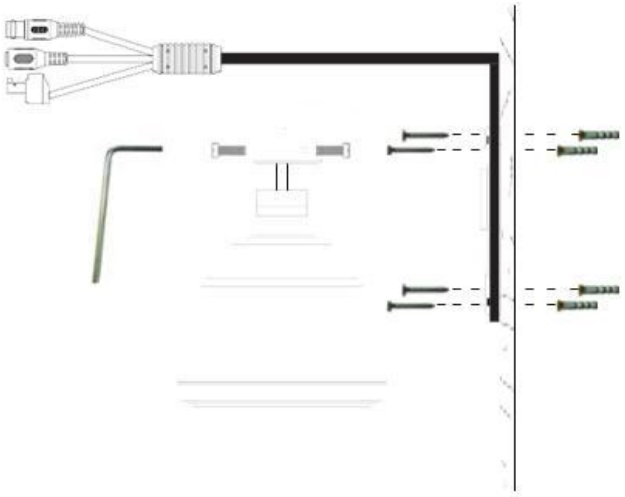
7. Pan/Tilt Dome Camera Installation

Unscrew the dome camera's transparent dome. Set the DIP switches for the desired address (ID) and baud rate. Use an RS-485 DVR or joystick keyboard to verify the camera's operation. When proper RS-485 operation has been verified, reattach the dome, securing it tightly.

Determine the camera's location, and mark the location of the mounting screw holes.



Drill holes in the mounting surface, and affix the camera using the supplied screws and plastic anchors. The BNC video cable can go straight through an additional, larger hole drilled into the mounting surface, or against the mounting surface using the slot at the bottom of the camera's base.



Connect the camera’s BNC video cable and RS-485 wiring to your DVR and (optional) joystick keyboard.

Ensure that the camera’s RS-485 “+” wire is connected to the controlling device’s “+” or “A” connection.

Also ensure that the RS-485 “-” wire is connected to the controlling device’s “-” or “B” connection.

Supply 12VDC to the camera using the 2.1mm power connector.

8. Specifications

Model No.: RCPTS700-1

Image Sensor	SONY EFFIO-E CCD
Image Sensor Size	1/3''
Video Signal	NTSC
Resolution	700TV (Color)
Effective Pixels	976 horizontal, 494 vertical
Minimum Illumination	0.05LUX in Black-and-White "Night" mode
SNR	58dB
White Balance	Auto
Electronic Shutter	1/60 to 1/12000 sec.
Focal Length	6.0mm
Presets	212 individually settable preset points (camera views)
Auto Tour	8 groups, 16 presets per group. Settable pause time between preset points.
Auto Tour Pause	The dwell on each preset point in an Auto Tour list can be set to 2, 4, 6, 8 or 10 seconds.
Auto Scan	Panning can be continuous or back-and-forth between defined horizontal limits.
Rotation range	Horizontal 360° (unlimited rotation). Vertical 90°
Rotation speed	Horizontal & Vertical Min 0.01° to Max 300°/second.
Communication mode	RS-485. PELCO-D and PELCO-P protocols are automatically detected
Power supply	12VDC @ 1A (Max. current draw of camera is approx. 0.55mA @12VDC)
Material	Cast Aluminum
Dimension	Approx. 5" x 8" x 8"