

# WH-M100/ WH-M150/ WH-M300/ WH-M500 IP Network Camera

Hardware User Manual



**Safety precautions**

4. Select a proper location and use safe hoist for installing PTZ speed dome cameras.
5. Confirm that the hoist is capable of lifting to the installation position.
6. Proper protective measures must be provided in the hoist, for protecting engineering staffs.
7. Confirm that power supply is 110V/220V. Ensure safety precautions for preventing electric shock.

**Warning indications for use**

1. When using this product, please follow the local electrical appliance regulations for safety concern.
2. This product is using DC12V power input, for safety of use; do not use any power supply other than that specified.
3. For the safety of the engineering staffs, apply power only upon completion of installation.

**Requirements for Operation environment**

Environmental requirements for indoor type speed dome PTZ cameras:

- a. Environment temperature: -10°C to +50°C
- b. Environment humidity: <90%
- c. Power supply: DC12V, 1.0A, 50/60Hz

## **Precautions on installation**

### **1. Basic requirements for installation**

Follow local regulations about installation safety request.

Check out if accessories are complete. Optional accessories are required for different installation sites. Please contact your local distributors for proper installation accessories, so that the camera could be installed safely without causing danger.

Check if the installation location is of sufficient height.

Check if the installation location is strong enough for supporting cameras. Make sure installation spots (ceiling or wall) is of sufficient strength to support the camera and bracket without immediate danger of falling.

### **2. Cable standards**

Coaxial cable for image signal:

Select proper cable length for your installation distance. Recommended spec. is as follows:

- a. RG59/U: 750ft (230 meters)
- b. RG61/U: 1000ft (305 meters)
- c. RG11/U: 1500ft (457 meters)

### **3. RS485 cable**

Please comply with RS485 wiring standards and select proper RS485 cable. Improper cable may result in RS485 communication transmission error, which may cause speed dome PTZ cameras to react incorrectly.

Please pay much attention to this prior to installation.

When thinner or lower anti-interference RS485 cable is used for connecting the camera, the maximum transmission distance may be shortened and vice versa.

Standard rule for RS485 transmission distance:

When using 20AWG (Belden 8760) **Shielded Twisted Pair Cable**, different control Baud Rate will have different transmission distance performance, the ideal is as below table:

Baud rate	Max. Transmission Distance
2400	1200 meters
4800	1000 meters
9600	800 meters

### More details will be given in the follow-up sections

#### 4. Setting of Camera Position Code

Prior to installation, setup ID address and communication protocol of your camera firstly, and then you can install it. While when re-setting of ID or protocol is necessary after installation, please avoid such resetting when power of camera is “ON” and please POWER-OFF firstly the camera before resetting, then this new resetting will become valid.

#### 5. Self Test of Camera

Before installing this camera, please execute camera self-testing as following: when powering on the dome camera, it will automatically execute tilt up/down scanning, then pan horizontal scanning for around 20~30 seconds, then camera will stop at the Preset Point 1. Upon completion of these, the speed dome PTZ camera is in normal condition.

#### 6. Please keep the original packaging

After unpacking the dome camera, take good care of the original packaging. In case any problem occurred, it can be used to re-pack cameras for returning to the local distributor or manufacturer for repair.

#### 7. Remove protection materials before supplying power to the camera, so as to prevent it from faulty operation or causing mechanical errors.

#### 8. Indoor mini speed dome PTZ camera parts bag

- a. Installation manual      1.pcs
- b. Quick-installation plate   2.pcs
- c. Signal-Power cable        1.pcs

## Accessories and Installation

Below are the accessories of Mini Speed Dome camera (PTZ dome):



Quick-installation plate



Signal-Power

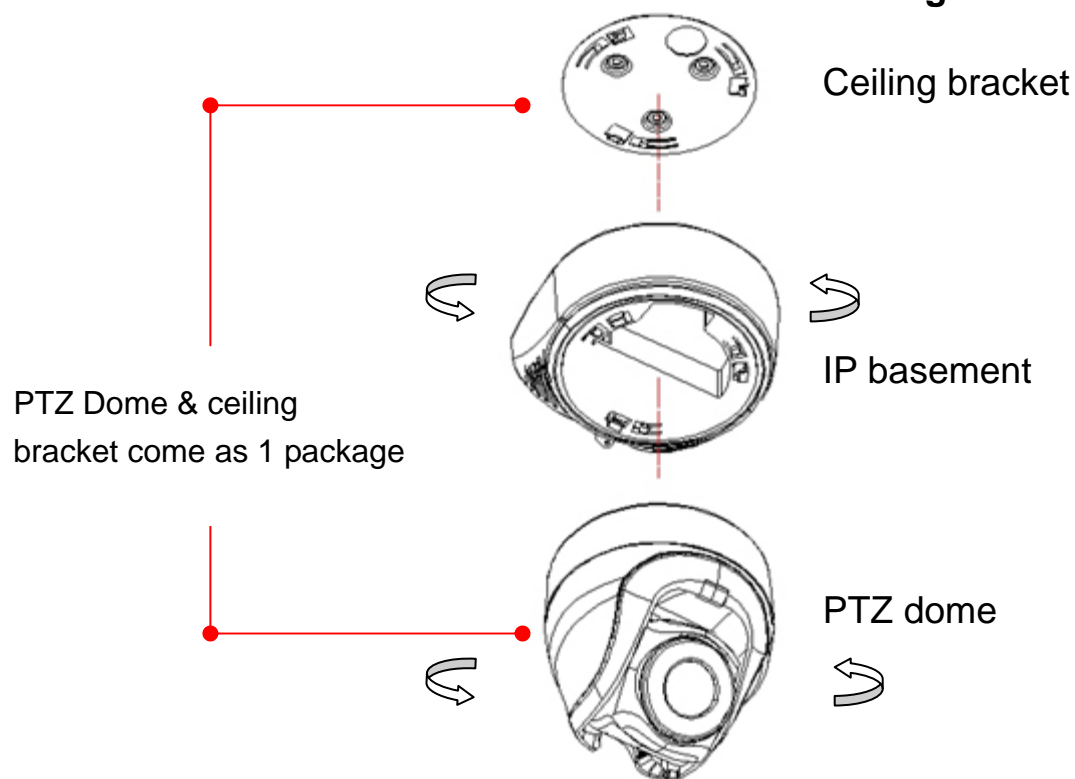


IP basement

## Hardware Installation

Step1

### Ceiling Mounting



## Step 2:

### Electrification test

- a. Before connecting the power, make a final check to confirm correct wiring.
- b. When powering on the camera, it will automatically execute self testing by doing firstly Tilt up/down scanning, and then Pan horizontal scanning, then camera will stop at the Preset Point 1. Upon completion of these, the self testing is well done.

### **Precautions**

This product is normally installed in an elevated position. Installation work should comply with local safe regulations.

Proper safety precautions and protective measures shall be taken for installing the camera.

For the personnel safety sake, carry out electrification and product test only after completion of installation work.

### **Using IR Remote Control Function**

This PTZ dome camera has built-in IR Receiver, which will allow user to use our IR Remote Controller (Model: WH-RT100, optional device) to control the movement of Mini Speed Dome PTZ Camera. (The operation of such IR Remote Controller can be found on the user's manual of WH-RT100)

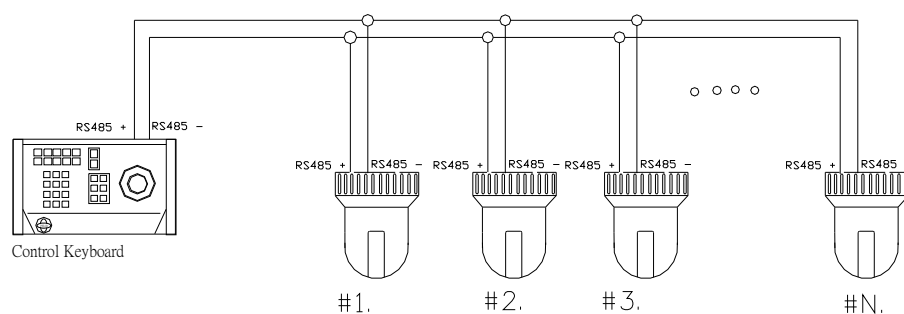


### **RS485 Wiring Method**

Two RS485 wiring methods can be used according to actual needs. We recommend the following wiring methods for avoiding mal function of RS485 control.

#### 1. RS485 serial connection

This method connects speed dome PTZ cameras in sequential manner where the first camera connects to the second and then the second to the third, and so on until the last one. A terminal resistance is connected to the last camera to form a closed loop, see the following illustration:

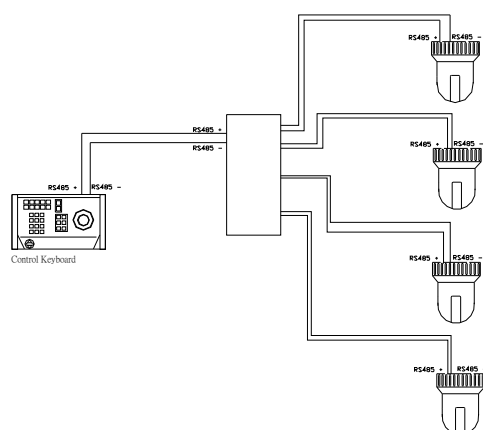


When using RS485 serial connection, the max. in one serial connection is to connect up to 32 pieces of speed dome, if over 32 pieces of speed dome, then please use “RS485 Aster Connection” method together with our WH-810 (8 port RS485 distributor) to diversify the number of speed dome in one single serial connection, in order to make sure the stability of the complete control system.

## 2. RS485 aster Connection

This is the most common method in practical installation work. In the aster connection, if a RS485 distributor is not utilized, it is likely to have reflected signal and to lower the ability of resisting interference. This may cause mal functioning of the control signal that results in faulty control of the camera or unstopping operation when the control signal is stopped.

In such cases, we recommend to use our WH-810 RS485 Distributor. This product can effectively convert the aster connection into the correct connection method that meets RS485 requirements to acquire optimal communication reliability. See the following diagram for reference.



## Speed Dome PTZ Camera Communication Protocol and ID Address Setting

Please pay attention: before you make such setting, make sure the camera is on ”power-off” status, otherwise, your setting won’t be successful.



Please open the plastic cover (like above photo) on the back-side of speed dome, then you will find one 10-PIN DIP SWITCH, SW9/10 is for setting speed dome protocols as below procedures:

#### 1. Setting for Communication Protocol

	DIP 9	DIP 10
Default	ON	ON
PELCO P-9600	OFF	ON
PELCO P-4800	ON	OFF
PELCO D-2400	OFF	OFF

#### 2. Setting ID address of speed dome as below:

Please change DIP SWITCH SW1~8 as below:

	1	2	3	4	5	6	7	8
65	○						○	
66		○					○	
67	○	○					○	
68			○				○	
69	○		○				○	
70		○	○				○	
71	○	○	○				○	
72				○			○	
73	○			○			○	
74		○		○			○	
75	○	○		○			○	
76			○	○			○	
77	○		○	○			○	
78		○	○	○			○	
79	○	○	○	○				
80					○		○	
81	○				○		○	
82		○			○		○	
83	○	○			○		○	
84			○		○		○	
85	○		○		○		○	
86		○	○		○		○	
87	○	○	○		○		○	
88				○	○		○	
89	○			○	○		○	
90		○		○	○		○	
91	○	○		○	○		○	
92			○	○	○		○	
93	○		○	○	○		○	
94		○	○	○	○		○	
95	○	○	○	○	○		○	
96						○	○	

	1	2	3	4	5	6	7	8
97	○					○	○	
98		○				○	○	
99	○	○				○	○	
100			○			○	○	
101	○		○			○	○	
102		○	○			○	○	
103	○	○	○			○	○	
104				○		○	○	
105	○			○		○	○	
106		○		○		○	○	
107	○	○		○		○	○	
108			○	○		○	○	
109	○		○	○		○	○	
110		○	○	○		○	○	
111	○	○	○	○		○	○	
112					○	○	○	
113	○				○	○	○	
114		○			○	○	○	
115	○	○			○	○	○	
116			○		○	○	○	
117	○		○		○	○	○	
118		○	○		○	○	○	
119	○	○	○		○	○	○	
120				○	○	○	○	
121	○			○	○	○	○	
122		○		○	○	○	○	
123	○	○		○	○	○	○	
124			○	○	○	○	○	
125	○		○	○	○	○	○	
126		○	○	○	○	○	○	
127	○	○	○	○	○	○	○	
128								○

	1	2	3	4	5	6	7	8
129	○							○
130		○						○
131	○	○						○
132			○					○
133	○		○					○
134		○	○					○
135	○	○	○					○
136				○				○
137	○			○				○
138		○		○				○
139	○	○		○				○
140			○	○				○
141	○		○	○				○
142		○	○	○				○
143	○	○	○	○				○
144					○			○
145	○				○			○
146		○			○			○
147	○	○			○			○
148			○		○			○
149	○		○		○			○
150		○	○		○			○
151	○	○	○		○			○
152				○	○			○
153	○			○	○			○
154		○		○	○			○
155	○	○		○	○			○
156			○	○	○			○
157	○		○	○	○			○
158		○	○	○	○			○
159	○	○	○	○	○			○
160						○		○

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161	○					○		○
162		○				○		○
163	○	○				○		○
164			○			○		○
165	○		○			○		○
166		○	○			○		○
167	○	○	○			○		○
168				○		○		○
169	○			○		○		○
170		○		○		○		○
171	○	○		○		○		○
172			○	○		○		○
173	○		○	○		○		○
174		○	○	○		○		○
175	○	○	○	○		○		○
176					○	○		○
177	○				○	○		○
178		○			○	○		○
179	○	○			○	○		○
180			○		○	○		○
181	○		○		○	○		○
182		○	○		○	○		○
183	○	○	○		○	○		○
184				○	○	○		○
185	○			○	○	○		○
186		○		○	○	○		○
187	○	○		○	○	○		○
188			○	○	○	○		○
189	○		○	○	○	○		○
190		○	○	○	○	○		○
191	○	○	○	○	○	○		○
192							○	○

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192							○	○
193	○						○	○
194		○					○	○
195	○	○					○	○
196			○				○	○
197	○		○				○	○
198		○	○				○	○
199	○	○	○				○	○
200				○			○	○
201	○			○			○	○
202		○		○			○	○
203	○	○		○			○	○
204			○	○			○	○
205	○		○	○			○	○
206		○	○	○			○	○
207	○	○	○	○			○	○
208					○		○	○
209	○				○		○	○
210		○			○		○	○
211	○	○			○		○	○
212			○		○		○	○
213	○		○		○		○	○
214		○	○		○		○	○
215	○	○	○		○		○	○
216				○	○		○	○
217	○			○	○		○	○
218		○		○	○		○	○
219	○	○		○	○		○	○
220			○	○	○		○	○
221	○		○	○	○		○	○
222		○	○	○	○		○	○
223	○	○	○	○	○		○	○

	1	2	3	4	5	6	7	8
224						○	○	○
225	○					○	○	○
226		○				○	○	○
227	○	○				○	○	○
228			○			○	○	○
229	○		○			○	○	○
230		○	○			○	○	○
231	○	○	○			○	○	○
232				○		○	○	○
233	○			○		○	○	○
234		○		○		○	○	○
235	○	○		○		○	○	○
236			○	○		○	○	○
237	○		○	○		○	○	○
238		○	○	○		○	○	○
239	○	○	○	○		○	○	○
240					○	○	○	○
241	○				○	○	○	○
242		○			○	○	○	○
243	○	○			○	○	○	○
244			○		○	○	○	○
245	○		○		○	○	○	○
246		○	○		○	○	○	○
247	○	○	○		○	○	○	○
248				○	○	○	○	○
249	○			○	○	○	○	○
250		○		○	○	○	○	○
251	○	○		○	○	○	○	○
252			○	○	○	○	○	○
253	○		○	○	○	○	○	○
254		○	○	○	○	○	○	○
255	○	○	○	○	○	○	○	○

## RS485 Common Troubleshooting

Error	Possible Causes	Solutions
Able to do self-test on initial electrification, but is unable to be controlled	1. Keyboard's (or DVR's) communication protocol is not consistent with camera's	Alter protocols for consistency
	A. Keyboard's (or DVR's) baud rate is not consistent with camera's	Alter baud rates for consistency
	B. RS485 polarity error	Switch polarity of RS485 pins
	C. RS485 bad wire connection	Re-check RS485 wiring
Control of camera is working, but not smoothly	1. Mainframe is too far from cameras	Check wires for error. Or set terminal resistance at the last camera.
	2. RS485 has a disconnected wire	Replace RS485 cable
	3. Too many cameras are paralleled	Install an RS485 distributor
Power-on but no video output	1. Contact of AC24V power is not good.	1. Check the connection of AC24V whether as normal
	2. the Voltage of AC24V adapter is too low.	2. Check whether the voltage of power input to speed dome is AC24V, if not, please use the adapter which is more than AC24V voltage (but no more than AC28V, otherwise it will burn the camera)

**Please follow the settings as the diagram shown to the left.**

### **Extended Command**

N Value No.	Control Object	Keyboard Operation Definition	
		[SET]+N+[ENTER]	[PRESET]+N+[ENTER]
85	Home	OFF	ON
92	Horizontal Scan Setting		Start point
93			End point
97	Preset Tour(preset 1~16 point)	OFF	ON