

RS485常見故障排除

故障現象	可能原因	解決方式
快速球一通電可以自我檢測但無法控制	3. 鍵盤(DVR)跟快速球通信協議不一致	1. 更改雙方通信協議, 使他一致
	4. 鍵盤(DVR)跟快速球的 baud rate不一致	2. 更改雙方baud rate, 使他一致
	5. RS485的正負極性相反	3. 調換RS485正負極性
	6. RS485線路未導通	請重新檢查RS485線路
快速球能控制但控制不順暢	1. 主機跟快速球離太遠	1. 請檢查線路是否有故障, 或是需要在最後一組設置終端電阻
	2. RS485其中一根線斷線	2. 更換RS485控制線
	3. 快速球並接太多	3. 請加裝RS485分配器
送電後無影像輸出	1. AC24V電源接觸不良	1. 檢察AC24V電源是否連接正常
	2. AC24V變壓器電壓過低	2. 檢查AC24V在高速球電源端電壓值是否達到AC24V, 若未達到請更換更高的變壓器

功能設定表：

N Value No.	Control Object	Keyboard Operation Definition	
		[SET]+N+[ENTER]	[PRESET]+N+[ENTER]
85	Auto Home Returning	OFF	ON
92	PAN SCAN SETTING		START point
93			STOP point
97	Preset Tour(preset 1~16 point)	OFF	ON
99	Auto PAN Scan	OFF	ON

Installation Manual

Mini Speed Dome Camera



Note: Please read the following before installation

Safety precautions

1. Select a proper location and use safe hoist for installing speed dome cameras.
2. Confirm that the hoist is capable of lifting to the installation position.
3. Proper protective measures must be provided in the hoist, for protecting engineering staffs.
4. Confirm that power supply is DC12V/1.0A. 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 cameras:

- a. Environment temperature: -10°C to $+50^{\circ}\text{C}$
- b. Environment humidity: $<90\%$
- c. Power supply: DC12V, 1.0A, 50/60Hz

Warning indications for use

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 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, then you can install it. While when resetting 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

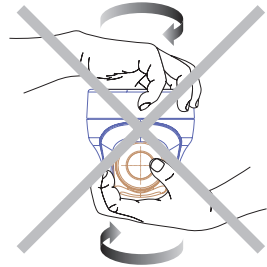
Before installing this camera, please execute camera self-testing as following: when powering on the camera, it will automatically execute tilt up/down scanning, then pan horizontal scanning for around 20~30 seconds, then camera will stop at the Preset Point 1. Upon completion of these, the speed dome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

6. Please keep the original packaging

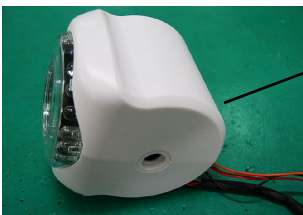
After unpacking the camera, take good care of the original packaging. In case any problem occurred, it can be used to re-pack cameras for returning to the local distributor or manufacturer for repair.

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

8. Don't twist camera itself by your hand which may cause the problem of camera.



9. Do not apply any pressure or move the lens kit up and down manually by hand. This may cause Y-axis motor function improperly, please do use remote controller or keyboard controller for tilt movement. Upon packaging, please use controller to make lens tilt downward for safe position as shown in the diagram below.



Lens Kit



Safe Position

10. Indoor mini speed dome parts bag

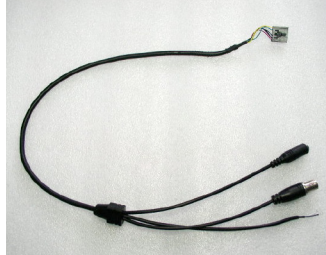
- a. Installation manual 1.pcs
- b. quick-installation plate 2.pcs
- c. Signal-Power cable 1.pcs

Accessories and Installation

Below is the accessories of Mini Speed Dome:



quick-installation plate



Signal-Power cable

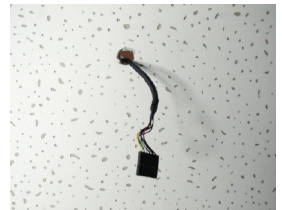
Step 1:

On this Signal-Power cable, different wire has been labeled for each function: one for Video Output , one for RS485 input and one for DC12V power input, please follow this different labeling for your correct wiring.

Mini Speed Dome Camera installation has 2 methods, which are illustrated very detailed as below:

1.1 First possibility of Installation method:

Firstly decide the location where you want to install, then dig one hole with about 2 cm diameter, then insert Signal-Power cable through this hole as below:



Then please take out the quick-installation plate which is provided inside accessory bag, then insert again the Signal-Power cable through any round holes of this quick-installation plate and screw well this quick-installation plate into platform as photo A below, then twist the basement of mini Speed Dome camera into this quick-installation plate, as below (photo B) , then the installation is done like photo C:



(photo A)



(photo B)



(photo C)

1.2 Second possibility of Installation method:

please take out the quick-installation plate which is provided from accessory bag, then screw well this quick-installation plate into the location where you want to install, as shown on right:



then take out the Signal-Power cable which is provided from accessory bag, then connect it into the basement of camera like photo A, and there are 2 wiring direction choices for such cable which installer can make according to the demand as photo B or photo C:



(photo A)



(photo B)



(photo C)

Then plug the basement of this camera into the quick-installation plate, and the installation is done as shown on left :

Please double check whether the Mini Speed Dome is well fixed in order to prevent any risk of falling-down of the camera.



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, then pan horizontal scanning, then camera will stop at the Preset Point 1. Upon completion of these, the self testing is well done.

Precautions

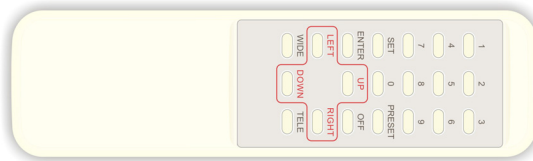
This product is normally installed in an elevated position. Installation work should comply with local safe regulations.

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 camera has built-in IR Receiver, which will allow user to use our IR Remote Controller (Model : RT-100, optional device) to control the movement of Mini Speed Dome Camera. (The operation of such IR Remote Controller can be found on the user's manual of RT-100)

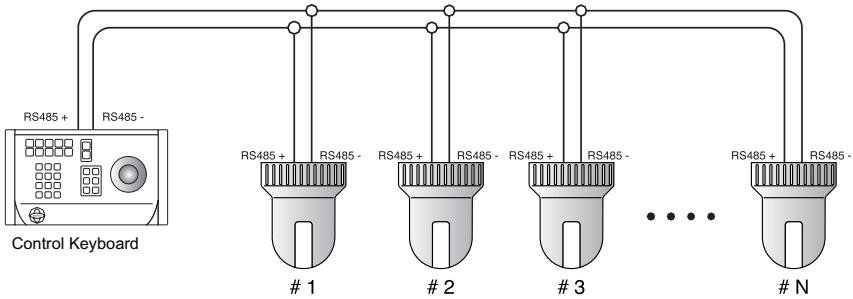


RS485 Wiring Method

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 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:

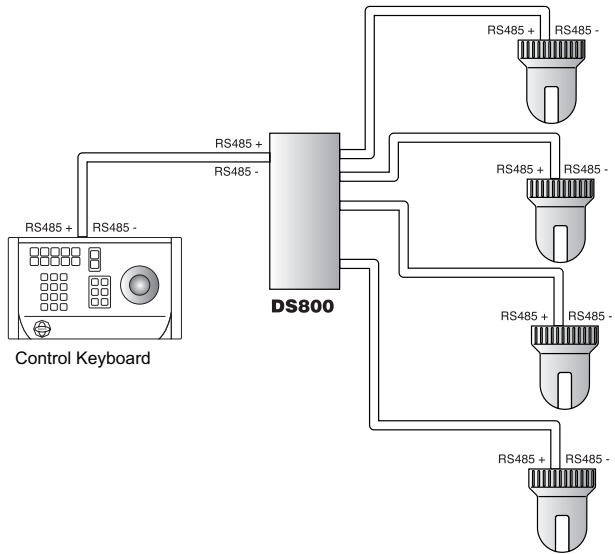


When using RS485 serial connection, the max. in one serial connection is to connect up to 32 pieces of speed dome, if over 32 pieces of speed dome, then please use "RS485 Aster Connection" method together with our DS810 (8 port RS485 distributor) to diversify the number of speed dome in one single serial 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 DS810 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 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
EYEVIEW	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
1	<input type="radio"/>							
2		<input type="radio"/>						
3	<input type="radio"/>	<input type="radio"/>						
4			<input type="radio"/>					
5	<input type="radio"/>		<input type="radio"/>					
6		<input type="radio"/>	<input type="radio"/>					
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					
8				<input type="radio"/>				
9	<input type="radio"/>			<input type="radio"/>				
10		<input type="radio"/>		<input type="radio"/>				
11	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>				
12			<input type="radio"/>	<input type="radio"/>				
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169	○			○		○		○
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197	○		○				○	○
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207	○	○	○	○			○	○
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209	○				○		○	○
210		○			○		○	○
211	○	○			○		○	○
212			○		○		○	○
213	○		○		○		○	○
214		○	○		○		○	○
215	○	○	○		○		○	○
216				○	○		○	○
217	○			○	○		○	○
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219	○	○		○	○		○	○
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221	○		○	○	○		○	○
222		○	○	○	○		○	○
223	○	○	○	○	○		○	○

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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)

OPERATION SETUP INFO

1. Select to Control the Speed Dome Camera:

Enter: **CAM** + **NNN** + **ENTER**

Display: **CAMERA ID : NNN**

NNN: Users may enter one number from Number 0 ~255 as the number of the speed dome cameras. The speed dome camera you select to control appears on the LCD screen after one number is entered.

2. Set up the Speed Dome Preset Points:

A.Enter: **SET** + **NN** + **ENTER**

B.Display: **Preset No : NNN**

C>NNN: Users may enter one number from Number 1 ~ 32 as preset points number.

D.Operation: Move the speed dome to the location you want to set up and set the preset point based on the method used for Point A. The operation method applies to other preset points setting.

Call the Speed Dome Preset Points:

Enter: **PRESET** + **NN** + **ENTER**

Display: **CALL Number : NN**

NN: Preset points, No. 1~32

3. Delete the Speed Dome Preset Points:

Description: This function is designed to clear the preset points by following the operation procedure:

Enter: **PRESET** + **NN** + **OFF**

Display: **CALL Number : NN**

NN: Preset points to be deleted, No. 1~32

4. Set up Preset Point Group: (Do not apply to PELCO Protocol)

Description: This function is designed to scan the preset points in order. Each group is allowed to set up 16 preset points for the moving speed and retention time.

Enter: **SHOT** + **N** + **ON**

If you choose EYEVIEW Protocol for one of our speed dome cameras, you may set up 4 preset point groups by following the operation procedure:

A. Press [SHOT] :

LCD displays:

Enter the preset point groups, No. 1 and press the key.

LCD displays:

B. Press [TELE] :

LCD displays: [No:001 Point:001]

Enter one of the preset points of the group ranging from No. 1~32

C. Press [TELE] : Set up the moving speed

LCD displays: [No:001 Speed:001]

The speed represents the moving speed between two preset points and is divided into 1-8 phase. (1: fastest speed; 8: slowest speed)

D. Press [TELE] : Set up the retention time

LCD displays: [No:001 Time:001]

The displayed time is the retention time of each preset point and can be set from 1 to 99 seconds.

E. Press the [TELE] key to go back to step B to set up next point. Press [OFF] to end and save your setting.

5. Start Preset Point Group Scanning (Do not apply to PELCO Protocol)

Enter: [SHOT] N [ENTER]

LCD displays:

XXX: No. 1 preset points group scanning. Complete the preset point setup described in Step 4. before starting preset point group scanning.

6. Horizontal Revolution of 2 Preset Points (Do not apply to PELCO Protocol)

Description: This function is designed to set the speed dome at horizontal revolution in a small zone.

Enter: Press [AUTO].

LCD displays:

Enter a start point for Auto Pan scanning. The start point should be one of the preset points. Complete preset point setting first by following Step 2.

Press the [ON] key to complete the start point setting.

LCD displays: **2ND NO :**

Enter a stop point for Auto Pan scanning. The stop point should be one of the preset points. Complete preset point setting first by following Step 2.

Press the [OFF] key to complete the stop point setting. The speed dome will begin to move at horizontal revolution immediately.

PS: If the start point and the stop point are set at the same preset point, the speed dome will move at 360° horizontal revolution. The start point and the stop point should be selected from one of the 1-32 preset points.

7. Home Position Auto Returning (NEW)

Description: This function is designed to set the speed dome to auto return to Preset point 1 (required) as Home Position at every 5 minute.

To activate:

Enter: **PRESET** + **85** + **ENTER**

To deactivate:

Enter: **SET** + **85** + **ENTER**

8. Extended Command

N Value No.	Control Object	Keyboard Operation Definition	
		[SET]+N+[ENTER]	[PRESET]+N+[ENTER]
85	Auto Home Returning	OFF	ON
92	PAN SCAN SETTING		START point
93			STOP point
97	Preset Tour(preset 1~16 point)	OFF	ON
99	Auto PAN Scan	OFF	ON

安全規定

1. 請在安裝快速球時，選定適合的安裝定點及使用安全的升降設備。
2. 升降設備請確認可以升至安裝快速球的位置。
3. 升降設備必須具備良好的安全防護，以保護工程人員安全。
4. 如為供電110V/220V時，請確實做好安全工作，以防止遭受電擊。

使用警示

1. 在使用本產品時，必須遵守當地國家和地區的各项電器安全規定。
2. 本產品為DC12V，故禁止對此產品輸入高於此規定的電壓，以免造成使用上的安全。
3. 請在安裝攝影機時，務必在安裝完畢後再行對攝影機供電，以保護工作人員安裝時的安全性。

環境要求

室內型快速球攝影機使用標準

- a. 環境溫度：-10°C to +50°C
- b. 環境溼度：<90%
- c. 供電電源：DC12V, 1.0A, 50/60Hz

安裝注意事項

1. 安裝基本要求
 - 甲、所有安裝的注意事項，請遵守當地區的施工安全規定。
 - 乙、請檢查本產品的配件是否完整，本產品安裝在不同地點請選購適合的安裝配件，如不適合時請聯絡當地經銷商選購適合的配件，以達到產品裝設時可以不致導致危險。
2. 檢查安裝的高度是否足夠。
3. 檢查安裝攝影機的位置是否有足夠的強度，所以確定安裝攝影機的天花板，牆壁必須能承載攝影機及支架的重量，以防止攝影機掉落而造成立即的危險。
4. 電纜標準
影像同軸電纜標準，請根據你要安裝攝影機的距離選擇適合的電纜線，以

下為我們建議的規格：

甲、RG59/U：750ft(230meter)

乙、RG6/U：1000ft(305meter)

丙、RG11/U：1500ft(457meter)

RS485電纜標準

請根據RS485的標準施工配線，以及選用正確的RS485電纜線，如使用不適合的電纜線將會造成RS485的傳輸錯誤，而導致快速球做不正確的動作，所以請在施工前特別注意。

當使用較細的RS485電纜線，或是使用抗雜訊差的電纜線在連接攝影機，如此會造成最大傳輸距離的縮短，反之可以增大傳輸的距離。

RS485標準傳輸距離的規範

當你在使用線材為22AWG(Belden 8760)雙隔離絞線，在不同的Baud rate也會有不同的傳輸距離，在理想值如下表所示：

Baud rate	最大傳輸距離
2400	1200 meters
4800	1000 meters
9600	800 meters

在後續的說明中將會有更詳細的介紹。

5. 攝影機位置碼設定

請在安裝前，必須先將你要設定的通信協議及ID位址完成，在行安裝攝影機，如安裝完後須再變更，請勿在通電中變更設定值，請先斷電後再重新設定，如此才會變更新的設定值。

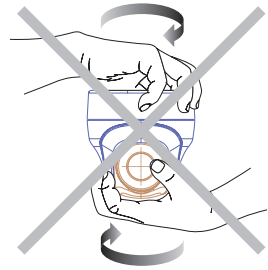
6. 攝影機自我測試

本攝影機請在安裝前可以做以下的自我測試，在攝影機通電後，快速球將會開始做的垂直掃描，然後也會做水平的掃描，大約會持續約20~30秒的時間，完畢後快速球將會停留在預設點1的位置，如上述的動作完成代表此快速球為正常的產品。

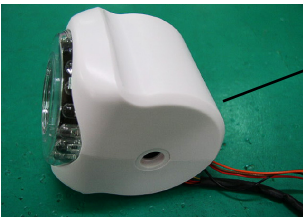
7. 請保存產品的包裝材料

在拆開攝影機包裝後，請妥善保存好攝影機的包裝材料，以避免產品出現故障時，可以用原先的包裝材料將攝影機包裝好，寄到當地經銷商或製造商做處理。

8. 請不要用手旋轉此攝影機 如附圖



9. 切勿不要用手移動鏡頭組，請務必使用遙控器或控制盤來做上下移動，以避免Y軸馬達受損。包裝前，請亦先用遙控器或控制盤把鏡頭回到至安全位置 如下



鏡頭模組



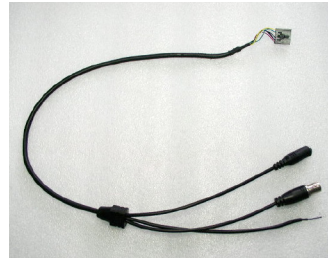
安全位置

安裝配件及安裝方式

以下是Mini Speed Dome的配件：



快拆底板

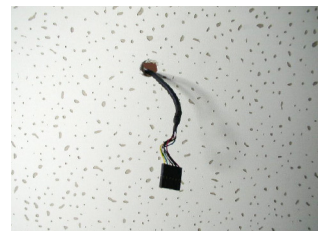


信號電源連接線

在信號電源連接線上有標示其功能，請依照標示的標籤進行配線
Mini Speed Dome Camera有設計2種安裝方式，以下將為你做詳盡的說明：

1. 第一種安裝方式如下：

先選擇你所要安裝的位置，接著在這個位置挖出一個約直徑2公分的圓孔並將信號連接線從圓孔的內側穿出，如右圖所示



請將包裝盒內的快拆底板配件取出，將上述的信號連接線穿過快拆底板上的圓孔，並且將快拆底板鎖上，請再將Mini Speed Dome底座旋轉到快拆底板上便完成整個安裝 如下圖所示：



2. 第2種安裝方式如下：

請從包裝盒內取出快拆底板，並且將快拆底板鎖到你要安裝的位置，如右圖：



接著從包裝盒內取出信號連接線，並且將信號連接線安裝至Mini Speed Dome底座，信號連接線在Mini Speed Dome底座的線槽有2種牽線方式，安裝者可以依照實際需要做設定，如下圖：



請再將 Mini Speed Dome 底座旋轉到快拆底板上便完成整個安裝 如右圖所示：

請安裝者在一次確認 Mini Speed Dome 是否有穩固，不可產生危險。



3. 通電進行檢測

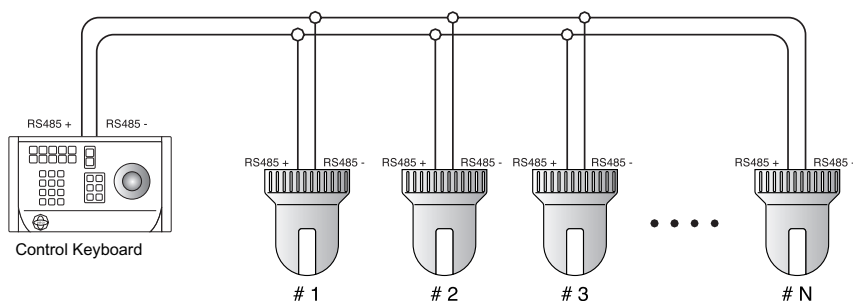
在進行通電前，請再一次確認接線是否正確，如果都確認無誤便可以通電檢查。通電後攝影機將自動進行自我檢測，在檢測的過程中將會依序進行垂直的掃描，第2進行水平的掃描後，然後攝影機將會自動旋轉至第1個預置位，如此便完成開機檢測。

RS485配線方式

我們以下提供2種RS485的配線方式，這是需要視需求而定，故再此建議使用以下的配線方式，以免造成RS485的控制不正常

RS485串列式接法

此一接法是將快速球照排隊的方式作連接，也就是將第一組快速球連接至第2組快速球，而在將2組快速球連接至下一組，以此類推至最後一組快速球，在最後一組快速球需要把終端電阻連接，已形成一個封閉迴路，如下圖所示：

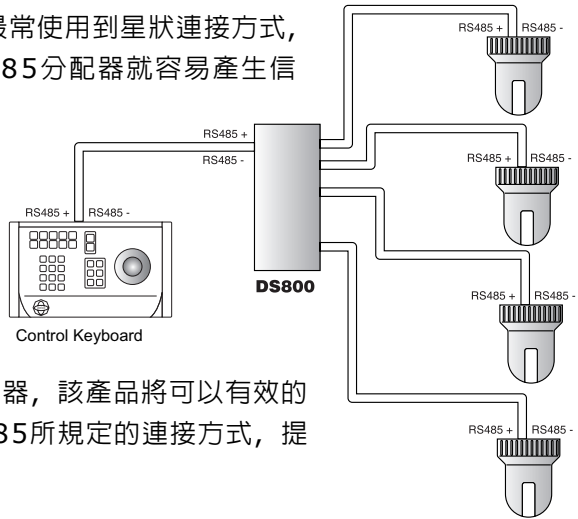


在RS485串列式接法時，請特別注意在一個迴路內其最大連接高速球攝影機為32個以內，如果超出32個高速球攝影機時，請使用RS485星狀接法配合搭配DS810分配器，這樣可以分散單一迴路高速球攝影機的數量，以確保整個控制系統的穩定性。

RS485星狀接法

在實際的施工過程中，用戶最常使用到星狀連接方式，此一種方式如沒有使用RS485分配器就容易產生信號反射，抗干擾能力降低等問題，會導致控制信號的誤動作產生，表現出來的現象為快速球完全或有時候不受控制或控制停止時快速球一直旋轉無法停止

對於如此的情形建議採用我公司的DS810 RS485分配器，該產品將可以有效的將星狀連接轉換為符合RS485所規定的連接方式，提高通信的可賴度，如右圖



快速球的通信協議及位址設定

請特別注意，當要去做這些設定時必須要在高速球斷電的狀態下作更改設定，如果沒有將不會有任何改變。

請將攝影機後面的橡膠蓋打開，可以看到1個10PIN的DIP S/W，在攝影機背後可以發現這個10PIN的DIP S/W，在這個10PIN的DIP S/W 中，在第9及第10PIN是設定這個攝影機的通信協議，設定方式如下：



1. 以下是內建的4種通信協議，請依循表內的資料進行設定

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

2. 高速球的位址是指撥開關的1至8碼作設定，設定方式如上頁所示：