

TRIPLE BEAM SELECTABLE FREQUENCY PHOTOELECTRIC DETECTOR INSTRUCTION MANUAL

DS-PI-T50/FM
DS-PI-T75/FM
DS-PI-T100/FM
DS-PI-T150/FM



2 SUGGESTIONS FOR INSTALLATION 1



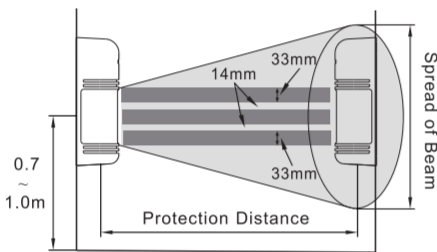
Ensure the sensors line of sight is free from any false alarm sources such as bushes, trees, etc. (Pay attention to these as they may change seasonally.)
Ensure the sensors are mounted on a stable and firm fixing.
Ensure strong sunlight or car headlights do not shine directly on to the receiver. (Within $\pm 2^\circ$ from the optical axis is not recommended.)

3 SUGGESTIONS FOR INSTALLATION 2

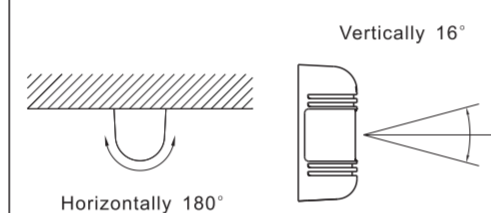
Note that here the protection distances refers to the sheet below.

Model	Protection Distance	Spread of Beam
DS-PI-T50/FM	50m	1.5m
DS-PI-T75/FM	75m	2.25m
DS-PI-T100/FM	100m	3.0m
DS-PI-T150/FM	150m	4.5m

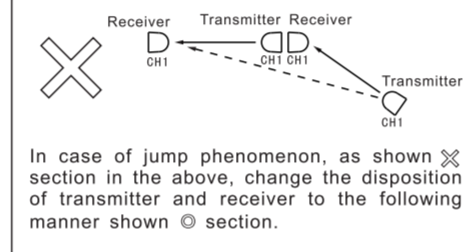
Height of installation and protection distance



Direction of installation



Because angle of reflection mirror is adjustable in $\pm 90^\circ$ horizontally and $\pm 8^\circ$ vertically, the unit can be installed in various directions.

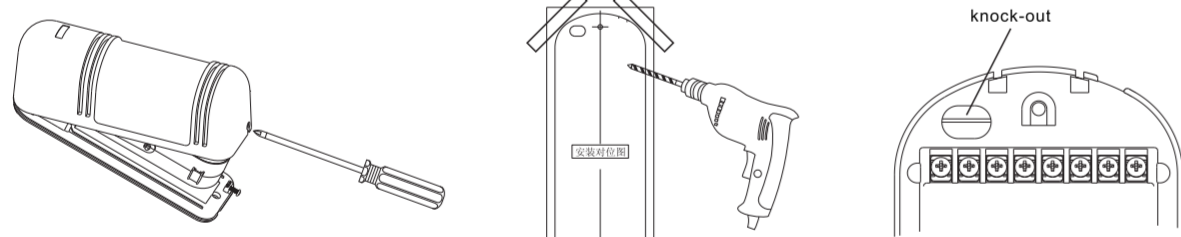


In case of jump phenomenon, as shown in the above, change the disposition of transmitter and receiver to the following manner shown in the section.

4 INSTALLATION

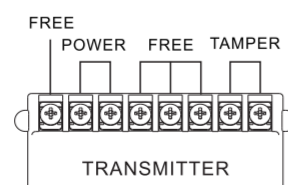
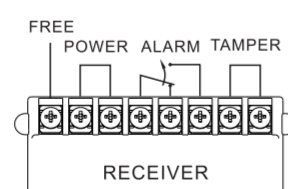
WALL MOUNT

- Loosen screw holding cover and remove the cover.
- Attach the mounting pattern paper to the wall, mark the installation holes, and make guide holes.
- Break knock-out and pull wire through.



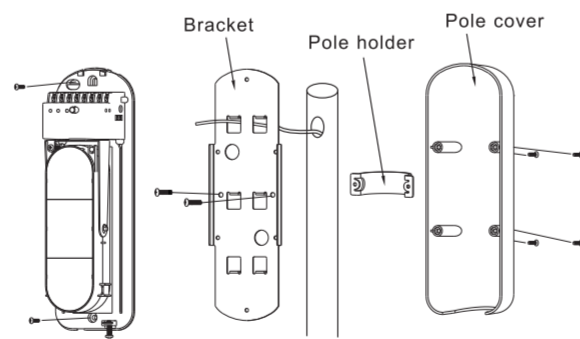
- Pull wire through, install onto flange and the wall.
- Connect wires to the terminal. (Refer to the Terminal Configuration right hand side)

TERMINAL CONFIGURATION



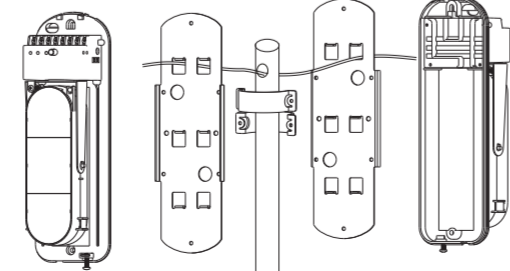
POLE MOUNT

- Pull the wire through the wire hole of the pole.
- Attach the bracket to the pole with the pole holder.



Pole mount back-to-back

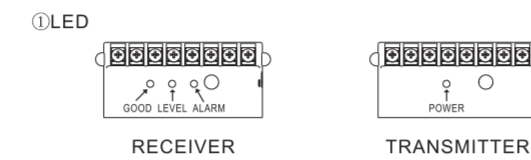
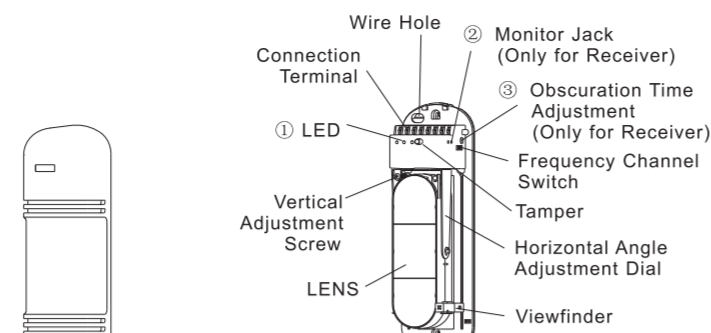
Each bracket to be reversely attached.



6. Wiring distance

Model	DS-PI-T50/FM	DS-PI-T75/FM	DS-PI-T100/FM	DS-PI-T150/FM
Voltage	12V	24V	12V	24V
Wire diameter	12V	24V	12V	24V
0.3mm ² ($\phi 0.6$)	195m	1753m	195m	1753m
0.5mm ² ($\phi 0.8$)	341m	3068m	341m	3068m
0.75mm ² ($\phi 1.0$)	455m	4091m	455m	4091m
1.25mm ² ($\phi 1.2$)	682m	6136m	682m	6036m

1 PARTS DESCRIPTION

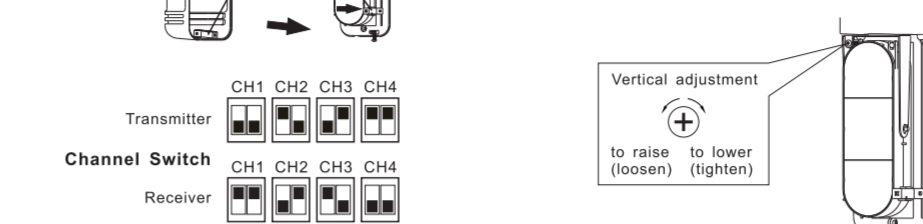


- GOOD (Green) :on when optically aligned :off when optically not aligned
- LEVEL (Red) :on when signal is weak
- ALARM (Red) :on when Alarm is activated in accordance with LEVEL (Red) and ALARM (Red)
- ② Monitor jack : Should be used for making the optimum optical axis adjustment (Refer to ' how to use the monitor jack ')
- ③ Obscuration time adjustment : To be used for setting the obscuration time (Refer to ' adjustment of obscuration time ')
- POWER (Green) : on when the transmitter is working

5 ADJUSTMENT OF OPTICAL AXIS

It is important to ensure correct optical alignment between the transmitter and receiver for proper operation.

- Turn on the power supply after uninstallation. Place the viewfinder on either right or left hand side of the lens whichever makes easier viewing.
- Adjust the angle of the lens via the Horizontal angle adjustment and the Vertical adjustment screw so that the sensor can be seen in the center of the Viewfinder. This adjustment is carried out on both the Transmitter and Receiver. Confirm after adjustment that the green GOOD LED is on, otherwise alignment should be readjusted.



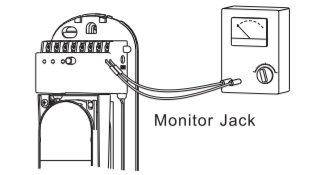
- Look through the viewfinder as shown below.

NOTE: After completion of optical adjustment, ensure that both filters on the receiver are replaced to their original position behind the mirrors.

HOW TO USE THE MONITOR JACK

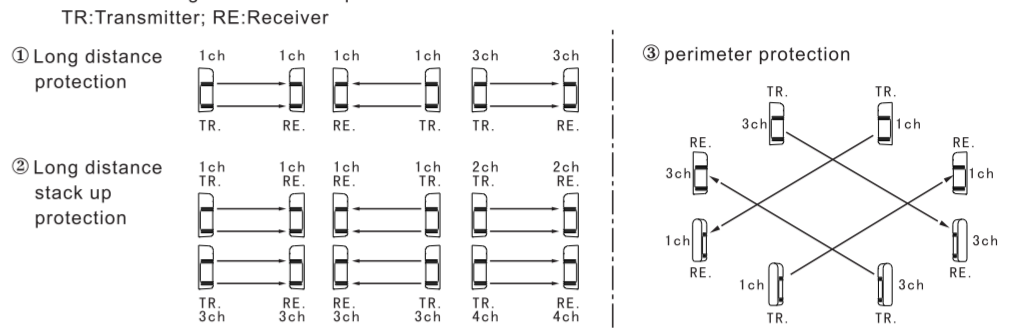
The best adjustment of optical axis can be done by reading the output voltage of the monitor jack.

- Insert the meter pins into the monitor jack. (pay attention to the polarity because of DC voltage)
- Adjust the horizontal adjustment until the output is at a maximum. b) Adjust the vertical adjustment screw to obtain best signal. (Do not interrupt beam by hands during the adjustment)
- The following minimum voltages should be obtained to ensure best performance. 1.3V for all of the series. If this is not obtained then the transmitter and receiver should be re-aligned.



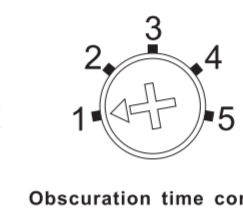
Examples of the installation as below.

To avoid the mutual interference of beams, please set the beams at different channels, when installing more than one pairs at the same time.

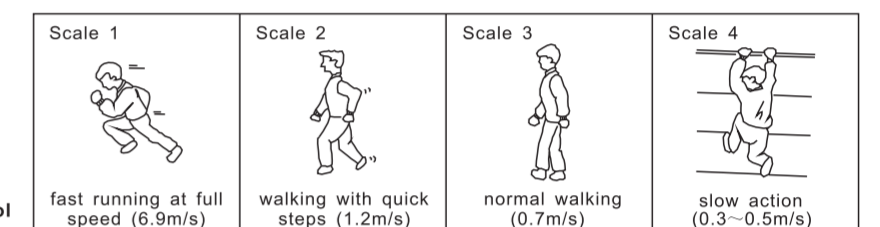


6 ADJUSTMENT OF OBSCURATION

Set the obscuration time of the receiver by adjusting the obscuration time control to the required setting according to the sketch beside. The obscuration time should be set lower to detect faster moving targets, however care should be taken to note the environmental conditions as the obscuration time should be set higher to ignore conditions where there are a lot of birds or wind blown material.



Obscuration time control



7 CONFIRMATION OF OPERATION

After completion of the installation, confirm correct operation by suitable walk test. Refer to the following LED indications during the walk test. Confirm tamper operation prior to replacing covers. Confirm system operation with covers replaced.

	Conditions	Indication
Transmitter	Transmitting	Power LED (green) is on
Receiver	Operating	Good Sensitivity Poor Sensitivity
		Good LED (green) is on Level LED (green) is on
	Alarm Activated	Alarm (red), Level (red) LED are on

NOTE: Conduct a Walk Test at least once a year

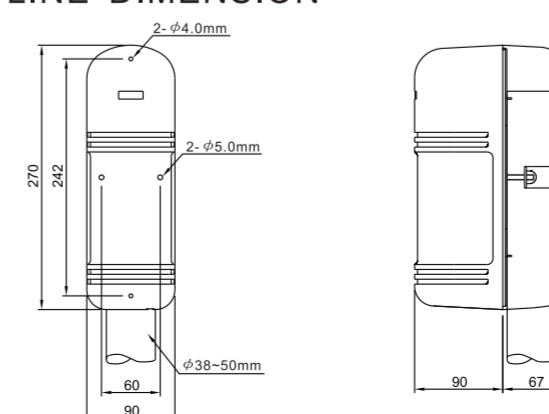
8 TROUBLE SHOOTING GUIDE

Q Symptom	Possible cause	A Remedy
Indication lamp of Transmitter does not light.	Improper voltage of power supply	Check power supply and wiring
Power supply indication Lamp of Receiver does not light.	Improper voltage of power supply	Check power supply and wiring
Alarm indication lamp does not light even when the beams are intercepted.	① Infrared beam from Transmitter is reflected on another object and sent into the Receiver. ② Three beams are not intercepted at the same time. ③ Shorter obscuration time than that set on the obscuration control.	① Remove the reflecting object or change the place for installation and the optical axis direction. ② Check three beams to intercept at the same time. ③ Adjust obscuration time setting to be shorter.
Although alarm LED lights when the beams are intercepted, alarm does not ring.	① Broken wires or short on the signal wires. ② Melted bridge on the signal connection (Wrong current on the signal wires)	① Check the wiring. ② It needs to be repaired.
Alarm LED on the Receiver does not turn off.	① Inadequate optical axis. ② Shading objects between the Transmitter and the Receiver. ③ Dirty cover or dirty reflection mirror of the Transmitter and or Receiver. ④ Different CH to be setted between units.	① Readjust the optical axis. ② Remove the shading objects. ③ Clean optics with soft cloth. ④ Re-set the units correctly
Intermittent alarm.	① Bad wiring connection. ② Change of supply voltage. ③ Shading objects moving by wind between the Transmitter and the Receiver. ④ Unstable installation of the sensor unit. ⑤ Incomplete optical axis adjustment. ⑥ Birds and other large flying objects intercept the beam.	① Check the wiring connection. ② Check the voltage (for stabilized supply voltage.) ③ Remove the shading objects or change the place for installation. ④ Fix steadily. ⑤ Readjust the optical axis. ⑥ Readjust the obscuration time to be longer or reposition.

9 SPECIFICATION

Model	DS-PI-T50/FM	DS-PI-T75/FM	DS-PI-T100/FM	DS-PI-T150/FM
Alarm Distance	50m	75m	100m	150m
Max reaching distance	500m	750m	1000m	1500m
Beams NO.	3 beams			
Detecting Way	3 beams Intercepted simultaneously			
Light Source	Digital pulse IR LED			
Response Time	30~960ms			
Channel Choice	4 Channels CH1~CH4			
Alarm Output	Relay FORM C(NO/NC changeable), Contact ratings DC 30V 0.5A max.			
Supply Voltage	DC10.5~28V(non-polarity)			
Recommend supply Voltage	DC 12V or 24V(non-polarity)			
Supply Current	70mA	80mA	90mA	95mA
Operation Temperature Range	-25°C~+55°C			
Tamper Output	Contact Output 1b DC 30V 0.05A max			
Optic axis horizontal adjust	180°($\pm 90^\circ$)			
Optic axis vertical adjust	16°($\pm 8^\circ$)			
Sight	Removable type			
Strategy to dew/frost	Ultrasonic structure			
Other additional functions	Receiving light Indicate - OK Indicate - Testing Terminal			
Material	PC front cover; ABS Back Cover			
Environmental humidity	<95%RH			
Dimensions (H*W*D)	270mm*90mm*90mm			
Weight	Around 1100g (Transmitter and Receiver)			

10 OUTLINE DIMENSION



三光束调频主动红外对射 使用说明书

DS-PI-T50/FM
DS-PI-T75/FM
DS-PI-T100/FM
DS-PI-T150/FM



2 安装上的注意事项1

●请避免在以下场合安装本探测器



确保在探测器的视线上没有任何
误报源，例如灌木丛、树木等。
(注意这些物体可能随季节而改变)

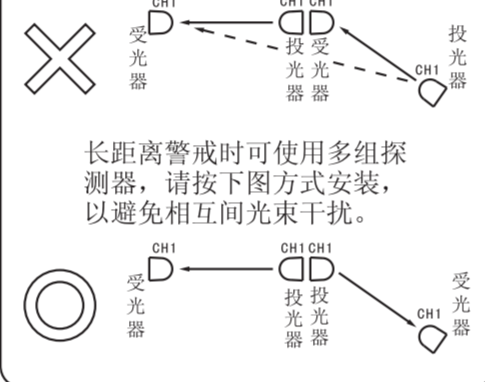
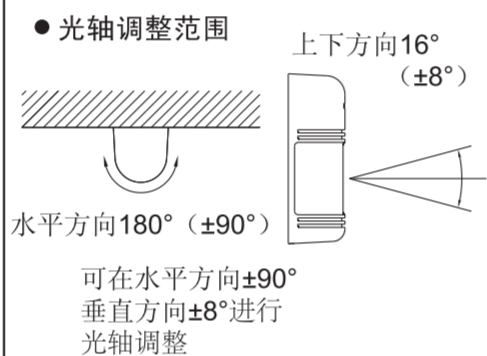
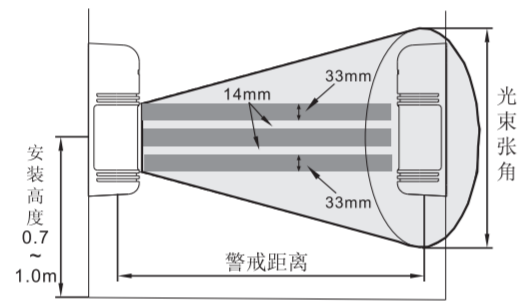
确保在探测器被安装
在一个稳定和坚固的
安装物上面。

确保强力阳光或者汽车的车
灯不直接照射到受光器上。
(不建议在离光轴±2°内)

3 安装上的注意事项2

●安装高度及警戒距离

型号	警戒距离	光束张角
DS-PI-T50/FM	50m	1.5m
DS-PI-T75/FM	75m	2.25m
DS-PI-T100/FM	100m	3.0m
DS-PI-T150/FM	150m	4.5m



4 安装方法

●墙壁安装方式

●固定安装方式

1. 拆下固定螺丝取下面壳。

2. 将附带的安装对位图粘在墙上，按其孔位打孔。

3. 将电缆穿过配线孔进行配线。

1. 在支架上开好引线孔，并引出电缆线。

2. 取下面壳。

3. 将基板固定在支架上。

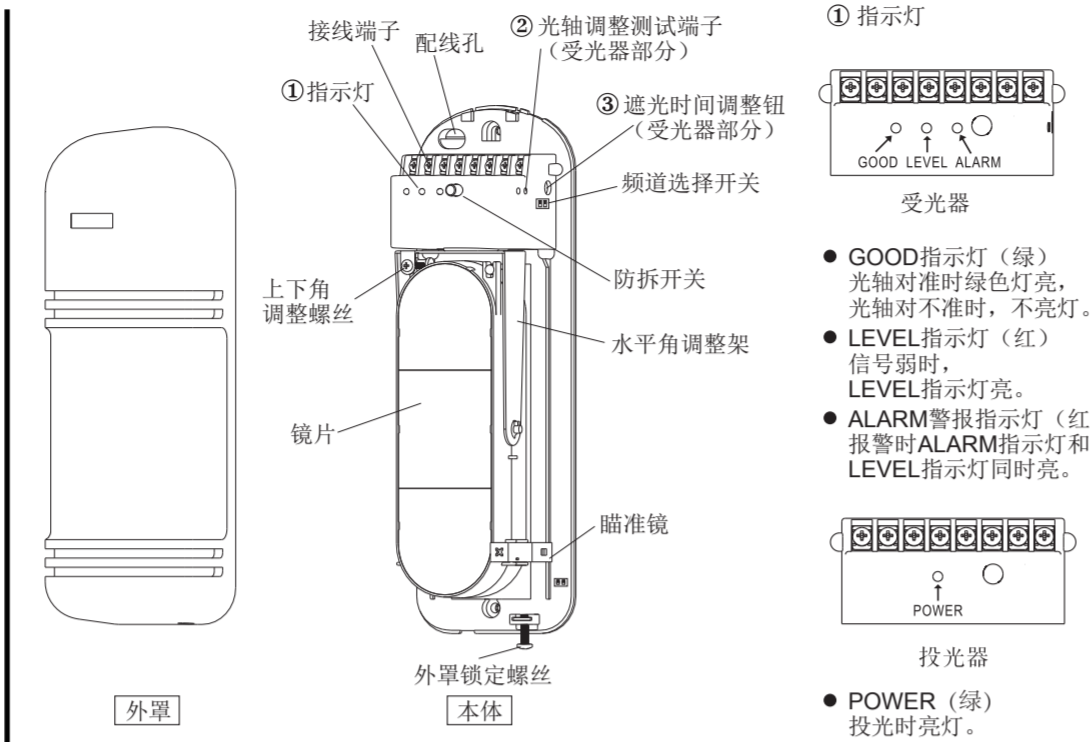
4. 将本体固定在墙上。

5. 将电缆接入配线端子。

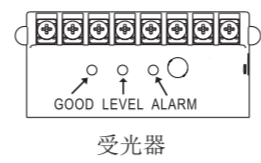
6. 配线距离

机种	DS-PI-T50/FM		DS-PI-T75/FM		DS-PI-T100/FM		DS-PI-T150/FM	
	12V	24V	12V	24V	12V	24V	12V	24V
线径	12V		12V		12V		12V	
0.3mm ² (φ0.6)	195m	1753m	195m	1753m	195m	1753m	179m	1607m
0.5mm ² (φ0.8)	341m	3068m	341m	3068m	341m	3068m	313m	2813m
0.75mm ² (φ1.0)	455m	4091m	455m	4091m	455m	4091m	417m	3750m
1.25mm ² (φ1.2)	682m	6136m	682m	6036m	682m	6036m	625m	5625m

1 部件名称



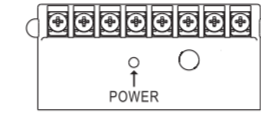
① 指示灯



●GOOD指示灯(绿)
光轴对准时绿色灯亮，
光轴对不准时，不亮灯。

●LEVEL指示灯(红)
信号弱时，
LEVEL指示灯亮。

●ALARM报警指示灯(红)
报警时ALARM指示灯和
LEVEL指示灯同时亮。



●POWER(绿)
投光时亮灯。

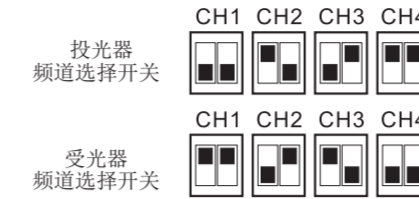
② 校验光轴对准精度时使用。
(请参阅其使用方法)

③ 设定遮光时间时使用。
(请参阅其使用方法)

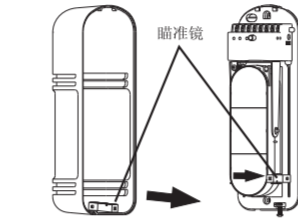
5 光轴调整

1. 取下面壳后输入电源。

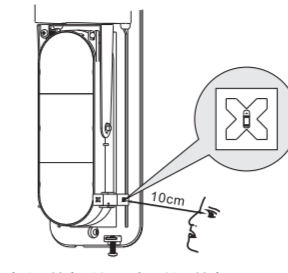
2. 频道选择
受光器、投光器选择相同的频道。



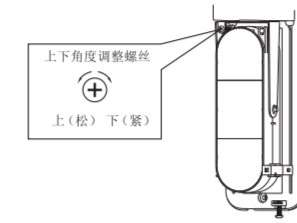
3. 将瞄准镜取下，并照图装配。



4. 距离瞄准镜10cm左右，在右边观察瞄准效果

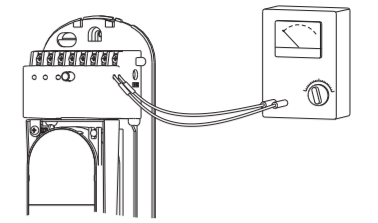


5. 调整上下角调整螺丝及水平调整架，
使对面的探测器影像落入瞄准镜中间
位置。此时受光器的GOOD指示灯应点
亮。(指示灯不亮时请继续调整光轴)



●最佳之光轴调整方法—量度测试孔之输出

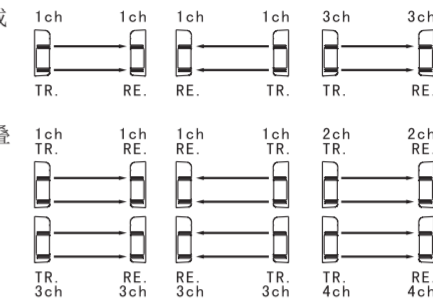
1. 将测试笔插入测试孔位(注意“+”，“-”极性)
2. 先调水平角度，直至测试孔电压输出最大，然后
作垂直调整，方法与水平角度相同。
3. 如果1.30V或以上的电压不能获得，则投光器及
受光器要再作调整。



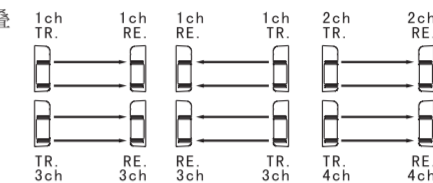
●典型安装使用

避免多对探测器同时使用时光束相互干扰，注意在安装时应使用不同频道。
*TR:投光器,RE:受光器

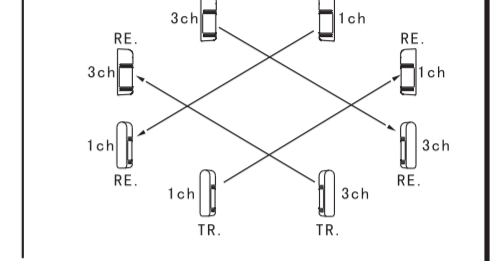
①长距离警戒



②长距离重叠警戒



③周界警戒

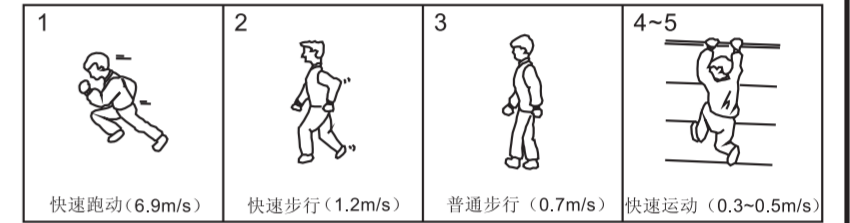


6 遮光时间的调整

通过旁边的草图得到要求的设置值，调节“遮光时间的调整”来设置受光器的遮光时间。
遮光时间必须设置成较小值以便检测较快的移动目标。然而应该考虑各种环境情况，比
如当有鸟或者被风吹动的物体时，遮光时间应该设置为较大值来忽略这些情况。



遮光时间的调整



7 动作确认

在完成安装后，通过恰当的步行测试来确认运行正常。在步行测试时参考下列指示灯。
安装面罩前确认防拆功能运作正常。盖面罩后确认系统运作正常。

投光器	状态		表示
	投光时	最佳调整	POWER(绿)指示灯亮
受光器	警戒时	调整不佳	GOOD(绿)指示灯亮
	警戒时	报警时	LEVEL(绿)指示灯亮
			ALARM(红)和LEVEL(红)指示灯亮

注意：步行测试至少每年进行一次

8 异常时的检查

故障现象	可能原因	维修对策
投光器指示灯不亮	电源电压不合适	检查电源和连线
受光器指示灯不亮	电源电压不合适	检查电源和连线
光线被遮断时报警指示灯不亮	① 来自于投光器的红外光束被另一个物体反射进入受光器 ② 三个光束没有同时被遮断 ③ 遮断时间小于遮断控制设定的时间	① 移开反射物体或者改变安装位置和光轴方向 ② 检查三个光束被同时遮断。 ③ 将遮断时间设置调整到较短值
光线被遮断时虽然报警指示灯亮，但报警铃不响	① 信号线开路或者短路 ② 在信号线连接端有桥接(信号线上有异常的电流)	① 检查连线 ② 需要返修
在受光器上的报警灯常亮不熄灭	① 光轴调整不恰当 ② 在投光器和受光器之间有障碍物。 ③ 投光器和受光器的外罩或者反射镜上有污物 ④ 投光器和受光器选用了不同的频道	① 重新调整光轴 ② 移开障碍物 ③ 用软布清洁光学部分 ④ 重新进行正确安装
断断续续报警	① 不良配线连接 ② 供电电压变化 ③ 在投光器和受光器有被风吹动的障碍物 ④ 安装不稳固 ⑤ 未完成光轴调整 ⑥ 鸟或者其他大的飞物遮断光束	① 检查配线连接 ② 检查供电电压(稳定的供电电压) ③ 移开障碍物或者改变安装位置 ④ 安装牢固 ⑤ 重新调整光轴 ⑥ 重新调整遮断时间，把时间调长或重新设置

9 技术参数

型号	DS-PI-T50/FM	DS-PI-T75/FM	DS-PI-T100/FM	DS-PI-T150/FM
警戒距离	50m	75m	100m	150m
最大到达距离	500m	750m	1000m	1500m
光束数	3束			
探测方式	3光束同时遮断检知式			
光源	数字脉冲红外光束			
感应速度	30~960ms			
频道选择	4个频道 CH1~CH4			
报警输出	继电器节点输出1C, 接点容量DC 30V 0.5Amax.			
电源电压	DC10.5~28V(无极性)			
推荐工作电压	DC 12V或者24V(无极性)			
消耗电流(DC 12V)	70mA	80mA	90mA	95mA
使用温度范围	-25°C~+55°C			
防拆输出	接点输出1b DC 30V 0.05A max			
光轴调整角度(水平)	180°(±90°)			
光轴调整角度(垂直)	16°(±8°)			
瞄准器	可拆卸式			
结露、霜对策	超声波结构			
其他附加功能	受光指示、OK指示、测试端子			
材质	面罩PC树脂; 底壳ABS树脂			
环境湿度	<95%RH			
外形尺寸	270mm×90mm×90mm			
重量	约1100g(受光器+投光器)			

10 外形尺寸图

