

# QTH7212P





## Thank You for Choosing a Q-See Product!

All of our products are backed by a conditional service warranty covering all hardware for 24 months from the date of purchase. Additionally, our products also come with a free exchange policy that covers all manufacturing defects for one month from the date of purchase. Permanent upgrading service is provided for the software and is available at [www.Q-See.com](http://www.Q-See.com).

Be certain to make the most of your warranty by completing the registration form online. In addition to warranty and technical support benefits, you'll receive notifications of product updates along with free downloadable firmware updates for your DVR. Register today at [www.Q-See.com](http://www.Q-See.com)!

Please see the back of this manual for exclusions.



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Manufacturer shall not be liable for any damages whatsoever from misuse of this product.

## Q-SEE PRODUCT WARRANTY

### 2-year Limited Warranty

Thank you for choosing Q-See to provide for your security needs, and welcome to the Q-See community! We stand behind the quality of all of our products, and we want you to know that we're here to help you should you ever need assistance with your Q-See purchase.

To receive full warranty benefits and lightning fast support, register your products at [www.Q-See.com](http://www.Q-See.com).

Be sure to keep your receipt, invoice, purchase order, or order confirmation in a safe place - you'll need a copy of as a proof of purchase to be able to obtain warranty service.

### What does my warranty cover?

Q-See warrants that your product is free from defects in materials and workmanship, with the exceptions stated below. If your product is not operating properly due to a product defect, Q-See will repair or replace your product according to the guidelines stated in this warranty policy.

### What doesn't my warranty cover?

Your warranty doesn't cover the following:

- Misuse
- Accident
- Modification or alteration to hardware or software, including the removal of any Q-See logos or brand identification
- Cut or spliced cables or wires
- Products that have been painted
- Wires coated in insulation, caulk, or other materials
- Tampering or unauthorized repairs
- Unsuitable physical or operating environment beyond product specifications
- Improper maintenance
- Incorrect power supplies being used with products
- Power fluctuations or surges – please be sure to use a surge protector
- Failure caused by a non-Q-See product being used with your Q-See products
- Loss of data – please be sure to regularly back up any recorded data on your hard drive that you want to keep to a separate storage product, like an external hard drive or a computer.

### How long does my warranty last?

From the date of purchase, your products will be covered by your warranty for two (2) years. Warranty service does not extend your warranty. If you decide to employ an installer to set up and install your system, we are not responsible for installation costs, and won't be able to reimburse you for any installation fees.

For the full Q-See warranty terms and policies, please visit [www.Q-See.com/Support](http://www.Q-See.com/Support).

## 24/7 TECHNICAL RESOURCES, KNOWLEDGE BASE AND MORE

[www.Q-See.com/Support](http://www.Q-See.com/Support)

Live chat is available at the same address from Monday to Friday 6am to 7pm  
Saturday and Sunday 9am to 5pm. All times are Pacific.

Rev. 1.0 5/19/15

## INTRODUCTION

This manual is written for the QTH7212P pan-tilt camera and was accurate at the time it was completed. However, because of our ongoing effort to constantly improve our products, additional features and functions may have been added since that time and on-screen displays may change. We encourage you to visit our website at [www.Q-See.com](http://www.Q-See.com) to check for the latest product announcements. You can also find technical details and an electronic version of this manual on our online Knowledge base online at [www.Q-See.com/support](http://www.Q-See.com/support).

Throughout the manual we have highlighted warnings and other important information that will assist you in operating your new system in a safe and trouble-free manner. Please take the time to read and follow all instructions and pay attention to alerts as shown below:



**IMPORTANT!** Red boxes with this icon indicate warnings. To prevent possible injury or damage to the product, read all warnings before use.



**NOTE!** Text in blue boxes with the Information icon offer additional guidance and explanations about how to make the most out of your system.

### For your safety and to protect your camera

To prevent damage to your Q-See product or injury to yourself or to others, read and understand the following safety precautions in their entirety before installing or using this equipment.



### **WARNING! ELECTRIC SHOCK RISK!**



- Care should be taken during transportation, storage and installation of this camera to avoid rough handling, dropping, or other abuse in order to prevent damage to the optics or components inside the camera.
- Camera should be installed in accordance with electrical standards including keeping the camera and cable away from high voltage, using a transient voltage surge protector (UL-1449) and using only the rated power supply.
- Do not use strong or abrasive cleaners on camera body or lens. Use a damp cloth for cleaning the housing and a lens cloth for the optics.
- Do not attempt to disassemble the camera beyond removing the case to adjust settings. Only authorized, trained technicians should service this camera.
- The camera should not be immersed in water and should be mounted in a sheltered location. Do not point camera directly at the sun or other strong light source.

## FEATURES

Your camera offers the following features:

- Compatible with QTH-series BNC HD DVRs
- High quality video using 1/4" Aptina Sensor with NextChip 2431 processor to produce 720p high definition video.
- Weatherproof IP65 Rating
- RS485 control.
- 128 preset positions - 80 preset positions and 48 special function settings.
- 3.6mm fixed lens.
- 360° continuous horizontal rotation with 90° vertical movement.
- Low-noise camera rotation motor.
- Fully-functional built-in decoder - all data is saved inside of the module to retain settings in case of power loss.
- Rotation/tilt speed: 25°/second
- Decoder's all-in-one integrated design ensures high reliability.

## SPECIFICATIONS

Image Sensor	1/4" Aptina	White Balance	Auto
Digital Signal Processor	NextChip 2431	BLC	Auto
Signal System	NTSC	AGC	Auto
Lens	3.6mm	Video Output	1.0V P-P, 75Ω BNC
Effective Pixels (HxV)	1280x720	Input Current	12V 1.2A
Usable Illumination	.01 lux	Power Consumption	<6W
Scanning	2:1 Interlace	Protection Rating	IP65
Sync. System	Internal	Operating Temp	14°F to 122°F (-10°C to 50°) (relative humidity: up to 95%)
Horizontal System	720p / 1 Megapixel	Storage Temp	-22°F to 158°F (-30°C to 70°C)
Shutter Speed	NTSC=1/60 ~1/100,000 sec	Color	Black
S/N Ratio	> 52dB	Control Protocol	Pelco-D and Pelco-P
		Baud Rate	2400b/4800b/9600b

## SETTING CAMERA ADDRESS

Unlike conventional security cameras, PTZ cameras require an address in order for them to properly operate. This address is only important if your system will be using more than one Pan-Tilt or Pan-Tilt-Zoom camera. If two cameras on a system have the same address, they will both follow the same instructions - meaning that at least one of them won't be pointing in the right place. The camera address is set to 1 by default. If you are only using a single PTZ camera you will likely not have to make any changes and you may proceed to the next section. Please consult your DVR's manual for required settings.

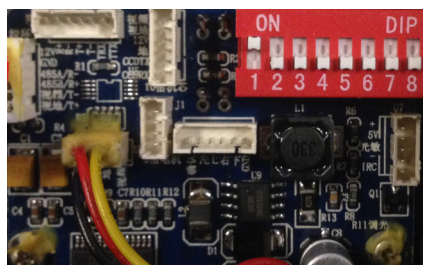
Unlike conventional Analog PTZ cameras, baud rates and communications protocols are automatically recognized by BNC HD cameras and DVRs so there is no need to make settings for these.

### CHANGING ADDRESS SETTINGS

If you need to change your camera's address, they are made using a DIP (Dual In-line Package) switch panel located within the camera itself (see *picture, right*). It is easier to do this before connecting the camera, because the switch panel may be inaccessible because of location, position, etc.

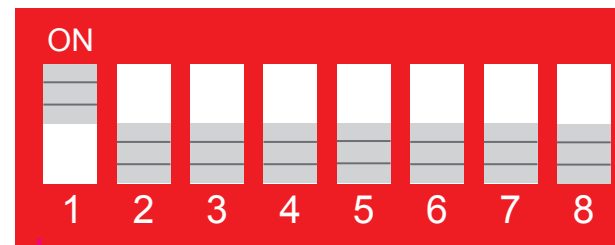
To access the panel, remove the clear dome by first twisting the collar around the dome counterclockwise. Take care to not scratch the clear dome while removing it. The circuit board on which the DIP switches are mounted is located below the camera head.

DIP switches are binary - meaning that they are either On ("1") or Off ("0"). Different combinations of ones and zeroes on the board produce different settings. See the next page for instructions and examples.



### CAMERA ADDRESS SETTINGS

The illustration below shows the settings for a camera with an address of "1"



Address Switch (8 digits)								
Code	1	2	3	4	5	6	7	8
1	1	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0
3	1	1	0	0	0	0	0	0
4	0	0	1	0	0	0	0	0
5	1	0	1	0	0	0	0	0
6	0	1	1	0	0	0	0	0
7	1	1	1	0	0	0	0	0
8	0	0	0	1	0	0	0	0
9	1	0	0	1	0	0	0	0
10	0	1	0	1	0	0	0	0
11	1	1	0	1	0	0	0	0
12	0	0	1	1	0	0	0	0
13	1	0	1	1	0	0	0	0
14	0	1	1	1	0	0	0	0
15	1	1	1	1	0	0	0	0
16	0	0	0	0	1	0	0	0

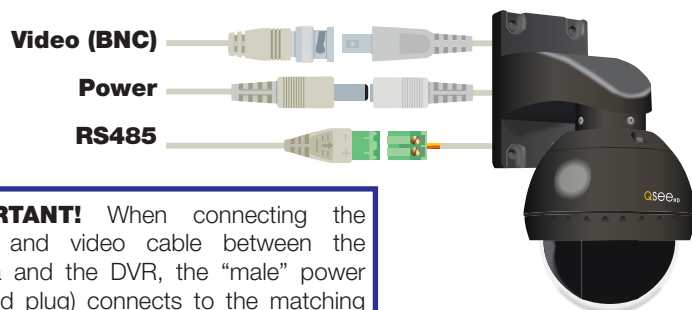
To change the camera's address, move the appropriate switch(es) up or down. For example, to change the address from "1" to "2", Switch 1 will need to be moved down (OFF) and Switch 2 will need to be moved up (ON).

## CONNECTING THE CAMERA

Before you can operate the camera, you must connect it to a system which can support PTZ operations. There are three sets of connectors - power, video and the bare control wires. This latter connection is covered on the next page. We recommend connecting the camera (at least temporarily) to the DVR to test your settings and connections before mounting it in its final location.

### CAMERA CABLE CONNECTIONS

**STEP 1.** Connect the BNC, power and RS485 leads from the camera to the matching connectors on the extension cable (Note: these may need to be purchased separately if your camera was not included as part of a bundle package).

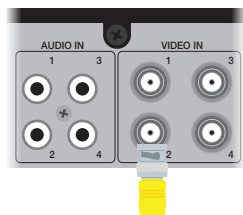


**IMPORTANT!** When connecting the power and video cable between the camera and the DVR, the “male” power end (red plug) connects to the matching power lead on the camera.

**STEP 2.** Connect the power lead on the other end of the video/power cable to a power adapter or power distribution panel. **Make certain that the power supply is rated for 12 volts and 800mA to 1.5A.**



**STEP 3.** Connect the BNC connector on that same end of the cable to a Video In port on the back of the DVR.



You can now plug the camera's power adapter into a surge protector and turn it on. To protect your investment, we **STRONGLY** recommended using a surge protector that is UL-1449 rated, for a clamping voltage of 330 or lower, a Joule rating of at least 400 and a response time of 10 nanoseconds or less.

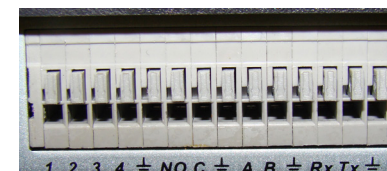
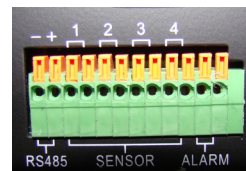
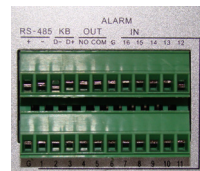
### PTZ CONTROL CONNECTION

In addition to connecting the power and video leads to the camera, you must also connect the two control wire leads to the RS485 ports in the alarm block on the back of the DVR. These blocks can vary in layout as shown below, but the ports used by your DVR are generally labelled “RS485”, “RS422”, “PTZ” or “P/Z”.

As seen in the picture on the right, the wire leads from the camera are two different colors and are labeled. They are also pre-installed into a block which plugs into a matching receptacle on the extension cable. There are matching wire leads (see *inset*) at the other end of the extension cable which must be inserted into the ports on the back of the DVR. In the case of the RS485 ports being marked as positive (+) and negative (-), the wire designated RS485A (**orange tip**) is the positive lead while the wire marked RS485B (**yellow tip**) is to go into the negative port. PTZ blocks on your DVR either have small screws to above each port to secure the wire or require a lock above the port to be depressed with an object like a small screw driver in order to fully insert the wire. In the latter, when the lock is released, an internal clamp will keep the wire firmly secured in the port. If the wire can easily be removed from the port, then it isn't secure and you can experience control difficulties until it is properly attached.

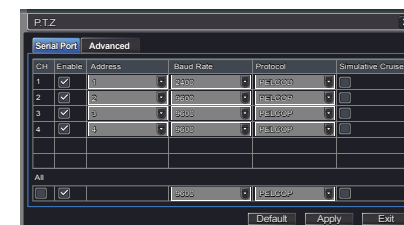


Space permitting, multiple PTZ cameras may be connected to the same ports. They will each require a different address which is set up using the DIP switches as covered in the previous section.



*Some examples of PTZ blocks. One using screws (left) and two using spring-loaded locks.*

To connect your camera to the DVR over a distance, you will need to use both a video/power cable and a pair of 24-gauge wires to connect to the alarm block. If your camera came as part of a package, these wires may be included separately or as part of the video and power cable.



Once you have made your connections, you will need to make settings on the DVR in order to control it. You will need to consult your DVR's manual for this procedure, but a sample screen (from a Q-See QT-series DVR) is shown on the right.



## INSTALLING THE CAMERA

When installing your camera, it is important to select a proper site not only for field of view, but for other considerations as well:

**Distance from viewing/recording device.** The further the camera is from the DVR or monitor, the higher the chances of signal degradation. Typical 75Ω Video Cable provides acceptable signal at distances up to 200' (30m). At greater distances, UL-Listed shielded RG59 should be used. The camera's power supply should be located as near to the camera as possible when the distance exceeds 200' as the power level will drop over extended distances resulting in a decrease in video quality.

**Do not place near high voltage wires or other sources of electrical interference.** Electrical interference will degrade the quality of the signal.

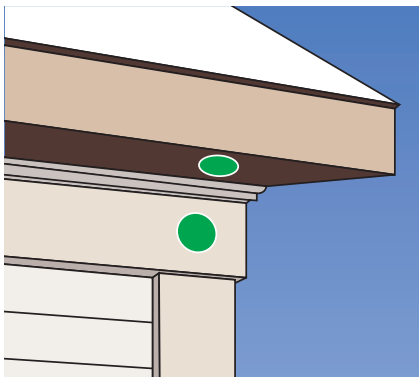
**Place camera out of reach to avoid damage.**

**Avoid direct exposure to weather.** Do not place the camera where rain or snow will hit the lens directly nor should the camera be placed so that the sun or bright light shines directly into the lens. Your camera is weatherproof, but it will not work when submerged in water. Ensure that all power and video connections are not directly exposed to water and are protected from the elements.

**Do not place camera behind a window.** If there is a light source behind the camera, it can cause a reflection in the window that will obscure events on the other side of the glass.

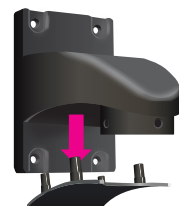
**Light levels should be approximately the same between camera and target area.** A camera in a brightly-lit area looking into a shaded area, or vice versa, may produce inadequate results.

The above are guidelines and the optimal location for your camera will depend on your unique circumstances. As a general rule, the locations highlighted in green in the picture to the right indicate the best locations to mount your camera. Both locations are sheltered from rain or snow and offer good sight lines to allow your camera to monitor a wide area. Because your camera is weatherproof, it requires less protection than weather-resistant cameras and it can be placed in more exposed locations if needed. Keep in mind that this camera is designed to operate between 14°F to 122°F (-10°C to 50°) with a relative humidity of up to 95%) and consider wind chill and other environmental factors when selecting your location.



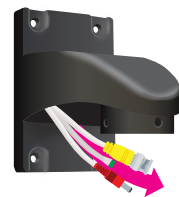
Your camera comes with both a ceiling and wall mount. Where you locate your camera will determine which mount you will need to use. The mounting surface must be sturdy and able to hold at least five times the camera's total weight.

## MOUNTING THE CAMERA

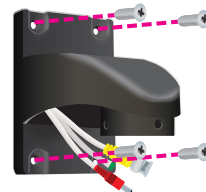


**STEP 1.** Run the power/video/data extension cable from the DVR to the camera's location.

**Wall Mount:** Remove the bottom plate from the wall bracket's arm.



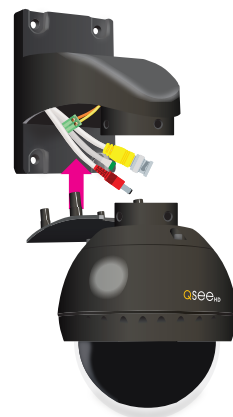
**STEP 2.** Use the desired mounting bracket to mark the position for the mounting holes. Drill the mounting holes with a 3/16" (5mm) drill bit. If needed, the hole for the cables should also be drilled at this time. It is best to drill a large enough hole to prevent the cable from catching on anything and allowing the cable extending from the camera to be easily pushed through.



**STEP 3.** Insert the included anchors into the mounting holes.

**STEP 4.** Pass the cable ends from the wall/ceiling through the bracket.

**Wall Mount:** Cables should only be passed through the hole in the back of the bracket. The green block should be passed through the hole first.



**STEP 5.** Mount the bracket to the surface.

**STEP 6.** Connect the camera's cable ends to those on the extension cable.

**Wall Mount:** Pass the cable ends from the camera through the hole at the front of the bracket.

Make sure that the cables aren't crimped inside the bracket - push excess cable back into the wall/ceiling.

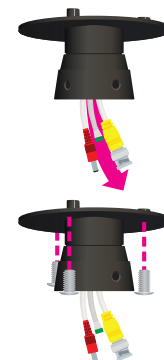
**STEP 7.** Secure the camera to the mount using the three short bolts.

**Wall Mount:** Replace the bottom plate on the support arm and secure with included screws.



**IMPORTANT!** Don't let the cables be pinched, tightly bent or otherwise constricted as part of final installation as this can damage the cable over time leading to signal loss or potential fire hazard.

Take care to ensure a clear work area below the camera mounting point during installation as a falling camera can cause injury or damage.



## WHICH CABLE TO USE?

Your cabling needs will depend on the distance between your camera and your DVR. Q-See offers several cables to fit specific needs. These may be purchased from the same location as where you bought your camera, or on our website: [www.q-seestore.com](http://www.q-seestore.com)

Q-See Model Number	QS50B (50') QS100B (100')	QSVRG60 (60') QSVRG100 (100') QSVRG200 (200')	QS59500 (500') QS591000 (1000')
Maximum Run Length	100'	200'	800'
Quality Output	Standard	High	High
Type	75Ω Video Cable	RG-59	RG-59
Shielded	No	Yes - UL Rated	Yes - UL Rated
Plenum Rated	No	No	No
Pre-Attached Connector			
Video	BNC	BNC	None
Audio	N/A	N/A	N/A
Power	2.1mm	2.1mm	None
Usage	Indoor/Outdoor · Do not run inside walls or underground	Indoor/Outdoor · In-wall or along wall	

For best results, it is highly recommended that you use RG-59 cable.

**NOTE:** To extend the RS485 data cable needed to control the camera, you may use any 24 gauge wire, including Cat 5.

### To maintain video quality:

- Video quality is always enhanced by using shielded cables.
- Always check state and local laws before installing cameras. (2011 NEC 820.44)
- To prevent video signal loss, run one continuous cable between the camera and DVR for best results. If more length is required, use the minimum number of inter-connection points possible.

### Other notes:

- If a cable run exceeds 800ft, we recommend using RG-6 coaxial cable which is available at most retail building supply companies.
- If your home or business is pre-wired with CAT-5 cable, then you can run up to 1000ft. Powered video baluns are required for easy installation.

## OPERATION

The your camera can be controlled manually through a PTZ keyboard (if supported by your DVR), or by using the PTZ controls on the DVR to which it is connected. Depending on the software used, it is also possible to control the PTZ camera remotely when you are logged into the DVR via the Internet, a remote monitoring program or a smartphone app.

You can also program a cruise - also called "scan" or "tour" on some systems - so that the camera will perform a set search pattern of the surrounding area. Up to 128 preset points can be stored on the camera. As mentioned in the section on **Connecting the Camera**, you will need to consult your DVR's manual for specifics on how to enable your system to control your camera. That manual should also contain instructions on how to program points and cruises for the camera to use.

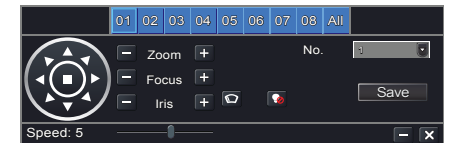
### GENERAL CRUISE SETUP PROCEDURE

While each DVR system is different in the specifics of how to set up a scan, there are general similarities. Most involve the process of pivoting the camera to the desired starting point and saving that point. Then, by selecting one or more points for the camera to move to in sequence, a scan path is built which is then saved. Often, multiple paths can be saved within the DVR, which can be selected for later use.

These points can be set using a special PTZ keyboard, or by using the PTZ controls on the DVR itself. Two such on-screen interfaces are shown at right; the QT-Series (top) and QC-series (bottom). In both examples, directional control is achieved by using the DVR's mouse to click on one of the directional arrows. As long as the arrow is held, the camera will move in that direction. There are no horizontal stops and the camera can rotate continuously if desired. The camera's elevation is limited to 90°.


On both control panels there are controls for zoom, focus and iris (light level). The QD6531Z has a 3x optical zoom lens which will adjust between 5 and 15mm. The camera has an auto-focus feature and is not user adjustable. Objects closer than 20" (50cm) will be blurry due to the limits of the automatic focus. Likewise, the camera automatically adjusts the iris internally and that setting is not manually changeable by the user.

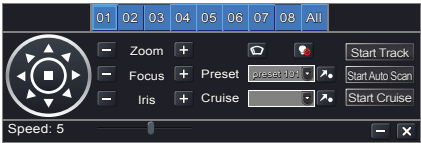
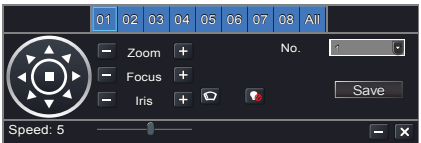
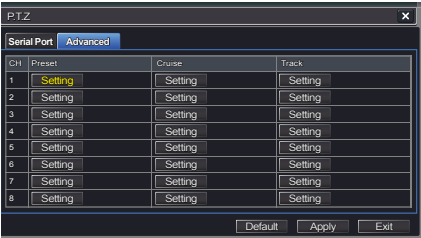
Of the 128 presets available on the camera, presets 1-80 may be used for defining camera positions. The remaining 48 are commands for the camera. Of that latter group, Preset **95** is the most useful as it will erase previously configured presets.



EXAMPLE 1: SETTING A CRUISE

This example is based on using a QT-Series DVR without an attached PTZ keyboard. Your DVR's specific commands may differ slightly. Please consult your system's manual.

- STEP 1. In your DVR's PTZ settings window, select the **Advanced** tab and then **Preset 1**.
- STEP 2. Rotate the camera to the desired position using the arrow controls.
- STEP 3. Click **Save**
- STEP 4. Select **Preset 2**.
- STEP 5. Rotate camera to desired second location.
- STEP 6. Click **Save**
- You may repeat Steps 4-6 for additional positions if desired.
- STEP 7. Return to the PTZ window and click on the **Cruise** button for your channel.
- STEP 8. Click **Add**.
- STEP 9. Double-click on the new cruise setting to begin loading your presets.
- STEP 10. Click on the + button to open the Preset pop-up window and select your starting preset point, speed and stop time.
- Speed: 1-8 with 8 being the fastest
- Time: This is the time the camera will stay pointed at this location.
- STEP 11. Repeat for each preset - up to a maximum of 16 per cruise.
- STEP 12. Click **OK** save your settings and close the windows until you reach the **PTZ Settings** window. Click **Apply** to save all of the settings.
- STEP 13. Open the PTZ controls from the Control Bar, select your cruise in the pull-down and click  to begin.



EXAMPLE 2: SETTING A TRACK

An alternate method is to utilize the Track settings - also found in the **Advanced** tab. Click the **Track** button for the right channel, use the directional controls to point the camera at your desired starting point and then click **Start Record**. The DVR will then record your movements, including delays at selected spots. Click **Stop Record** to end. Clicking on **Start Track** in the PTZ control window will start the camera on its track.

TROUBLESHOOTING

Problem	Solution
No picture or unstable image	Check both the power and video connections to the camera.
The on-screen image is blurry.	1. Check for fingerprints or dirt on the lens. 2. Check menu settings.
The on-screen image is dim.	1. Check for fingerprints or dirt on the lens. 2. Check monitor settings
The on-screen image is dark.	1. Adjust the monitor contrast settings.
The screen flickers.	Camera may be facing sun, television or computer monitor.
The camera is not working properly, is hot, smells or is producing smoke.	<b>DISCONNECT CAMERA FROM POWER SUPPLY IMMEDIATELY!</b> 1. Check that correct power supply is in use. 2. Send camera out for repair.



