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› [GW Security 16 Channel 4K NVR 5MP PoE IP Surveillance System User Manual](#)

## GW Security GW5091IP16-4T

# GW Security 16 Channel 4K NVR 5MP PoE IP Surveillance System User Manual

Model: GW5091IP16-4T

## 1. SYSTEM OVERVIEW

This manual provides instructions for the GW Security 16 Channel 4K NVR 5MP PoE IP Surveillance Security Camera System. This system is designed for comprehensive security monitoring, offering high-resolution video, advanced AI detection capabilities, and remote access.

Key features include:

- Max 8.0 Megapixel Full HD Realtime Recording 16 Channel 4K NVR.
- Sixteen (16) 5MP 1920P Weatherproof PoE H.265 IP Dome Cameras with built-in 2.8mm megapixel HD lens and 48Pcs Infrared LED for up to 130ft IR distance.
- Smart AI Detection: Face Recognition, Human Detection, and Vehicle Detection to minimize false alarms.
- Remote viewing on PC, Mac, iPhone, iPad, and Android devices.
- Power over Ethernet (PoE) for simplified installation.
- Wide Dynamic Range & 3D DNR for clear imaging in varied lighting.
- Advanced H.265 Video Encoding for efficient storage.
- Includes AI Motion Detection, Snapshot, and Email Alerts.
- Pre-installed 4TB Hard Drive, supporting up to 2 SATA HDDs (total 20TB).
- NDAA Compliant.



Image 1.1: Overview of the GW Security 16 Channel 5MP AI Security Camera System, showing the NVR and multiple dome cameras.

## 2. WHAT'S IN THE BOX

Verify that all components are present before beginning installation:

- 1 x GW42-4216P-2: 16 Channel 4K NVR with pre-installed 4TB Hard Drive
- 16 x GW5091IP: 5MP IP Outdoor/Indoor Cameras
- 8 x GWCAT60: 60FT CAT5E Cables
- 8 x GWCAT100: 100FT CAT5E Cables
- Quick Guide, User Manual, all Necessary Hardware and Software Included



Image 2.1: Illustration of the 16-channel NVR system with 16 dome cameras.

## 3. SETUP INSTRUCTIONS

### 3.1 NVR and Camera Connection

1. **Connect Cameras to NVR:** Use the provided CAT5E Ethernet cables to connect each 5MP IP camera to the PoE ports on the back of the NVR. The PoE technology will supply both power and data through a single cable.
2. **Connect NVR to Monitor:** Connect the NVR to a monitor using an HDMI or VGA cable.
3. **Connect NVR to Network:** Connect the NVR's LAN port to your router or network switch using an Ethernet cable for remote access capabilities.
4. **Power On:** Connect the NVR to a power source using the included power adapter. The system will boot up automatically.

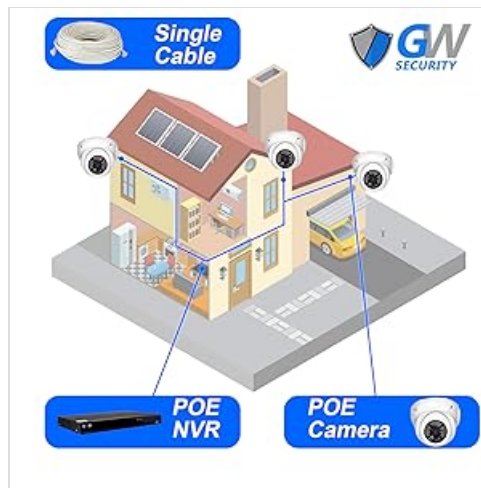


Image 3.1: Diagram illustrating the Power over Ethernet (PoE) connection from the NVR to the cameras and network.

### 3.2 Remote Viewing Setup

To enable remote viewing on your mobile devices or computer:

1. **Download App:** Download the GW Security smartphone application from your device's app store.
2. **Scan QR Code:** Open the app and scan the QR code displayed on the NVR's monitor or the NVR unit itself to add your system.
3. **Live Viewing:** Once connected, you can access live streams and playback from anywhere.

**12MP**  
**ULTRA HD**



## Check in from Anywhere

Even when you're miles away, keep an eye on your home, kids and mischievous pets in True life HD.

iPhone    Android    SN



**Mobile View Setup within Mins**

- 1 Scan QR for free APP "GWVIEW"
- 2 Scan QR for the S/N via the APP
- 3 Live Viewing

iPhone    Android    iPad    Computer

Image 3.2: The NVR unit displaying QR codes for quick mobile app setup, enabling remote viewing.

## 4. OPERATING INSTRUCTIONS

### 4.1 Basic NVR Operation

Navigate the NVR interface using a connected mouse. The main menu provides access to live view, recording settings, playback, and system configuration.

### 4.2 Recording Modes

The system supports various recording modes, including continuous recording and motion-activated recording. Motion detection can be configured to trigger recording only when activity is detected, conserving storage space.

### 4.3 Playback

Access recorded footage through the playback menu. You can search by date, time, and event (e.g., motion detection, AI events) to quickly locate specific incidents.

## 5. AI DETECTION FEATURES

This system incorporates advanced Artificial Intelligence (AI) for enhanced detection capabilities, reducing false alarms and providing more relevant alerts.

## 5.1 Face Recognition

The system can identify and recognize familiar faces. You can configure it to alert you when unknown faces are detected on your property.



Image 5.1: Icon representing the Face Recognition feature.

## 5.2 Human and Vehicle Detection

The AI can differentiate between humans, vehicles, and other moving objects, ensuring that you receive alerts only for significant events. This helps in filtering out irrelevant motion triggers like animals or swaying branches.



Image 5.2: A scene demonstrating human and vehicle detection, with bounding boxes highlighting detected subjects.

## 6. VIDEO AND AUDIO FEATURES

### 6.1 High-Resolution Video

The system utilizes 5MP (1920P) cameras, providing clear and detailed video footage. The NVR supports 4K output for high-definition viewing.



## Resolution Comparison

Higher resolution results in more detailed images

Image 6.1: Visual comparison of different video resolutions, highlighting the superior clarity of 5MP.

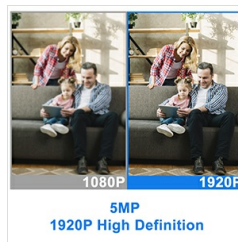


Image 6.2: Icon indicating 5MP resolution capability.

## 6.2 Real-Time Recording

Cameras record at 30 frames per second (FPS), ensuring smooth and fluid video capture without choppiness.

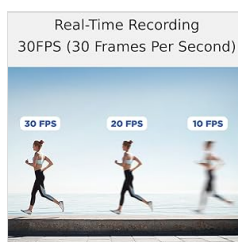


Image 6.3: Icon representing 30 frames per second recording.

### 6.3 Built-in Microphone

Each camera includes a built-in microphone for audio recording, providing an additional layer of surveillance information.



Image 6.4: A dome security camera with a visual representation of its built-in microphone.



Image 6.5: Icon representing a built-in microphone.

### 6.4 Wide Angle View & Night Vision

The cameras feature a 2.8mm lens for a wide viewing angle, covering larger areas. Infrared LEDs provide night vision up to 130 feet for clear monitoring in low-light conditions.

## Wide Angle View

3.6mm lens provides 100 degree angle of view to cover full size room (up to 400Sq Ft)



Image 6.6: Comparison of a 3.6mm lens wide-angle view versus a 6mm lens, demonstrating broader coverage.



Image 6.7: Close-up view of a GW Security dome camera, showing the lens and infrared LEDs.

## 7. STORAGE AND VIDEO COMPRESSION

The system utilizes advanced H.265 video compression technology to optimize storage and bandwidth usage.

## 7.1 H.265 Video Encoding

H.265 (High Efficiency Video Coding) significantly reduces file sizes without compromising video quality. This allows for longer recording times and faster loading speeds compared to older compression standards like H.264.

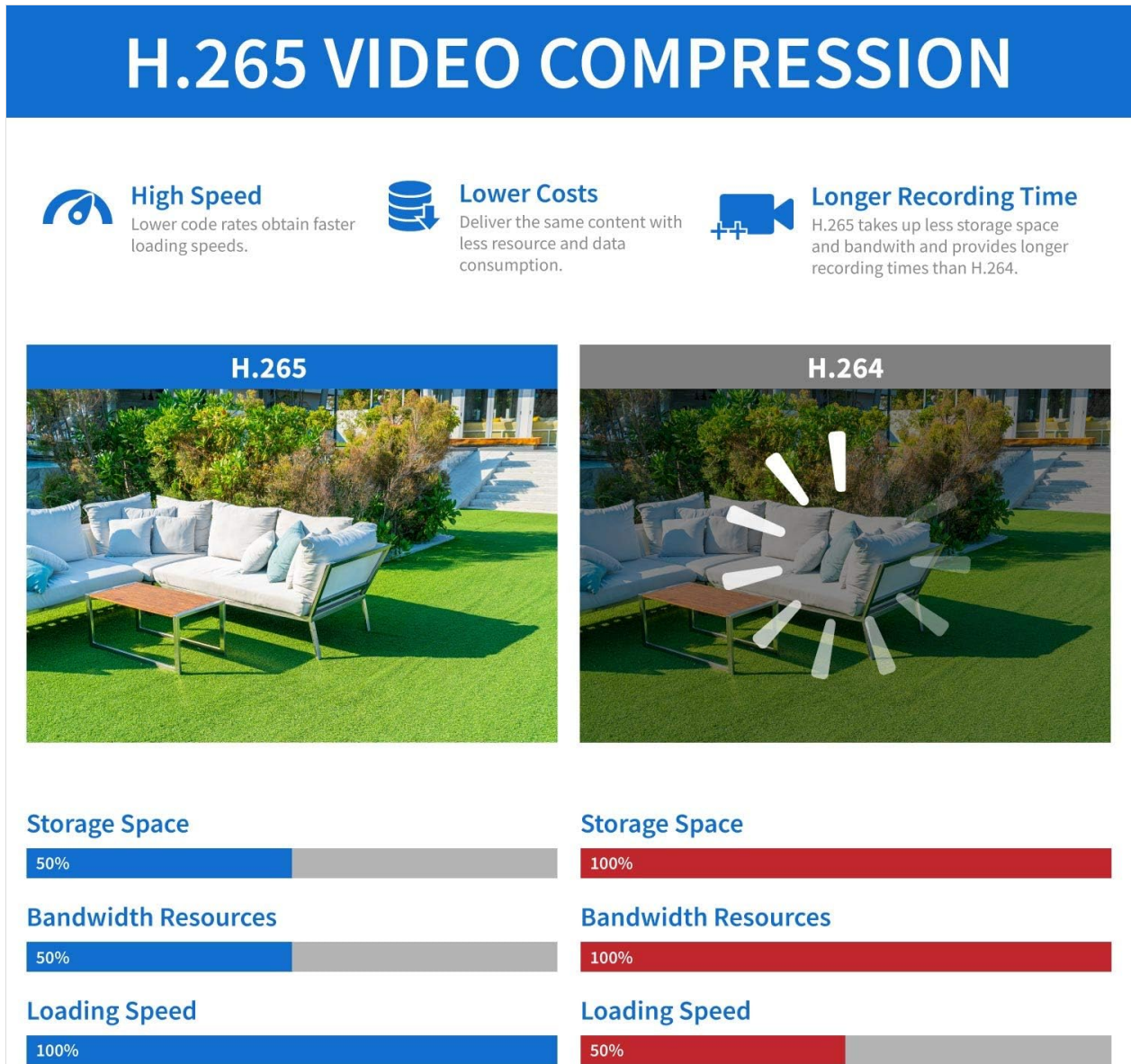


Image 7.1: Comparison illustrating the efficiency of H.265 video compression over H.264 in terms of storage space, bandwidth, and loading speed.

## 7.2 Storage Capacity

The NVR comes with a pre-installed 4TB hard drive. It supports up to two SATA hard drives, allowing for a total storage capacity of up to 20TB (10TB per drive).



Image 7.2: The NVR unit shown with a hard drive, highlighting its 12MP Ultra HD capability, support for 2 HDDs up to 20TB, and H.265+ HEVC compression.

## 8. SPECIFICATIONS

Feature	Detail
Brand	GW Security
Model Number	GW5091IP16-4T
Connectivity Technology	Wired (PoE)
Video Capture Resolution	5MP 1920p
Number of Channels	16

Feature	Detail
Memory Storage Capacity	20 TB (Max, with 2 HDDs)
Pre-installed HDD	4TB
Power Source	Power Over Ethernet
Item Dimensions (L x W x H)	15 x 15 x 10 inches
Compatible Devices	Laptops, PCs, Smartphones, TV, Tablets
Low Light Technology	Night Vision
Night Vision Range	130 Feet
Frame Rate	30 Frames per Second
Recording Mode	Motion Detection
Hardware Interface	Ethernet, HDMI, VGA, RJ45
Lens Type	Wide Angle (2.8mm)
Viewing Angle	110 Degrees
Special Features	20X Digital Zoom, Face Recognition, Human/Vehicle Smart AI Detection, NDAA Compliant, Real-Time 30FPS Video & Audio Recording

## 9. MAINTENANCE

Regular maintenance ensures optimal performance and longevity of your surveillance system.

- **Camera Cleaning:** Periodically clean the camera lenses with a soft, damp cloth to remove dust, dirt, or water spots that may obstruct the view. Avoid abrasive cleaners.
- **Cable Inspection:** Check all Ethernet cables for any signs of wear, damage, or loose connections. Secure any loose cables to prevent accidental disconnections.
- **NVR Ventilation:** Ensure the NVR unit has adequate ventilation to prevent overheating. Keep the area around the NVR clear of obstructions.
- **Software Updates:** Check the GW Security website or app for any available firmware or software updates for your NVR and cameras. Keeping the software updated can improve performance and security.
- **Data Backup:** Regularly back up important recorded footage to an external storage device to prevent data loss.

## 10. TROUBLESHOOTING

If you encounter issues with your system, refer to the following common troubleshooting steps:

- **No Video Display:**

- Check power connections for both the NVR and the monitor.
- Verify that the HDMI/VGA cable is securely connected between the NVR and the monitor.
- Ensure the correct input source is selected on your monitor.

- **Camera Not Showing Image:**

- Confirm the Ethernet cable connecting the camera to the NVR is secure and undamaged.
- Check if the camera's PoE port on the NVR is functioning correctly (try connecting another camera to the same port, or the problematic camera to another port).
- Restart the NVR.

- **No Remote Access:**

- Ensure the NVR is connected to your network via an Ethernet cable.
- Verify your internet connection is active.
- Check firewall settings on your router; ensure necessary ports are open if manual configuration was performed.
- Confirm the correct QR code or device ID was entered into the mobile app.

- **Poor Image Quality:**

- Clean the camera lens.
- Adjust camera position or angle if glare or obstructions are present.
- Check NVR display settings for resolution output.

- **False Motion Alerts:**

- Adjust the sensitivity of motion detection in the NVR settings.
- Refine detection zones to exclude areas with frequent irrelevant movement (e.g., trees swaying).
- Utilize AI Human/Vehicle Detection to filter out non-human/vehicle movements.

## 11. WARRANTY AND SUPPORT

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GW Security is committed to providing high-quality products and excellent customer service.

### 11.1 Warranty Information

This product is covered by a **Two Year Warranty** from the date of purchase. Please retain your proof of purchase for warranty claims.



*Image 11.1: Graphic indicating GW Security's 20 years of operation.*

## 11.2 Technical Support

For any technical assistance or inquiries, GW Security offers free US-based phone and email technical support. Our highly-trained staff are available to assist you with setup, operation, and troubleshooting.

**Support Hours:** Monday - Friday, 6:00 AM - 7:00 PM PST



 **2-Year Warranty**

**Free Domestic Tech Support**

Call our highly-trained techs support staff for any issues that may arise, we are more than happy to assist you in securing your life.

**Monday - Friday 6:00am - 7:00pm PST**

*Image 11.2: A team of customer support representatives, symbolizing GW Security's US-based technical support.*