Network / IP Camera

User Manual
Preface

Congratulations on your purchase of this product. Read this manual carefully and keep it in a safe place for future reference.

About this Manual

This user manual has been designed to help you make the most of your IP camera and its many features and functions. Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information in this document is subject to change without notice.

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Introduction

This section covers unpacking your new IP camera, its key features, and basic technical information about the product. Refer to later chapters for information on setting up and configuring the product in more detail.

Key Features

- 640x480 (VGA), 320x240 (QVGA), 160x120 (QQVGA) resolutions
- 307,200 effective pixels
- Max. frame rate 25fps at VGA resolution
- 3.6 mm, F2.0 lens
- Configuration and viewing via standard internet browser
- Built-in microphone
- Motion detection feature
- Email and ftp alert feature
- Automatic infrared night vision function
- External GPIO sensor input
Package Contents

The package should contain all the following. If anything is missing or appears damaged, contact your dealer immediately.

- IP camera module
- Mounting bracket
- RJ-45 cable
- Mounting screws
- AC power adaptor
- Quick start guide
- CD-ROM with manual and software
Product Views

Use the following illustrations to familiarize yourself with the camera and identify each of the parts.

**Front View**

- Lens Assembly
- Light Sensor
- Power Indicator
- LAN Indicator
- WLAN Indicator
- Microphone
- Night Vision
- IR LEDs

**Back View**

- Wireless Receiver
- Antenna
- GPIO Port
- DC-IN Socket
- RJ-45 LAN Connector

**Bottom View**

- Mounting Point
**Indicators**

The following table shows what each of the LED indicators means.

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAN</td>
<td>Green</td>
<td>Network activity indicator</td>
</tr>
<tr>
<td>Power</td>
<td>Green</td>
<td>Power indicator</td>
</tr>
</tbody>
</table>

**System Requirements**

The system requires an ethernet port/wireless connection and an IP address.

To view the IP camera images, your computer must have:

- Microsoft Windows 98, ME, NT4.0, 2000, or XP operating system. A Mac or Linux based machine is also compatible.
- Microsoft Internet Explorer 5.x, or later.
Getting Started

Read this section of the manual to learn how to set up your IP camera and use its basic functions.

Software Installation

You do not need to install any software for simply viewing images from the IP camera, but you will need to use the supplied auto scan software to set the camera up for the first time and find it on the network.

To install the auto scan software:

1. Insert the supplied CD-ROM into your CD-ROM drive.
2. If the installation does not start automatically, use a file explorer application to execute setup.exe in the root folder on the CD-ROM.
3. Follow the on-screen instructions.
4. Install IPCam Master to use IPCam Master.
Hardware Installation

Read this section to learn how to install the camera and connect it to a network.

**Assembling the Stand**

The camera can be assembled in two different ways; either from the top of the unit or the bottom.

Assemble the stand and fix it to the camera as shown.

Use the three screws and plugs provided to fix the stand bracket to a wall, ceiling or other convenient fixing point.

The stand can be adjusted to allow the camera a full 360° of rotation and a pan and tilt action.

Follow the above steps to mount from the base of the unit, attaching the stand bracket to the mounting point on the base of the unit.

<table>
<thead>
<tr>
<th>Warnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ensure the camera is fixed securely otherwise it may fall and cause injury.</td>
</tr>
<tr>
<td>• The camera is not waterproof and should not be mounted outside or in a position where it could become wet.</td>
</tr>
</tbody>
</table>
Connecting to a Network
The IP camera can be connected to an Ethernet network using the RJ-45 port as shown. Connect the camera to an Ethernet hub or switch using a standard cable. You can also connect the camera directly to a computer using the supplied cable.

Connecting Power
Connect the power adapter to the DC-IN socket on the camera as shown.

Use only the power adapter with the camera. Using another adapter, not recommended by the manufacturer, may damage the camera and invalidate the warranty.
Initial Configuration

Read this section to learn how to configure and begin using the IP camera. A complete description of the features and functions can be found in the next chapter.

To install the camera on a network, you first need to give it an IP address. Ask your network administrator to obtain an IP address suitable for your network, along with a netmask, the gateway address, and http port.

Connect the IP camera to your network or host PC as described in “Connecting to a Network” on page 7.

Note:
Connecting the camera to your network before you have configured an IP address may cause problems such as address conflicts. To avoid these problems, connect the camera to an isolated PC with a hub or cross-over cable to configure the network settings.

Start the IPCam Master software.

Click the Update button to scan for your camera. A list of cameras connected to the network will appear in the window.
Enter the IP address, netmask, gateway address and http port provided to you by your network administrator:

If you want to connect using DHCP, check the *Enable DHCP* checkbox.

Click the **Submit** button to update the camera with the new configuration.

When the above steps have been completed, you can double click the name of the camera in the display window to connect to it using your default browser. Alternatively, you can connect to the camera by entering the IP address in the browser address field.
Using an Internet Browser to Connect to the Camera

Read this section to learn how to use your Internet browser to connect to the IP camera, view images, and hear audio output.

To connect to the IP camera using an Internet browser:

Enter the IP address of the camera in the browser address field.

| Address | http://169.254.0.1 |
Using and Configuring

Read this chapter to learn how to operate the IP camera and take advantage of the advanced features such as alerting, and ftp transfers.

Web Page Layout

Use the menu bar on the left side of the screen to perform actions and enter the sub-menus:

1. **Snap Image**: Click to save the current image.
2. **Record AVI**: Click to record an AVI video clip.
3. **Configuration Setting**: Click to enter the settings sub-menus.
4. **4-port Viewer**: Click to view the output of up to four other IP cameras on the network.
5. **Audio On/Off**: Click to turn audio on or off.
6. **Motion Indicators**: These indicators flash red and blue alternately when motion is detected.

See the following sections for more information on each of these menu items.
**Saving an Image**

To save the image currently displayed in the main window, do the following:

Click the 📷 tab on the menu sidebar. A save dialog appears:

Enter a filename, select a file type from the dropdown menu, and click the Save button.
Recording a Video Clip

To record a video clip (AVI file), do the following:

Click the tab on the menu sidebar. A settings window appears:

Enter the frame rate you want to record at.

Enter the duration of the recording.

Enter the file prefix and the file path you want to save the file to.

If you want to record continuously, check the Continuous Recording checkbox.

Click the button to confirm all settings and begin recording.

The menu icon will turn red during recording.
**Viewing Multiple Cameras via the 4-Port Function**

To view up to four cameras connected to your network at one time, you can use the 4-port camera function.

To view multiple cameras in the display window, do the following:

Click the tab on the menu sidebar. The settings screen appears.

Click *Basic Setting* on the menu sidebar and then *Monitor* in the submenu. The 4-port monitor setting screen appears:

![4-Port Monitor Setting](image)

Enter the IP address, port, login and password of each camera you wish to view and check the *Enable* checkbox.

Click the button to confirm your settings.

Click the tab on the menu sidebar to return to the main screen.

Click the tab on the menu sidebar to switch to 4-port viewing mode.
Configuring the Camera

Read this section of the manual to learn how to configure the IP Camera using the settings menus.

To access the settings menus, do the following:

Click the button on the menu sidebar. The main settings screen appears:

There are two sub menus in the menu sidebar: Basic Setting and Advanced Setting.
Configuring Basic Settings
Read this section to learn about all the settings and options under the **Basic Setting** sub menu.

Configuring System Settings
The **System** submenu allows you to configure all system-related settings. There are three main screens, accessed via the tabs at the top of the screen: **Configuration**, **Firmware**, and **Others**.

Configuration Settings
Click the **Configuration** tab to access the system configuration screen:

![Configuration Screen]

Here is displayed all system information, including firmware version and device name, and is where you can configure date and time options.

Choose to either **Sync with Time Server** or **Sync with PC Time**. Check the radio button for the setting you wish to use.

If you select **Sync with Time Server**, choose your time zone, enter NTP server details, along with another server if necessary. You can also enable daylight saving time by checking the **Daylight Saving Time** checkbox.
If you select **Sync with PC Time**, the current time displayed by your PC is shown.

Click the **Submit** button to confirm your settings.

**Firmware Upgrade**

Click the **Firmware** tab to access the firmware upgrade screen:

Here you can upgrade the system firmware version.

**Warning**

Do not upgrade the firmware version unless you are certain that it will improve your system performance. Any unnecessary firmware upgrade may result in malfunction.

Click the **Browse** button and locate the folder where the firmware update is stored.

Click the **Upgrade** button to load the file.
Configuring the Camera

**Others Settings**

Click the *Others* tab to access the others screen:

Here you can restore factory defaults and reboot the system remotely.

Under **Restore Factory Defaults**, click the **Restore Factory Default** button to restore all factory defaults. A confirmation dialog appears. Click **OK** to confirm.

Under **Remote Reboot**, click the **Remote Reboot** button to reboot the system remotely. A confirmation dialog appears. Click **OK** to confirm.
**Configuring Network Settings**

The *Network* submenu allows you to configure all network-related settings. There are four main screens, accessed via the tabs at the top of the screen: *Ethernet, Wireless, PPPoE,* and *DDNS.*

**Ethernet Settings**

Click the *Ethernet* tab to access the ethernet settings screen:

![Ethernet Settings](image)

Here you can configure all settings related to your ethernet, wireless, and DNS & HTTP port setup.

Complete all the fields as required. You may not require all the fields. For instance, you will not need to complete the static IP address fields if you are installing the camera on a network that allocates addresses using DHCP.

Click the *Submit* button to confirm your settings.
Configuring the Camera

**Wireless Settings**

Click the *Wireless* tab to access the wireless settings screen:

Here you can configure all settings related to camera access to your wireless network.

If your network allows for wireless connection, complete all the fields under *Configuration* to connect wirelessly. Ask your network administrator for all relevant information should you need it.

- **Connection Type**: Select the connection type; *Infrastructure* or *Ad-Hoc*.

- **Auth Type**: Select authentication type; *Open System*, *Shared Key*, or *Auto*.

- **ESSID**: Enter the public name of your wireless network.

- **Region**: Select your region; *U.S.*, *Europe* or *Japan*.

- **Channel**: Select from channels *1 - 11* or *Auto*.

- **Encryption Type**: Select to enable WEP encryption or not. If enabled, select the bit rate; *64 Bits* or *128 Bits*.

- **WEP Key**: Select up to four keys to be configured when encryption is enabled. Select the key type; *ASCII* or *HEX*. Then complete the key description fields and choose one of the four keys as the default from the drop down menu.

Click the **Submit** button to confirm your settings.
**PPPoE Settings**

Click the **PPPoE** tab to access the PPPoE settings screen:

![PPPoE Settings Screen]

Here you can configure all PPPoE connection settings.

If you connect to your network via PPPoE, check the **Enable** checkbox and choose from either an **Ethernet** or **Wireless** connection. Complete all fields under **Configuration**, including your username, password, and MTU setting.

Click the **Submit** button to confirm your settings.

Once successfully configured, status details will be displayed under **Status**.
DDNS Settings

Click the **DDNS** tab to access the DDNS settings screen:

Here you can configure all DDNS connection settings.

DDNS allows PPPoE or DHCP dynamic IP users to access the IP camera using a single domain name. The IP camera supports DDNS and meets the Bynamix Network Service, Inc. standard.

Go to **www.dyndns.org** to register a domain name and obtain a username and password. Enter this domain name, username, and password in the DDNS settings screen.

Click the **Submit** button to confirm your settings.

When the IP address of the camera changes, it will update its new address to DDNS automatically and the camera can be contacted using a domain name instead of an IP address.
Configuring User Settings

The **User** submenu enables you to set up users and administrators for the system:

Under **User Authorization**, check **Enable User Check** if you wish to run a login process every time you access the system. Click the **Submit** button to confirm this setting.

Under **Add/Modify User**, enter a new username and password in the required fields to create new user names. Assign each user to either the admin or user groups. Click the **Submit** button to confirm the new setting.

Under **Delete User**, select a username from either an admin or user group you want to delete. Click the **Submit** button to delete the user.
Configuring the Camera

**Configuring Video Settings**
The *Video* submenu enables you to configure all video settings:

![Video settings configuration interface](image)

Under **Profile & Options**, you can alter various options:

**Camera Location**: Enter the camera location. Click the button to confirm this setting.

**Display Options**: Check the checkbox to show the date, time, and camera location on the display screen.

**Image Flip**: Check to rotate the display image 180 degrees.

**Frame Rate**: Enter the required frame rate. Click the button to confirm this setting.

Under **Image Parameters**, you can alter image output options. Select the image compression rate, and resolution you require from the dropdown boxes.

Make any adjustments for brightness, contrast, saturation, sharpness, hue and gamma of the image using the or buttons. Click the button to reset to the parameter to its default value.

Under **Audio Parameters**, check the checkbox to turn audio on or off.
4-Port Monitor Setting
See “Viewing Multiple Cameras via the 4-Port Function” on page 16 for more details on settings covered under this menu.

Configuring Advanced Settings
Read this section to learn about all the settings and options under the Advanced Setting submenu.

Configuring FTP Settings
The FTP submenu enables you to configure all FTP (File Transfer Protocol) settings:

When FTP alerting is enabled, the camera sends a still image to the ftp server every time the alert is triggered (see “Configuring Breach Manager Settings” on page 31 for details on how to activate this option).

Enter your FTP address, along with username, password and folder to which the images will be uploaded.

Check the Enable checkbox and click the Submit button to confirm all settings.
Configuring Mail Server Settings

The Mail submenu enables you to configure all mail server settings:

When mail alerting is enabled, the camera sends a still image to a specified email address every time the alert is triggered (see “Configuring Breach Manager Settings” on page 31 for details on how to activate this option).

Enter your mail server address, along with username, password, mail sender address, mail receiver address, and mail subject.

Check the Enable checkbox and click the Submit button to confirm all settings.
Configuring GPIO Settings

The GPIO submenu enables you to configure all DI sensor and DO settings:

External DI sensors can be attached via the GPIO port at the rear of the camera. The external sensor can be normally open (NO), or normally closed (NC). A normally open sensor is like an open switch that closes when triggered. A normally closed sensor is like a closed switch that opens when triggered. This must be set correctly for an external sensor to function properly. You can connect up to two DI sensors to the camera.

An external DO alarm can also be attached to the camera via the GPIO port at the rear of the camera.

Under DI Configuration, select a DI Index, whether you want it to be NO or NC, and Enable/Disable from the dropdown menus.

Click the Submit button to confirm all settings.

Under DO Configuration, select a DO index and ON/OFF from the dropdown menu.

Click the Submit button to confirm all settings.
Configuring Tcp Message Settings

The **Tcp Message** submenu enables you to configure all tcp message settings:

Enter the Server IP address, port and message subject.

Check the **Enable** checkbox and click the **Submit** button to confirm all settings.
Configuring Breach Manager Settings

The Breach Manager submenu enables you to configure all breach alert and motion detection settings:

You can configure the system to capture images when either the motion sensors, DI1 or DI2 sensors are activated.

To set a breach alert, do the following:

Select a breach ID from the dropdown menu and enter the duration of the alert. You can configure up to five separate alerts at any one time.

Select the alert trigger device and camera location from the dropdown menus.

Check the radio buttons to select whether to be alerted by ftp upload, email, tcp message or external DO alarm.

If external DO alarm is selected, choose the alarm type from the dropdown menu, select ON to activate the alarm, and enter the alarm length time in the DO Last field.

Check the Enable checkbox and click the Submit button to confirm all settings.

The Status window lists all configured alert details; the first column lists the alarm trigger type, the second lists the action type, and the third displays whether the alert is enabled or disabled.
# Appendix

## Specifications

<table>
<thead>
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<th>MODEL</th>
<th>L10 (Ethernet/LAN)</th>
<th>W10 (Ethernet/LAN)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CMOS Sensor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of effective pixels</td>
<td>307,200 pixels (VGA)</td>
<td>307,200 pixels (VGA)</td>
</tr>
<tr>
<td>Lens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>C3 Mount Lens</td>
<td>C3 Mount Lens</td>
</tr>
<tr>
<td>Focal length</td>
<td>f = 6.0mm</td>
<td>f = 6.0mm</td>
</tr>
<tr>
<td>F-number</td>
<td>F1.8</td>
<td>F1.8</td>
</tr>
<tr>
<td><strong>System / Network</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU / Encode Chip</td>
<td>MIPS / JPEG encode chip (VGA)</td>
<td>MIPS / JPEG encode chip (VGA)</td>
</tr>
<tr>
<td>Video Compression</td>
<td>M-JPEG</td>
<td>M-JPEG</td>
</tr>
<tr>
<td>Audio Compression</td>
<td>PCM 64kbit</td>
<td>PCM 64kbit</td>
</tr>
<tr>
<td>Image size (HxV) (Resolution)</td>
<td>640x480 (VGA), 320x240 (QVGA), 160x120 (QQVGA)</td>
<td>640x480 (VGA), 320x240 (QVGA), 160x120 (QQVGA)</td>
</tr>
<tr>
<td>Image quality</td>
<td>5 Level (Highest, High, Medium, Low, Lowest)</td>
<td>5 Level (Highest, High, Medium, Low, Lowest)</td>
</tr>
<tr>
<td>Frame rate</td>
<td>Up to 15fps@VGA, Up to 25fps@QVGA</td>
<td>Up to 15fps@VGA, Up to 25fps@QVGA</td>
</tr>
</tbody>
</table>
### Specifications

<table>
<thead>
<tr>
<th>Protocol</th>
<th>TCP/IP, ARP, ICMP, HTTP, SMTP, FTP, DHCP, DNS, NTP, PPPoE, DDI TCP/IP, DDNS</th>
</tr>
</thead>
</table>

**Interface**

<table>
<thead>
<tr>
<th>Interface</th>
<th>100Base-TX / 10Base-T (RJ-45x1)</th>
<th>100Base-TX / 10Base-T (RJ-45x1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wireless (Wi-Fi)</td>
<td>N/A</td>
<td>IEEE 802.11 b/g</td>
</tr>
<tr>
<td>GPIO</td>
<td>Sensor in x 2 / Alarm out x 1</td>
<td>Sensor in x 2 / Alarm out x 1</td>
</tr>
<tr>
<td>Status LED</td>
<td>Power, LAN, WAN</td>
<td>Power, LAN, WAN, WAN</td>
</tr>
<tr>
<td>Night vision</td>
<td>IR LEDs x 8 (auto/manual)</td>
<td>IR LEDs x 8 (auto/manual)</td>
</tr>
<tr>
<td>Button</td>
<td>Reboot/Restore factory default</td>
<td>Reboot/Restore factory default</td>
</tr>
<tr>
<td>Power supply</td>
<td>DC Jack (5V)</td>
<td>DC Jack (5V)</td>
</tr>
</tbody>
</table>

**Software functions**

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<th>Two layers (Administrator/Guest)</th>
<th>Two layers (Administrator/Guest)</th>
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<tbody>
<tr>
<td>Network settings</td>
<td>IP &amp; Domain name (Fixed, DHCP, PPPoE, DDNS) HTTP Port Number</td>
<td>IP &amp; Domain name (Fixed, DHCP, PPPoE, DDNS) HTTP Port Number</td>
</tr>
<tr>
<td></td>
<td>Wireless (SSID MODE (Ad-HOC, Infrastructure), Wep 64/128 bit))</td>
<td>Wireless (SSID MODE (Ad-HOC, Infrastructure), Wep 64/128 bit))</td>
</tr>
</tbody>
</table>
## Specifications

<table>
<thead>
<tr>
<th>Image settings</th>
<th>Resolution, frame rate Parameters (Brightness, Contrast, Saturation, Sharpness, Hue)</th>
<th>Resolution, frame rate Parameters (Brightness, Contrast, Saturation, Sharpness, Hue)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera settings</td>
<td>Camera name, date / time (NTP, manual), frequency (60 / 50Hz)</td>
<td>Camera name, date / time (NTP, manual), frequency (60 / 50Hz)</td>
</tr>
<tr>
<td>Email / FTP</td>
<td>Email, FTP settings / action (trigger manually)</td>
<td>Email, FTP settings / action (trigger manually)</td>
</tr>
<tr>
<td>GPIO</td>
<td>Sensor in (enable/disable), Alarm out (enable/disable, auto/manual)</td>
<td>Sensor in (enable/disable), Alarm out (enable/disable, auto/manual)</td>
</tr>
<tr>
<td>Motion detection</td>
<td>Enable/disable</td>
<td>Enable/disable</td>
</tr>
<tr>
<td>Snapshot</td>
<td>Manual</td>
<td>Manual</td>
</tr>
<tr>
<td>Number of clients</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

### Other

<table>
<thead>
<tr>
<th>Power requirements</th>
<th>DC 5V</th>
<th>DC 5V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>0°C - 30°C</td>
<td>0°C - 30°C</td>
</tr>
<tr>
<td>Operating humidity</td>
<td>20% - 80%</td>
<td>20% - 80%</td>
</tr>
<tr>
<td>Supplied accessories</td>
<td>CD-ROM, Quick Installation Guide, Network Cable, Bracket, AC Adapter</td>
<td>CD-ROM, Quick Installation Guide, Network Cable, Bracket, AC Adapter</td>
</tr>
</tbody>
</table>
Maintenance

This product has no user servicable parts inside and removal of the case should not be attempted except by qualified service personnel.

Only use a clean cloth, slightly dampened with water to clean this camera. Do not use spirit cleaners or solvents as this may damage the plastic case and lens parts. Use a soft, dry cloth to clean the lens when required.

Do not install this camera in an environment where it is likely to be exposed to dust, high humidity, high temperatures, or rain.

Do not install this equipment in an enclosed space with no ventilation. The camera is likely to become warm during normal use and ventilation is required to maintain a sufficiently low operating temperature. If the camera is mounted in an enclosed space, it may overheat and may be permanently damaged.

If the camera begins to function badly or stops working, and routine maintenance procedures described above do not solve the problem, contact your dealer and arrange for a service engineer to inspect the camera.

Troubleshooting

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<th>Solution</th>
</tr>
</thead>
<tbody>
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<td>My camera doesn’t work - what should I do?</td>
<td>You should turn off your PC and disconnect the network cable. Try rebooting in safe mode and reconnect the network cable.</td>
</tr>
<tr>
<td>The image is upside down.</td>
<td>Turn the image the right way round using the rotate function.</td>
</tr>
<tr>
<td>My camera won’t connect to my network.</td>
<td>Check the IP adress allocated to your camera is correct - if in doubt, consult your network administrator.</td>
</tr>
<tr>
<td>Glossary</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Alert</td>
<td>An alert can be in the form of an e-mail, a ftp upload or DO of an image that occurs when a sensor is triggered, or motion is detected.</td>
</tr>
<tr>
<td>AVI</td>
<td>Audio Video Interleaved. A Windows multimedia video format from Microsoft.</td>
</tr>
<tr>
<td>CIF</td>
<td>Common Interface Format. A standard video resolution format used in video conferencing. CIF resolution is 352x288 and bit rate is 36.5 Mbps (at 30 fps).</td>
</tr>
<tr>
<td>DHCP</td>
<td>Dynamic Host Configuration Protocol. A system by which each piece of equipment is allocated an IP address automatically.</td>
</tr>
<tr>
<td>DI sensor</td>
<td>The DI sensor input allows you to connect an external sensor or switch to the camera that may be used to trigger an alert. The DI sensor input can be set to normally open (NO - switch closing causes an alert) or normally closed (NC - switch opening causes an alert).</td>
</tr>
<tr>
<td>Ethernet</td>
<td>The most widely used local area network (LAN) access method, defined by the IEEE as the 802.3 standard.</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol. The network layer protocol in the TCP/IP communications protocol suite (the 'IP' in TCP/IP). IP contains a network address and allows messages to be routed to a different network or subnet.</td>
</tr>
<tr>
<td>LED</td>
<td>Light Emitting Diode. A semiconductor device that emits light when voltage is applied.</td>
</tr>
<tr>
<td>Motion detection</td>
<td>Camera function that causes an alert to be triggered when movement is detected in the field of view.</td>
</tr>
<tr>
<td>PPPoE</td>
<td>Point to Point Protocol over Ethernet: A standard that incorporates PPP protocol, widely used for dial-up Internet connections, into a cable modem connection that uses Ethernet as its transport to the carrier's facilities.</td>
</tr>
<tr>
<td>Protocol</td>
<td>Standards governing the transmission and reception of data.</td>
</tr>
<tr>
<td>QCIF</td>
<td>Quarter CIF, 176x144 resolution, 9.1 Mbps (at 30 fps).</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Resolution</td>
<td>Screen resolution is expressed as a matrix of dots. For example, the VGA resolution of 640x480 means 640 dots (pixels) across each of the 480 lines.</td>
</tr>
<tr>
<td>RJ-45</td>
<td>Registered Jack 45. RJ-45 type connections are used in Ethernet devices.</td>
</tr>
<tr>
<td>SNTP</td>
<td>Simple Network Time Protocol. A protocol that allows devices to update internal clocks using a standard source available on a network.</td>
</tr>
<tr>
<td>Static IP address</td>
<td>A static IP address that is assigned manually and never changes.</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>Transmission Control Protocol/ Internet Protocol. A communications protocol developed under contract from the US.</td>
</tr>
<tr>
<td>VGA</td>
<td>Video Graphic Array. The video display standard for the PC.</td>
</tr>
</tbody>
</table>