PLEASE READ THIS MANUAL BEFORE USING YOUR CAMERAS, and always follow the instructions for safety and proper use. Save this manual for future reference.
CAUTION

FCC Caution: To assure continued compliance, use only shielded interface cables when connecting to computer or peripheral devices. Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment.

NOTE

This equipment has been tested and found to comply with the limits for a Class “A” digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

LEGAL NOTICE

Observint Technologies (Observint) products are designed to meet safety and performance standards with the use of specific Observint authorized accessories. Observint disclaims liability associated with the use of non-Observint authorized accessories.

The recording, transmission, or broadcast of any person’s voice without their consent or a court order is strictly prohibited by law.

Observint makes no representations concerning the legality of certain product applications such as the making, transmission, or recording of video and/or audio signals of others without their knowledge and/or consent. We encourage you to check and comply with all applicable local, state, and federal laws and regulations before engaging in any form of surveillance or any transmission of radio frequencies.

ALIBI and the ALIBI logo are trademarks of Observint.

Microsoft, Windows, and Internet Explorer are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Observint disclaims any proprietary interest in trademarks and trade names other than its own.

No part of this document may be reproduced or distributed in any form or by any means without the express written permission of Observint, Inc.

© 2015 by Observint Technologies. All Rights Reserved.
11000 N. Mopac Expressway, Building 300, Austin, TX 78759
For Sales and Support, please contact your distributor.
Regulatory information

FCC information

FCC compliance: This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Preventive and Cautionary Tips

Before connecting and operating your cameras, please be advised of the following:

- Ensure environmental conditions meet factory specifications.
- Major shocks or jolts to the unit as a result of dropping it may cause damage to the sensitive electronics within the unit.
- Use the device in conjunction with an UPS if possible.

Safety Instructions

These instructions are intended to ensure that user can use the product correctly to avoid danger or property loss.

The precaution measure is divided into Warnings and Cautions:

- **Warnings**: Neglecting any of the warnings may cause serious injury or death.
- **Cautions**: Neglecting any of the cautions may cause injury or equipment damage.

**Warnings**

- All the electronic operation should be strictly compliance with the electrical safety regulations, fire prevention regulations and other related regulations in your local region.
- Do not connect several devices to one power adapter as adapter overload may cause over-heat or fire hazard.
- Please make sure that the power has been disconnected before you wire, install or dismantle the camera.
If smoke, odors or noise rise from the device, turn off the power at once and unplug the power cable, and then please contact the service center.

If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the speed dome yourself. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)

Cautions

- Do not drop the dome or subject it to physical shock, and do not expose it to high electromagnetism radiation. Avoid the equipment installation on vibrations surface or places subject to shock (ignorance can cause equipment damage).
- Do not place the dome in extremely hot, cold, dusty or damp locations, otherwise fire or electrical shock will occur. The operating temperature should be -40 °F ~ 149 °F (-40 °C ~ 65 °C).
- The dome cover for indoor use shall be kept from rain and moisture.
- Exposing the equipment to direct sun light, low ventilation or heat source such as heater or radiator is forbidden (ignorance can cause fire danger).
- Do not aim the speed dome at the sun or extra bright places. A blooming or smear may occur otherwise (which is not a malfunction however), and affecting the endurance of sensor at the same time.
- Please use the provided glove when open up the dome cover, avoid direct contact with the dome cover, because the acidic sweat of the fingers may erode the surface coating of the dome cover.
- Please use a soft and dry cloth when clean inside and outside surfaces of the dome cover, do not use alkaline detergents.
- Please keep all packaging for future use. In case of a failure, use the original packaging to return the camera to the factory. Transportation without the original packaging may result in damage to the camera and incur additional costs.

Read these instructions and keep them in a safe place for future reference.

- Please refer all work related to the installation of this product to qualified service personnel or system installers.
- Do not operate the camera outside of its specified temperature, humidity or power source ratings.
- Install the unit away from heat sources such as radiators, heat registers and stoves.
- Installation of the unit near consumer electronics devices, such as stereo receiver/amplifiers and televisions, is permitted as long as the air surrounding the terminal does not exceed the above mentioned temperature range.
- Handle the camera with care. Do not drop or shake, as this may damage it.
- Do not use strong or abrasive detergents when cleaning the surfaces of this product. When dirt is hard to remove, use a mild detergent and wipe gently.
- Save your system configuration.
- Distributing, copying, disassembling, reverse compiling, reverse engineering, and exporting, in violation of export laws, the software provided with this product is expressly prohibited.
# Table of Contents

## SECTION 1

**Overview**................................................................. 1

1.1 Features ........................................................................ 1

1.2 What’s in the box .......................................................... 3

1.3 Accessories ................................................................... 3

## SECTION 2

**Installation** .................................................................... 8

2.1 Remove the camera from the packaging .................................... 8

2.2 Install an micro-SD card in the camera ........................................ 9

2.3 Camera wall mount installation ............................................... 9

2.3.1 Connecting the cables .................................................... 11

2.4 Ceiling mounting ............................................................ 14

## SECTION 3

**Configure Network Access** .................................................. 16

## SECTION 4

**Remote login** ................................................................. 19

4.1 Additional configuration steps .............................................. 24

## APPENDIX A

**Specifications** ............................................................... 25

## APPENDIX B

**Definitions** ................................................................. 28

## APPENDIX C

**Lightning and Surge Protection** ............................................ 30

## APPENDIX D

**24 Vac Wire Gauge and Transmission Distance** ......................... 31
SECTION 1
Overview

Congratulations on purchasing your new ALIBI™ IP PTZ camera! This installation guide includes procedures for installing and performing the initial setup of the camera.

The ALI-NP7012RT IP PTZ Camera can capture high quality images in low light environment with its black anti-reflective glass. The black anti-reflective glass increase the luminousness for an IR reach of up to nearly 500 feet. Embedded with a 1/1.9” progressive scan CMOS chip makes DWDR 2MP real-time resolution possible. With the 23× optical zoom Day/Night lens, the camera offers more details over expansive areas. This camera also features a wide range of functions, including intrusion detection, line crossing detection and audio exception, benefitting users with great improvement on security efficiency, more importantly, with key events/objects being recorded for further forensic needs.

1.1 Features

Basic functions

- High performance sensor, up to 1920 x 1080 resolution
- ±0.1° Preset accuracy
ONVIF (Open Network Video Interface Forum), CGI (Common Gateway Interface), PSIA (Physical Security Interoperability Alliance), to ensure greater interoperability between different platforms and compatibility

3D intelligent positioning function

Power-off memory function: restore PTZ & lens status after reboot

IP66 compliant

**Functions**

- Detections: intrusion detection, line crossing detection, audio exception detection, motion detection
- Recording: edge recording, support smart search in smart NVR
- Support low bit rate, ROI

**Camera function:**

- Auto iris, auto focus, auto white balance, backlight compensation and auto day & night switch
- Min. Illumination: 0.02 Lux @ (F2.0, AGC ON) (Color), 0.002 Lux @ (F2.0, AGC ON) (B/W)
- Supports 8 privacy masks

**PTZ function:**

- 360° endless pan range and -15° ~ +90° tilt range
- 400°/s Pan Preset Speed and 200°/s Tilt Preset Speed
- 0.1° ~ 400°/s Manual Pan Speed and 0.1° ~ 200°/s Manual Tilt Speed
- 300 programmable presets; preset image freezing capability
- 8 patrols, up to 32 presets per patrol

**Network function:**

- H.264/ MJPEG video compression and the latest processing chip and platform
- Built-in web server
- Support Micro SD card local storage, up to 128GB
- Support up to 8 NAS storage; transmit videos from the SD card to the NAS after network recovery
- HTTPS encryption and IEEE 802.1X port-based network access control
- Support dual-stream; H.264/ MJPEG video compression; basic and advanced video configuration; real time video at 1080P
- Multiple network protocols supported: IPv4/IPv6, HTTP, HTTPS, 802.1X, QoS, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE
- 1 audio input and 1 audio output
- 2 alarm inputs and 1 alarm output, alarm linkage support preset, patrol, pattern, recording, relay output, upload center, etc.

**IR function:**

- 0 Lux minimum illumination
- Up to 656 ft IR distance
• IR light MTBF reaching up to 30,000 hours
• Smart IR mode

1.2 What’s in the box

Your camera includes:
• PTZ camera assembly
• Pendant adapter
• Ethernet drop cable seal kit
• Hi-Power PoE injector
• Safety cable handle (red)
• Gloves
• Hex L-wrench
• Thread tape
• Software and documentation CD
• Quick installation guide (this document)

1.3 Accessories

The following accessories are available for the ALIBI ALI-NP7012RT camera. Mounting bracket detail is shown below.

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALI-PTZCL</td>
<td>Ceiling Mount Bracket</td>
</tr>
<tr>
<td>ALI-PTZWB</td>
<td>Wall Mount Bracket</td>
</tr>
<tr>
<td>ALI-PTZPM</td>
<td>Pole Mount PTZ Bracket</td>
</tr>
<tr>
<td>ALI-PTZCM</td>
<td>Corner Mount PTZ Bracket</td>
</tr>
</tbody>
</table>
ALI-PTZCL: Ceiling Mount Bracket

The Ceiling Mount Bracket is suitable for outdoor ceiling mounting.
ALI-PTZWB: Wall Mount Bracket

The Wall Mount Bracket is suitable for indoor and outdoor wall mounting.
ALI-PTZPM: Pole Mount PTZ Bracket

The Pole Mount Bracket is suitable for outdoor pole mounting. The straps can attach to a 2.64" ~ 5.00" diameter pole.
SECTION 1: OVERVIEW

ALI-PTZCM: Corner Mount PTZ Bracket

The Corner Mount Bracket is suitable for outdoor pole mounting to a 90° corner.
SECTION 2
Installation

Before you start

• Check the package contents and make sure that the device in the package is in good condition and all the assembly parts are included:
  — PTZ camera assembly
  — Pendant adapter
  — Thread tape
  — Hi-Power PoE injector
  — Gloves
  — Hex L-wrench
  — Software and documentation CD
  — Quick installation guide (this document)

• Make sure the mounting surface and fasteners are strong enough to withstand at least 8 times the weight of the camera assembly and the mounting bracket.

• For cement walls, use an expansion screw to secure the mounting bracket.

For outdoor installations, refer to “APPENDIX C Lightning and Surge Protection” on page 30 for additional installation considerations.

CAUTION

Always carry the camera by its Safety cable. A red cable handle is provided.

2.1 Remove the camera from the packaging

1. Remove the camera from the protective packaging.

2. Remove tape from the dome drive, if attached.
2.2 Install an micro-SD card in the camera

The microSD card in the provides in-camera (local) storage for log information and locally stored video and capture files. Cameras without an SD card cannot provide camera log information, which is valuable for maintenance purposes. Your camera will accommodate a microSD card with up to 128 GB of storage. The location of the micro-SD card slot is shown below.

1. Use a Phillips #2 screw driver to remove the back cover of the dome drive. See the photo above.
2. Insert the microSD card into the card slot until it clicks into place.
3. Reattach the back cover.

2.3 Camera wall mount installation

Following the instructions below to install the camera using the ALI-PTZWB Wall Mount Bracket.

Instructions for mounting the camera with a ALI-PTZPM Pole Mount PTZ Bracket or ALI-PTZCM Corner Mount PTZ Bracket are very similar. For these brackets, use the instructions below as a guide.

1. Determine the best mounting screws and hardware to anchor the mounting bracket with the camera to the mounting surface. Use the following guidelines:
1. For cement wall mounting, use the expansion screw to anchor the bracket.
   - For wooden wall mounting, use self-tapping screw to anchor the bracket.
   - Make sure that the wall is strong enough to withstand more than 8 times the weight of the camera and the bracket.

2. Using the mounting bracket as a template, mark the location of the mounting screw holes on the mounting surface. Also mark the location of a hole for the camera drop cable. The drop cable will be routed through the mounting bracket and through the mounting surface.

3. Drill holes in the mounting screws and hardware. Also, drill a 1½” diameter hole in the mounting surface for the interface extension cables.

4. Clip the safety cable to the loop on the camera mounting bracket. Allow the camera to hang in place.

5. Open the top cover of the camera with the hex wrench provided. The camera drop cables are under the cover.

6. Route the LAN and power cables (or LAN cable if using PoE), audio, microphone, alarm and RS-485 cables through the wall mount bracket, and then through the top cover of the camera.
7. Connect the extension cables to the camera drop cables. Refer to “2.3.1 Connecting the cables” on page 11.

8. Reattach the camera top cover. Tighten the screws.

9. Fit the mounting bracket coupling into the mounting bracket, and then tighten the lock screw.

2.3.1 Connecting the cables

Drop cables connectors for the ALI-NP7012RT are shown below. Each wire is labeled with its purpose.

Connect the camera to other devices as needed in the order shown below.

Alarm Input/Output cables

The alarm input/output drop cable bundle provides five wires, ALARM_IN1, ALARM_IN2, ALARM_OUT1, ALARM_COM1 and ALARM_GND. These wires are color coded and labeled.

These connection use the ALARM_IN1 and ALARM_GND wires for alarm input 1, and ALARM_IN2 and ALARM_GND wires for alarm input 2. Alarm inputs normally connect normally open (NO) or normally closed (NC) sensor contacts. The normal contact state is configurable in the camera setup menus.
Connect the camera alarm output drop cables to an alarm reporting device. See the Specifications section for interface requirements and the diagram below. These connection use the ALARM_OUT1 and ALARM_COM1 wires.

The alarm output provides the relay output (no voltage). An external power supply is required when it connects to the alarm device. With a DC power supply (left diagram), the input voltage must be no more than 12 Vdc, 30 mA. For AC power supply (right diagram), the external relay must be used to prevent damages to the camera and avoid the risk of electric shock.

**Audio cable**

The Audio drop cable provides three wires: AUDIO_OUT, AUDIO_IN and AUDIO_GND (ground). These wires are color coded and labeled.

Connect the AUDIO_IN and AUDIO_GND wires to a line level audio input source. The input signal must be 2 ~ 2.4 Vp-p at 1 KΩ ± 10% input impedance.

Connect the AUDIO_OUT and AUDIO_GND wires to a line level audio receiver (impedance 600 Ω).

**RS-485 cables**

Connect the RS485+ and RS485- drop cable wires to an RS-485 controller or an NVR with an RS-485 network interface. PTZ features can also be controlled through the camera network (browser) interface, and through a supported NVR PTZ control panel. These wires are color coded and labeled.

**Video cables**

The video drop cable provides a BNC connector with a CVBS signal for connection to any compatible monitor. The feature is useful for maintenance and for showing the live view display on a local monitor.
**Network (LAN) cable**

Connect the network LAN drop cable to a router (switch) through an Ethernet drop cable with an RJ-45 connector. If the drop cable RJ-45 connector is exposed to moisture or dust, apply the Ethernet drop cable seal kit provided. In some network configurations, the LAN cable can connect directly to a Network Video Recorder (NVR) with a built-in network switch.

**Power cables**

You can power the camera directly by applying 24 Vac power to the drop cable power screw-down connectors. Refer to “APPENDIX D 24 Vac Wire Gauge and Transmission Distance” on page 31 for more information.

The LAN cable can also provide Hi-PoE to the camera. A Hi-PoE injector is provided. A typical PoE injector is shown below.

To use the injector:

1. Connect the injector ground wire to an earth ground terminal. ([NOTE: Not all PoE injectors have a ground wire.]
2. Connect a LAN drop cable between the network switch and the DATA IN port on the injector.
3. Connect a LAN drop cable between the injector DATA and POWER OUT port and the camera LAN drop cable.
4. Plug the power cable provided (not shown) for the PoE injector into the jack on the injector, then into a standard 120 Vac electrical outlet.

After power is applied to the camera, the camera will perform initial motion checks. Allow these motion checks to complete before continuing (~ 1 minute).
2.4 Ceiling mounting

Following the instructions below to install the camera using the ALI-PTCL Ceiling Mount Bracket.

1. Determine the best mounting screws and hardware to anchor the mounting bracket with the camera to the mounting surface. Use the following guidelines. Make sure that the ceiling is strong enough to withstand more than 8 times the weight of the camera and the bracket:
   - For cement ceiling mounting, use the expansion screw to anchor the bracket.
   - For wooden ceiling mounting, use self-tapping screw to anchor the bracket.

2. Using the mounting bracket as a template, mark the location of the mounting screw holes on the ceiling.

3. Drill holes for the mounting screws and hardware. Also, drill a 1½” diameter hole in the mounting surface for the camera extension cables.

4. Anchor the mounting bracket to the ceiling.

5. Clip the safety cable to the loop on the pendant adapter. Allow the camera to hang in place.

6. Open the top cover of the camera with the hex wrench provided. The camera drop cables are under the cover.
7. Route the LAN and power cables (or LAN cable if using PoE), audio, microphone, alarm and RS-485 cables through the wall mount bracket, and then through the top cover of the camera.

8. Connect the extension cables to the camera drop cables. Refer to “2.3.1 Connecting the cables” on page 11.

9. Reattach the camera top cover. Tighten the screws.

10. Fit the camera mounting bracket coupling into the mounting bracket, and then turn the camera to connect to the pendant adapter.

11. Tighten the lock screw to secure the camera in place.
SECTION 3
Configure Network Access

After the camera is powered on, an initial network configuration setup should be performed. This procedure includes:

- Installing ALIBI™ Power Tools
- Setting up the camera network configuration

For more information about configuring your ALIBI camera, refer to the ALIBI™ IP Camera Software User Manual provided on the software and documentation CD with your camera.

Step 1. Install Alibi Power Tools

Alibi Power Tools (Alibi Tools Utility) is a collection of useful software programs for use with your IP based Alibi cameras and recorders. Within the tool set is the Alibi Discovery Tool, a software utility used to “discover” Alibi IP cameras and NVRs/DVRs installed on the LAN and change their network parameters. Use Discovery Tool to setup your camera on a network. See below.

Alibi Tools Utility is provided on the CD with your camera and is available on the Supercircuits product page (as Alibi Power Tools) for all Alibi IP cameras and recorders. Use the ALIBI™ Tools Utility Installation and User Manual, included on the CD and embedded in the Alibi Power Tools zip file available from your retailer.

1. Install the Alibi Tools Utility on a PC with access to the LAN where your ALI-NP7012RT camera is connected. When the program opens, the following screen appears. The example shown below uses an ALI-NS7012R camera.
2. Double click the **Discovery Tool** icon to open the program. When the program opens it will automatically list the Alibi cameras and recorders installed on the network.

3. To change the network settings of the camera to be compatible with the subnet where it is installed, do the following:
   a. Click the device to highlight it. Notice that the network parameters are shown in the right frame.
SECTION 3: CONFIGURE NETWORK ACCESS

b. Modify the network parameters to values compatible with the subnet where it is installed.

c. Enter the **admin** password for the device in the password field. The default **admin** user password for Alibi cameras is **1111**.

d. Click the **Save** button. The new IP address, port, etc. parameters will appear in the list with the device you modified.

3. Close the Alibi Tool Utility by clicking the **Close** icon in the upper-right corner of the window.
SECTION 4
Remote login

To access the camera from a computer on the LAN:

1. Open your Microsoft Internet Explorer (IE) browser on your computer and enter the IP address of the camera in the URL field. In the example below, the IP address of the camera is 192.168.75.76.

2. In the login window, enter your **User Name** and **Password** in the appropriate fields, then click **Login**. The default **User Name** and **Password** for Alibi cameras is **admin** and **1111**.

3. If the password you enter for your camera is a weak password, the following pop-up window will appear. Follow the instructions to create a “strong” **admin** password.
SECTION 4: REMOTE LOGIN

NOTE

Observint recommends using strong passwords in all of your surveillance devices. Strong passwords have a minimum of 8 characters with upper case and lower letters, numbers and special characters. And we recommend you reset your password regularly, especially in high security systems. Resetting the password monthly or weekly will better protect your security system from hackers and criminals.

4. If this is the first time you are logging into a camera and are using Internet Explorer 10 or newer, a message may appear at the bottom of the window to use ActiveX Controls. Click Allow.

5. If this login is the first login to an Alibi camera from your computer and browser, continue with the following sub-steps to install WebComponents:

a. After a successful login to the camera, a message will appear in the middle of the Live View window requiring you to load a plug-in. Click on the message to continue, then click Run in the pop-up block at the bottom of the screen.
Some computer security software may attempt to block you from running `WebComponents.exe`. If necessary, open the Internet Explorer downloads list, right click on the `WebComponents.exe` file name, then click `Run Anyway`.

b. In the **Setup - WebComponents** window opens, click **Next** to continue.
Installing the WebComponents plugin may require that you close the browser. Follow the on-screen instructions, then restart your browser and log in after the installation is finished.

c. Allow the plug-in installation to complete. When the following window appears, click Finish.

6. Log into the camera again to see the Live View - Main stream window.
7. In the Live View window shown below, click the Open PTZ controls icon to open/close the PTZ control panel.
8. In the PTZ control panel, click the manual control arrows to exercise the pan-tilt-zoom features of the camera.

4.1 Additional configuration steps

Refer to the document *ALIBI™ IP Camera Software User Manual* provided on the software and documentation CD with your camera to customize the configuration of your camera.
### APPENDIX A: SPECIFICATIONS

## Specifications

<table>
<thead>
<tr>
<th><strong>Camera</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Sensor</td>
<td>1/1.9&quot; CMOS</td>
</tr>
<tr>
<td>Scanning Mode</td>
<td>Progressive Scan</td>
</tr>
<tr>
<td>Resolution</td>
<td>Up to 1920 x 1080</td>
</tr>
<tr>
<td>Effective Pixels</td>
<td>Approx. 2.1 Megapixel</td>
</tr>
<tr>
<td>Minimum Illumination</td>
<td>Color: 0.02 Lux (F1.6, AGC On), B/W: 0.002 Lux, 0 Lux (IR ON)</td>
</tr>
<tr>
<td>Day/Night</td>
<td>True Day/Night (ICR)</td>
</tr>
<tr>
<td>Wide Dynamic Range</td>
<td>120 dB</td>
</tr>
<tr>
<td>Electronic Shutter (sec)</td>
<td>1 ~ 1/30,000</td>
</tr>
<tr>
<td>Gain Control</td>
<td>Auto/Manual</td>
</tr>
<tr>
<td>White Balance Mode</td>
<td>Auto/Manual/ATW/Indoor/Outdoor/Daylight Lamp/Sodium Lamp</td>
</tr>
<tr>
<td>Noise Reduction</td>
<td>3D DNR</td>
</tr>
<tr>
<td>IR Illuminators</td>
<td>Smart IR Array, Adjustable by zoom, 850 nm</td>
</tr>
<tr>
<td>IR Array Range</td>
<td>656 ft</td>
</tr>
<tr>
<td>IR Sensitivity</td>
<td>700 ~ 1100 nm</td>
</tr>
<tr>
<td>Panning Range and Speed</td>
<td>0° ~ 360° (endless), Max 160°/Sec</td>
</tr>
<tr>
<td>Tilting Range and Speed</td>
<td>-20° ~ 90°, Max 120°/Sec</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Lens</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens Type</td>
<td>Varifocal</td>
</tr>
<tr>
<td>Focal Length</td>
<td>5.9 ~ 135.7 mm</td>
</tr>
<tr>
<td>Iris</td>
<td>Auto</td>
</tr>
<tr>
<td>Focus</td>
<td>Auto/Semiautomatic/Manual</td>
</tr>
<tr>
<td>Horizontal Viewing Angle</td>
<td>59.8° (Wide) ~ 3.0° (Tele)</td>
</tr>
<tr>
<td>F-number</td>
<td>F1.5 ~ F3.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Video</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Compression Format</td>
<td>H.264 (Baseline/Main/High Profile), MPEG-4, MJPEG</td>
</tr>
<tr>
<td>Codec Streaming Capability</td>
<td>Tri Streaming</td>
</tr>
<tr>
<td>Maximum Frame Rate</td>
<td>30 fps @ 1080p</td>
</tr>
<tr>
<td>Bit Rate</td>
<td>32 kbps ~ 16 Mbps</td>
</tr>
<tr>
<td>Bit Rate Mode</td>
<td>CBR, VBR</td>
</tr>
</tbody>
</table>
## Audio

<table>
<thead>
<tr>
<th>Audio Streaming</th>
<th>Two-way</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Compression Format</td>
<td>G.711ulaw/G.711alaw/G.726/MP2L2/G.722</td>
</tr>
</tbody>
</table>

## Pan and Tilt

<table>
<thead>
<tr>
<th>Smart Tracking</th>
<th>Manual/ Panorama/ Intrusion trigger/ Line crossing trigger/ Region entrance trigger/Region exiting trigger/Smart tracking when patrol between multiple scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Presets</td>
<td>300</td>
</tr>
<tr>
<td>Patrol</td>
<td>8 Patrols, Up to 32 presets per patrol</td>
</tr>
<tr>
<td>Pattern</td>
<td>4 Patterns</td>
</tr>
<tr>
<td>PTZ Position Display</td>
<td>On/Off</td>
</tr>
</tbody>
</table>

## Features

<table>
<thead>
<tr>
<th>Motion Detection</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event Notification</td>
<td>Alarm Output, Email, FTP</td>
</tr>
<tr>
<td>Privacy Mask</td>
<td>Yes</td>
</tr>
<tr>
<td>ROI Encoding</td>
<td>Up to 24 areas with adjustable levels</td>
</tr>
<tr>
<td>Defog</td>
<td>Yes</td>
</tr>
<tr>
<td>Video Analytics</td>
<td>Face detection, Intrusion detection, Line crossing detection, Region entrance, Region exiting, Audio exception detection, Tamper Detection</td>
</tr>
</tbody>
</table>

## Interface

<table>
<thead>
<tr>
<th>Ethernet</th>
<th>RJ-45 10/100 BASE-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Input</td>
<td>1x In</td>
</tr>
<tr>
<td>Audio Output</td>
<td>1x Out</td>
</tr>
<tr>
<td>Sensor Input</td>
<td>7x In</td>
</tr>
<tr>
<td>Alarm Output</td>
<td>2x Out</td>
</tr>
<tr>
<td>SD Card Slot</td>
<td>1x microSD/SDHC/SDXC (up to 128GB)</td>
</tr>
<tr>
<td>Video Output</td>
<td>1x BNC</td>
</tr>
</tbody>
</table>

## Network

<table>
<thead>
<tr>
<th>Protocols</th>
<th>TCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv6, Bonjour, ONVIF, PSIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>User authentication (ID and PW), Host authentication (MAC address), IP address filtering*</td>
</tr>
<tr>
<td>Network Storage</td>
<td>NAS (supports NFS, CIFS/SMB)</td>
</tr>
</tbody>
</table>

## General

<table>
<thead>
<tr>
<th>Power Requirements</th>
<th>High-PoE / 24 Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>High-PoE: Max. 30 W (Heater Off) / Max. 50 W (Heater On), 24 Vac. Max. 20 W (Heater Off) / Max. 65 W (Heater On)*</td>
</tr>
<tr>
<td>Weight</td>
<td>17.63 lbs.</td>
</tr>
</tbody>
</table>
### APPENDIX A: SPECIFICATIONS

<table>
<thead>
<tr>
<th>Dimension</th>
<th>16.52&quot; H x 10.49&quot; Ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-40°F – 149°F</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>0% – 90% RH, Non-condensing</td>
</tr>
<tr>
<td>Ingress Protection</td>
<td>IP66</td>
</tr>
<tr>
<td>Color</td>
<td>Beige/Black</td>
</tr>
<tr>
<td>Material</td>
<td>Aluminum (Body) / Polycarbonate (Lens Cover)</td>
</tr>
<tr>
<td>Approvals</td>
<td>CE, FCC, RoHS</td>
</tr>
</tbody>
</table>

### System Requirements

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Microsoft® Windows® XP / Vista / 7 / 8 / 10, Apple® OSX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Pentium® 4 3.0 GHz or later</td>
</tr>
<tr>
<td>Memory</td>
<td>1GB or above RAM</td>
</tr>
<tr>
<td>Display</td>
<td>1024 x 768 resolution or higher</td>
</tr>
<tr>
<td>Web Browser</td>
<td>Internet Explorer® 6.0 or above, Apple® Safari® 5.02 or above, Mozilla® Firefox® 3.5 or above</td>
</tr>
</tbody>
</table>

### Supplied Accessories

- Installation Guide
- High PoE Midspan Injector
- Installation Hardware
3D Digital Noise Reduction: Comparing with the general 2D digital noise reduction, the 3D digital noise reduction function processes the noise between two frames besides processing the noise in one frame resulting in clearer video.

3D Positioning: In the client software, use the click left mouse button on the desired position in the video image, and then drag a rectangle area in the lower right direction. The dome system will move the position to the center and allow the rectangle area to zoom in. Use the left key of the mouse to drag a rectangle area in the upper left direction to move the position to the center and allow the rectangle area to zoom out.

Auto Flips: In manual tracking mode, when a target object goes directly beneath the dome, the video will automatically flips 180 degrees in horizontal direction to maintain continuity of tracking. This function can also be realized by auto mirror image depending on different camera models.

Auto Focus: The auto focus enables the camera to focus automatically to maintain clear video images.

Backlight Compensation (BLC): If you focus on an object against strong backlight, the object will be too dark to be seen clearly. The BLC function can compensate light to the object in the front to make it clear. This can cause an over-exposure of the background where the light is strong.

Day/Night Auto Switch: The speed domes deliver color images during the day. And as light diminishes at night, the speed domes switch to night mode and deliver black and white images with high quality.

Label Display: The on-screen label of the preset title, time and dome name can be displayed on the monitor. The displays of time and speed dome name can be programmed.

Limit Stops: The dome can be programmed to move only within the limit stops (left/right, up/down).

Park Action: This feature allows the dome to start a predefined action automatically after a period of inactivity.

Patrol: A patrol is a memorized series of pre-defined preset function. The scanning speed between two presets and the dwell time at the preset are programmable.

Pattern: A pattern is a memorized series of pan, tilt, zoom, and preset functions. By default the focus and iris are in auto status during the pattern is being memorized.

Power Off Memory: The dome supports the power off memory capability with the predefined resume time. It allows the dome to resume its previous position after power is restored.

Preset Freezing: This feature freezes the scene on the monitor when the dome is moving to a preset. This allows for smooth transition from one preset scene to another. This also guarantees that a masked area will not be revealed when the dome is moving to a preset.

Presets: A preset is a predefined image position. When the preset is called, the dome will automatically move to the defined position. The presets can be added, modified, deleted and called.

Privacy Mask: This function allows you to block or mask certain area of a scene, for preventing the personal privacy from recording or live viewing. A masked area will move with pan and tilt functions and automatically adjust in size as the lens zooms telephoto and wide.

Proportional Pan/Tilt: Proportional pan/tilt automatically reduces or increases the pan and tilt speeds according to the amount of zoom. At telephoto zoom settings, the pan and tilt speeds will be slower than at wide zoom settings. This keeps the image from moving too fast on the live view image when there is a large amount of zoom.

Scan Modes: The dome provides five scan modes: auto scan, tilt scan, frame scan, random scan and panorama scan.
Scheduled Task

A time task is a preconfigured action that can be performed automatically at a specific date and time. The programmable actions include: auto scan, random scan, patrol 1-8, pattern 1-4, preset 1-8, frame scan, panorama scan, tilt scan, day, night, reboot, PT adjust, Aux Output, etc.

Slow Shutter

With this feature, the camera will automatically extend the exposure time in low illumination conditions to maintain clear video images. The feature can be enabled or disabled.

User Management

The camera allows you to edit users with different levels of permission. Multiple users are allowed to simultaneously access and control the same camera through the network.

White Balance (WB)

White balance can remove the unrealistic color casts. White balance is the white rendition function of the camera to adjust the color temperature according to the environment automatically.

Wide Dynamic Range (WDR)

The WDR function helps the camera provide clear images even with back lit environments. When there are both very bright and very dark areas in the field of view, WDR balances the brightness level of the whole image and provide clearer images and details.
APPENDIX C

Lightning and Surge Protection

This product includes TVS plate lightning protection technology to prevent damage caused by a pulse signal that is below 3000 watts from sources such as lighting, surging, etc. Protection measures must be taken to ensure electrical safety.

- The distance between signal transmission line and high-voltage equipment or high-voltage cable is at least 50 m.
- Outdoor wiring should better be along the eaves as much as possible.
- In the open field, wiring should be buried underground in sealed steel pipe with one-point grounding. Overhead routing method is not acceptable.
- In regions with thunderstorms or where high induction voltage are present (such as high-voltage transformer substation), high power lightning protection apparatus and lightning conductor are necessary.
- The design for installation and wiring with lightning protection and grounding should be combined with the lightning protection consideration of the building, and conform to the relevant national and industry standards.
- The system should ensure equi-potential grounding. Grounding equipment must satisfy both system anti-jamming and electric safety. It must not allow short circuit and open circuit with the zero conductor of strong grid. When the system is singularly ground, the resistance must less than 4 Ω and the cross-sectional area of the grounding cable must be no less than 25 mm². For grounding instructions, refer to local electrical codes and this manual.
APPENDIX D
24 Vac Wire Gauge and Transmission Distance

The following table shows the recommended maximum distance adopted for the different wire sizes when the 24 Vac voltage loss is less than 10%. For the AC driven device, the maximum voltage loss rate allowable is 10%. For example, for a device with the rating power of 80 VA which is installed 35 feet (10 m) from the transformer, the minimum wire gauge required is 0.8000 mm.

Table 1. Table of wire gauge standards

<table>
<thead>
<tr>
<th>Distance: ft (m)</th>
<th>0.8000</th>
<th>1.000</th>
<th>1.250</th>
<th>2.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power (VA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>283 (86)</td>
<td>451 (137)</td>
<td>716 (218)</td>
<td>1811 (551)</td>
</tr>
<tr>
<td>20</td>
<td>141 (42)</td>
<td>225 (68)</td>
<td>358 (109)</td>
<td>905 (275)</td>
</tr>
<tr>
<td>30</td>
<td>94 (28)</td>
<td>150 (45)</td>
<td>238 (72)</td>
<td>603 (183)</td>
</tr>
<tr>
<td>40</td>
<td>70 (21)</td>
<td>112 (34)</td>
<td>179 (54)</td>
<td>452 (137)</td>
</tr>
<tr>
<td>50</td>
<td>56 (17)</td>
<td>90 (27)</td>
<td>143 (43)</td>
<td>362 (110)</td>
</tr>
<tr>
<td>60</td>
<td>47 (14)</td>
<td>75 (22)</td>
<td>119 (36)</td>
<td>301 (91)</td>
</tr>
<tr>
<td>70</td>
<td>40 (12)</td>
<td>64 (19)</td>
<td>102 (31)</td>
<td>258 (78)</td>
</tr>
<tr>
<td>80</td>
<td>35 (10)</td>
<td>56 (17)</td>
<td>89 (27)</td>
<td>226 (68)</td>
</tr>
<tr>
<td>90</td>
<td>31 (9)</td>
<td>50 (15)</td>
<td>79 (24)</td>
<td>201 (61)</td>
</tr>
<tr>
<td>100</td>
<td>28 (8)</td>
<td>45 (13)</td>
<td>71 (21)</td>
<td>181 (55)</td>
</tr>
<tr>
<td>110</td>
<td>25 (7)</td>
<td>41 (12)</td>
<td>65 (19)</td>
<td>164 (49)</td>
</tr>
<tr>
<td>120</td>
<td>23 (7)</td>
<td>37 (11)</td>
<td>59 (17)</td>
<td>150 (45)</td>
</tr>
<tr>
<td>130</td>
<td>21 (6)</td>
<td>34 (10)</td>
<td>55 (16)</td>
<td>139 (42)</td>
</tr>
<tr>
<td>140</td>
<td>20 (6)</td>
<td>32 (9)</td>
<td>51 (15)</td>
<td>129 (39)</td>
</tr>
<tr>
<td>150</td>
<td>18 (5)</td>
<td>30 (9)</td>
<td>47 (14)</td>
<td>120 (36)</td>
</tr>
<tr>
<td>160</td>
<td>17 (5)</td>
<td>28 (8)</td>
<td>44 (13)</td>
<td>113 (34)</td>
</tr>
<tr>
<td>170</td>
<td>16 (4)</td>
<td>26 (7)</td>
<td>42 (12)</td>
<td>106 (32)</td>
</tr>
<tr>
<td>180</td>
<td>15 (4)</td>
<td>25 (7)</td>
<td>39 (11)</td>
<td>100 (30)</td>
</tr>
<tr>
<td>190</td>
<td>14 (4)</td>
<td>23 (7)</td>
<td>37 (11)</td>
<td>95 (28)</td>
</tr>
<tr>
<td>200</td>
<td>14 (4)</td>
<td>22 (6)</td>
<td>35 (10)</td>
<td>90 (27)</td>
</tr>
</tbody>
</table>
### Table 2. Wire Gauge Standards

<table>
<thead>
<tr>
<th>Bare Wire Gauge (mm)</th>
<th>American Wire Gauge AWG</th>
<th>Cross-sectional Area of Bare Wire (mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.750</td>
<td>21</td>
<td>0.4417</td>
</tr>
<tr>
<td>0.800</td>
<td>20</td>
<td>0.5027</td>
</tr>
<tr>
<td>0.900</td>
<td>19</td>
<td>0.6362</td>
</tr>
<tr>
<td>1.000</td>
<td>18</td>
<td>0.7854</td>
</tr>
<tr>
<td>1.250</td>
<td>16</td>
<td>1.2266</td>
</tr>
<tr>
<td>1.500</td>
<td>15</td>
<td>1.7663</td>
</tr>
<tr>
<td>2.000</td>
<td>12</td>
<td>3.1420</td>
</tr>
<tr>
<td>2.500</td>
<td></td>
<td>4.9080</td>
</tr>
<tr>
<td>3.000</td>
<td></td>
<td>7.0683</td>
</tr>
</tbody>
</table>