

License Plate Recognition Camera

DWC-LPR650AHD



LPR[™]
License Plate Recognition

ABOUT MANUAL

Before installing and using the camera, please read this manual carefully.
Be sure to keep it handy for future reference.

AHD[™]
Analog High Definition

PRECAUTIONS

- Do not open or modify.
- Do not open the case except during maintenance and installation, for it may be dangerous and can cause damages.
- Do not put objects into the unit.
- Keep metal objects and flammable substances from entering the camera.
It can cause fire, short-circuits, or other damages.
- Be careful when handling the unit.
- To prevent damages, do not drop the camera or subject it to shock or vibration.
- Do not install near electric or magnetic fields.
- Protect from humidity and dust.
- Protect from high temperature.
- Be careful when installing near the ceiling of a kitchen or a boiler room, as the temperature may rise to high levels.
- Cleaning:
To remove dirt from the case, moisten a soft cloth with a soft detergent solution and wipe.
- Mounting Surface:
The material of the mounting surface must be strong enough to support the camera.

FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B 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 residential environment. This equipment generates, uses, and radiates radio frequency energy; and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications.

WARNING: Changes or modifications are not expressly approved by the manufacturer.

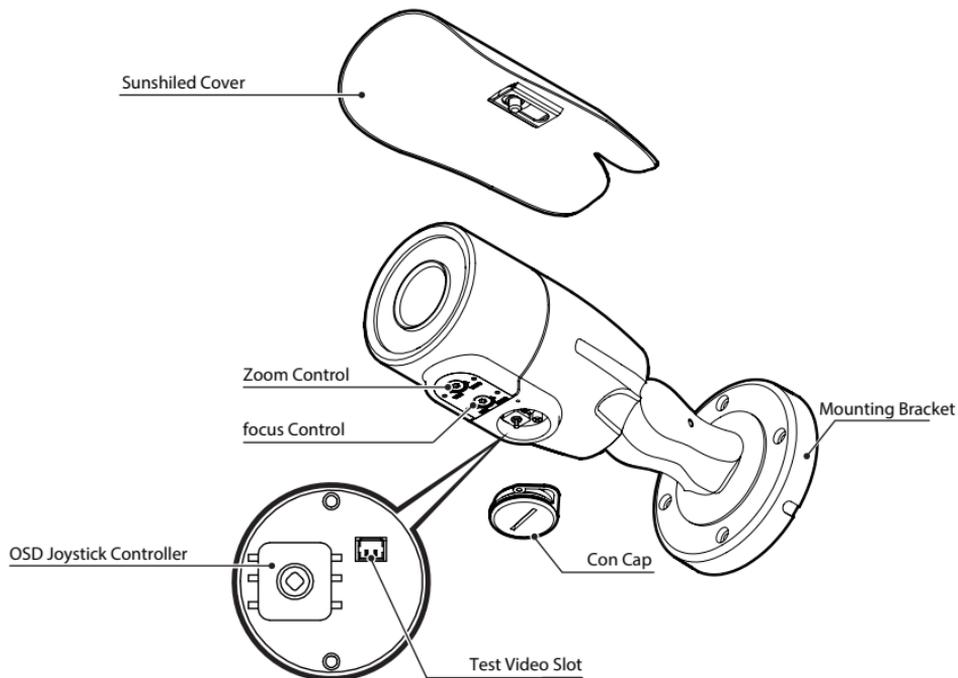
TABLE OF CONTENTS

Introduction	Features	4
	Parts and Descriptions	5
	Dimensions	6-7
Installation	Inside the Box	8
	Mount Installation Instructions	9
	LPR Installation Instructions	10
	Connecting to Monitors	11
	Control Board	12
	Adjusting the Camera Angle	13
Module OSD Menu		14-25
Troubleshooting		26
Warranty Information		27-28
Specifications		29-30

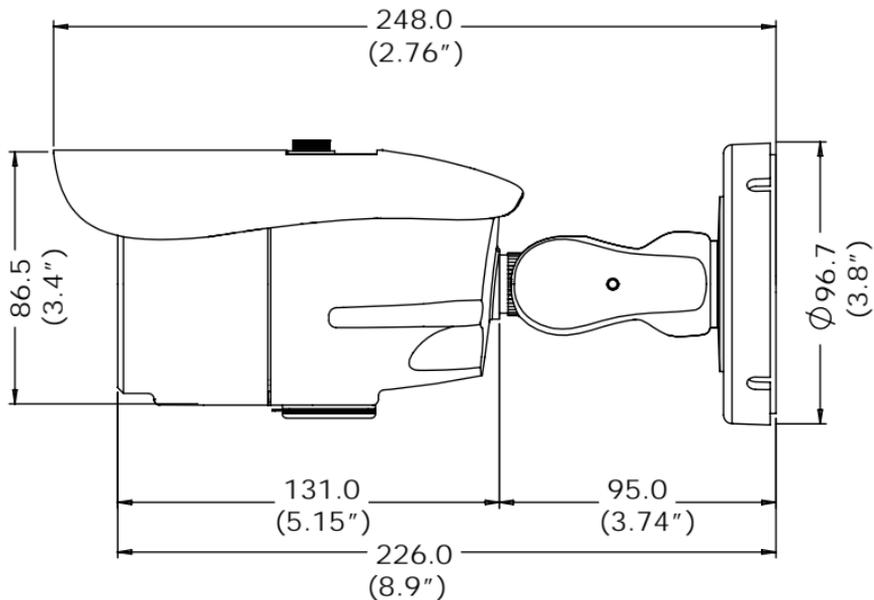
FEATURES*

- Analog High Definition (AHD) HD over Coax Technology
- AHD LPR™ License Plate Recognition Technology captures reflective license plates up to 50mph with a 13'–30' Capture Range
- Reliable Performance under Any Lighting Conditions
- External OSD and Lens Adjustment
- 1080P Resolution at 30fps
- Varifocal P-Iris Lens 6–50mm
- Smart IR™ with Intelligent Camera Sync. 115ft Range
- Smart DNR™ 3D Digital Noise Reduction
- Highlight Masking Exposure (HME)
- Secondary Video-BNC Output
- OSD Control via Coax Cable using UTC
- Easy Icon Driven OSD Menu with Built-in Joystick
- Programmable Privacy Zones
- Auto Gain Control (AGC)
- Back Light Compensation (BLC)
- Dynamic Range Compressor (DRC) Reveals Low Light Detail
- No Fog or Condensation Under any Weather Conditions
- IP66 Certified (Weather Resistant)

PARTS & DESCRIPTION*



DIMENSIONS IN MILLIMETERS (IN)*



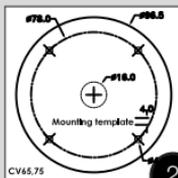
INSIDE THE BOX*

Included with Bullet Camera:

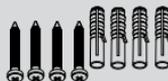
- ① User Manual
- ② Mounting Template
- ③ 4 Machine Screws and 4 Dry Wall Anchors
- ④ Secondary Video-BNC Cable
- ⑤ L-Key
- ⑥ Test Monitor Cable



①



②



③



④



⑤

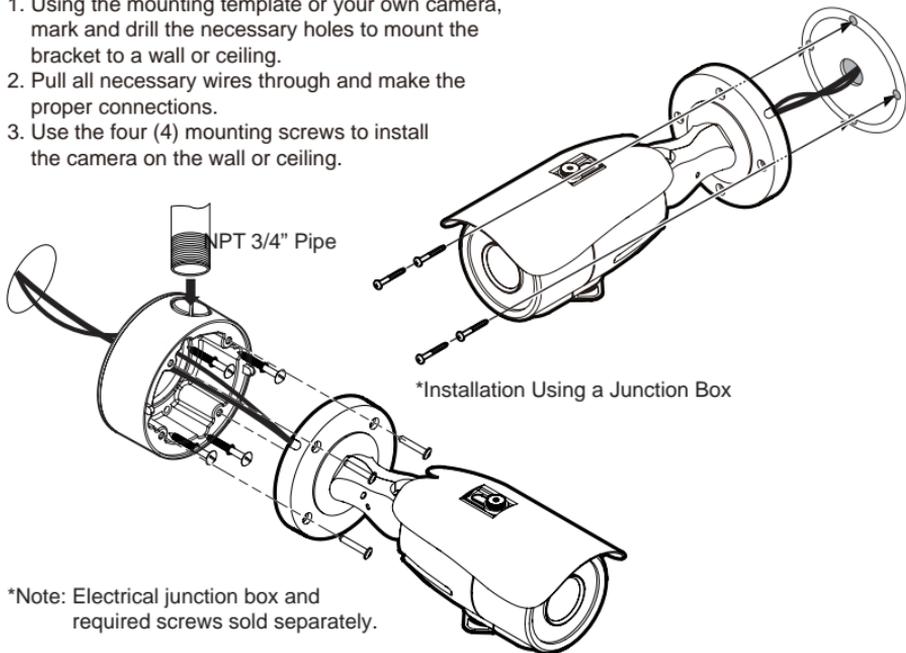


⑥

+

INSTALLATION INSTRUCTIONS*

1. Using the mounting template or your own camera, mark and drill the necessary holes to mount the bracket to a wall or ceiling.
2. Pull all necessary wires through and make the proper connections.
3. Use the four (4) mounting screws to install the camera on the wall or ceiling.



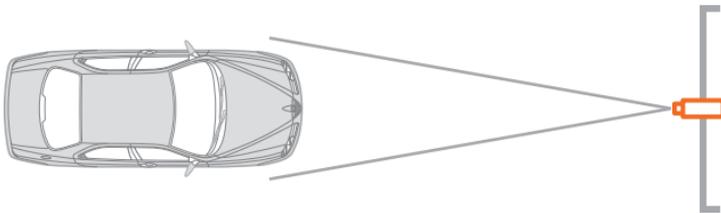
INSTALLATION INSTRUCTIONS*

An LPR camera is designed to read a license plate only. When a license plate passes by the camera, the reflective film on the plate will be reflected back to the camera which gives you the good clear shot of the plate. You will **ONLY** capture an image of the plate.

US license plates need to be at least 130 pixels wide. This translates roughly into an image no wider than 5-6 feet assuming 4CIF standard definition video.

1. The horizontal angle between the camera and plate should be within 20° degrees. This means that if your camera is 10 feet away from the plate, the plate cannot be more than 3 feet to the right or left of the camera.
2. The vertical angle between the camera and plate is within 30° degrees. This means that if your camera is 10 feet away from the plate and the plate is 3 feet off the ground, the camera cannot be mounted more than 8 feet high.
3. Attempting to position the security camera at odd angles or exceeding the distance capabilities will result in a poor shot of the plate
4. The DVR's recording fps should be at the highest to assure best capture quality.

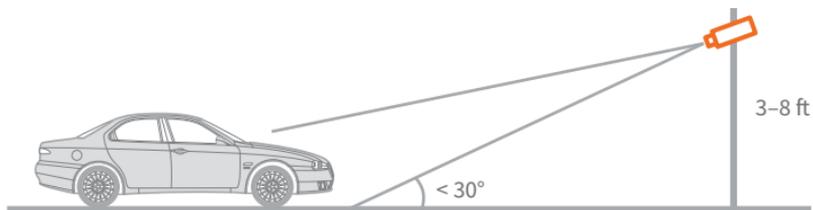
THE CAPTURED IMAGE SHOULD BE FILLED WITH THE FULL WIDTH OF THE VEHICLES



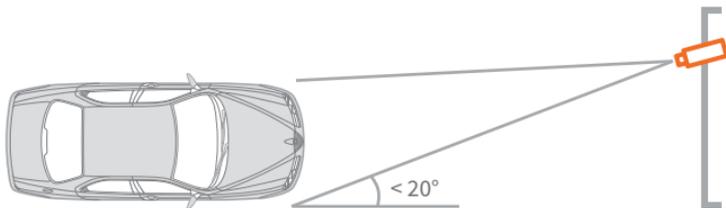
INSTALLATION INSTRUCTIONS*

LPR Camera Installation

THE CAMERA SHOULD BE MOUNTED AT AN ANGLE NO GREATER THAN 30 DEGREES

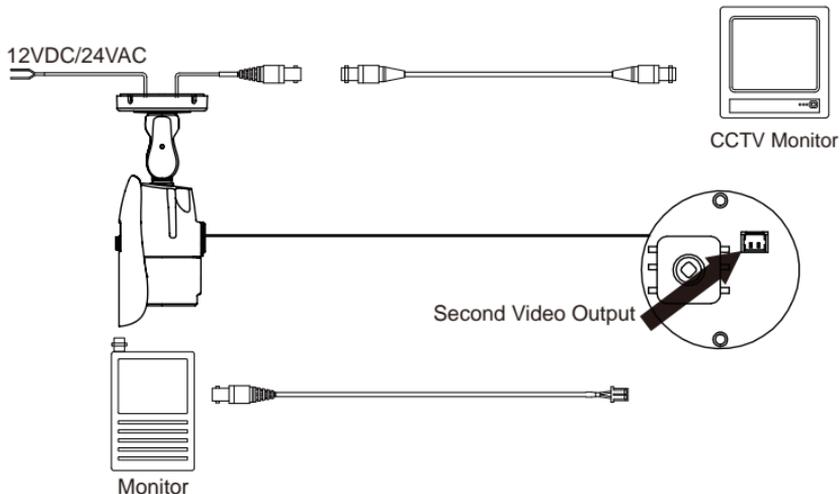


CAMERA ANGLE NO GREATER THAN 20 DEGREES FOR SIDE MOUNT INSTALLATIONS



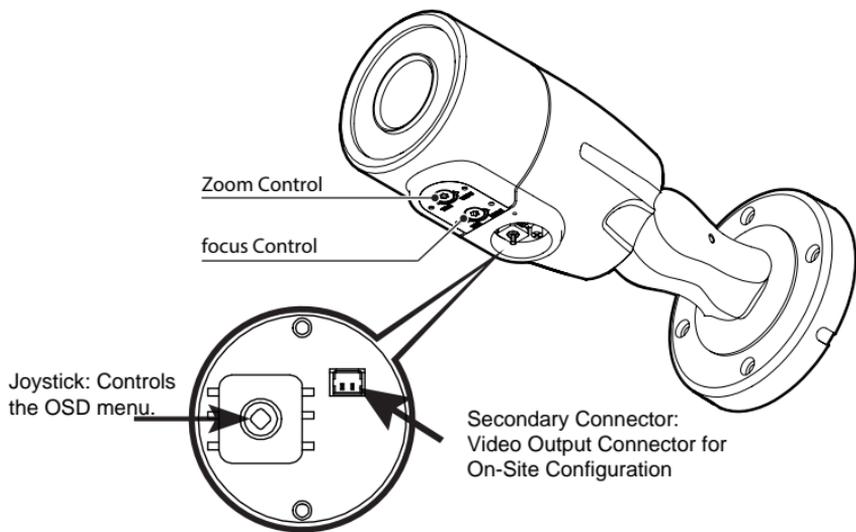
CONNECTING TO MONITORS*

Use the diagram below to connect to a Monitor or CRT Monitor properly.



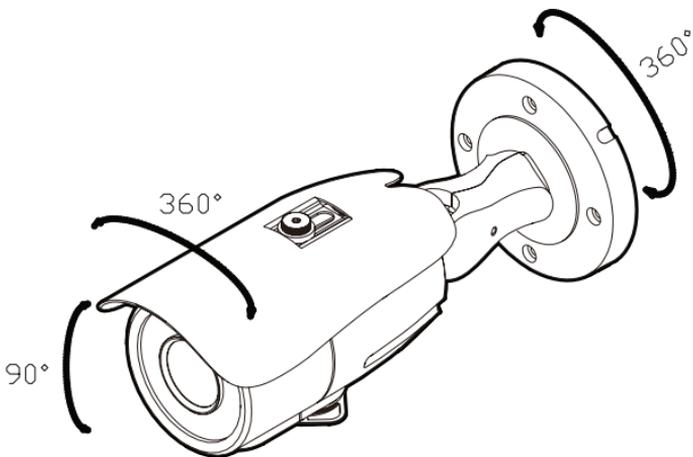
- Power Connection - 12VDC/24VAC Dual Voltage (Auto Polarity Detection and Protection)
- All cameras are equipped with a second video output for on-site configuration.

CONTROL BOARD*



- 1 Remove the camera's lens cover by rotating it counter-clockwise.
- 2 Use the Joystick to control the camera's OSD options.

ADJUSTING THE CAMERA ANGLE*



CAUTION :

- 1 Do not rotate more than 360°.
- 2 Do not unnecessarily twist too many times.

MODULE OSD MENU*

EXPOSURE	RGB.	DAY & NIGHT	FUNCTION
<ul style="list-style-type: none"> — LENS — MANUAL / AUTO — BACKLIGHT — OFF / BLC / HME — DRC — OFF / LOW / MIDDLE / HIGH — DEFOG — OFF / ON — AGC — 0 ~ 10 — 3D DNR — OFF / LOW / MIDDLE / HIGH — EXIT JUMP — SAVE & EXIT / EXIT 	<ul style="list-style-type: none"> — NOT USED — EXIT JUMP — SAVE & EXIT / EXIT 	<ul style="list-style-type: none"> — SMART IR — 0 ~ 20 — EXIT JUMP 	<ul style="list-style-type: none"> — SHARPNESS — 0 ~ 10 — GAMMA — 0.35 ~ 0.70 — MIRROR — OFF / ON — FLIP — OFF / ON — D-ZOOM — x1.0 ~ x16.0 — EXIT JUMP — SAVE & EXIT / EXIT
MOTION	PRIVACY	SETUP	EXIT
<ul style="list-style-type: none"> — MOTION — OFF / ON — DET WINDOW — SENSITIV. — 0 ~ 10 — MOTION OSD — OFF / ON — TEXT ALARM — OFF / ON — SIGNAL OUT — OFF / ON — EXIT JUMP — SAVE & EXIT / EXIT 	<ul style="list-style-type: none"> — BOX — OFF / ON — PLOYGON — OFF / ON — EXIT JUMP — SAVE & EXIT / EXIT 	<ul style="list-style-type: none"> — COMMUNICA. — CAM TITLE — OFF / ON — IMAGE RANGE — FULL / COMP / USER — FRAMERATE — 720_50P/60P / 720_25P/30P / — 1080_25P/30P — FREQUENCY — 50Hz / 60Hz — LANGUAGE — ENG / CHN / CHN (S) / JPN / KOR — DEFECT DET — INITIAL — EXIT JUMP — SAVE & EXIT / EXIT 	<ul style="list-style-type: none"> — SAVE — RESTORE — EXIT

NOTE

This is a License Plate Recognition Camera. As such, it has been programmed specifically to register license plates only. For optimal results, this camera is set to B/W mode only. There is no Color mode on this camera. As a result, some of the menu options, such as Color and Day/Night menu options, are disabled for this camera.



EXPOSURE



LENS

- Manual** Manual mode supports the fixed board lens or the manual iris lens.
- Auto** AUTO mode supports the auto-iris varifocal lens.

Level (Manual mode): set the iris level

Brightness: Adjust the camera's brightness from 0~20. The higher the number, the brighter the image will appear.

Shutter: Sets the lens' shutter speed. Select from AUTO, MANUAL or FLC.

- AUTO: If Auto is selected, set the shutter to NORMAL or DEBLUR.
- NORMAL: Set when the camera is installed indoor.
- DEBLUR: Set when the camera is installed outdoor.
- Manual: Set the shutter from the available:
1/30(1/25), 1/60(1/50), 1/120(1/100) ~ 1/30000
- FLC: Enable or disable to adjust the camera's view and prevent the image from flickering.

FOCUS SET: Adjust the focus by finding the highest number on the FOCUS SET.

BACKLIGHT

HME

HIGHLIGHT MASKING EXPOSURE

If HME is selected under the BACKLIGHT Menu, you can set the masking level and the color of the masking. Select from BLACK/WHITE/YELLOW/CYAN/GREEN/MAGENTA/RED/BLUE



EXPOSURE (CONT.)

BLC (CONT.) BACK LIGHT COMPENSATION

This function has been set specifically to allow proper license plate capturing.

It is not recommended to change the settings on this function.



- H-POS: Move the zone left or right. The higher the number, the zone will move to the right.

- V-POS: Move the zone up or down. The higher the number, the zone will move down.

- H-Size: Adjust the zone's size horizontally. The higher the number, the right side panel will move further to the right.

- V-Size: Reset the zone's size vertically. The higher the number, the bottom panel will move down.

DRC DYNAMIC RANGE COMPRESSOR

This function has been set specifically to allow proper license plate capturing. It is not recommended to change the settings on this function. Select: Off, Low, Middle, or High.

DEFOG Allows the camera to process a scene that is obscured by fog or weather conditions and provides a visibly improved image.

AUTO / MANUAL: Select AUTO to have the DRC levels adjusted automatically.

LEVEL: Set the DEFOG level from LOW / MIDDLE / HIGH.

AGC AUTO GAIN CONTROL

0-10

AGC enhances the picture brightness in low light conditions. A higher level AGC setting makes the images brighter; however, it could increase the amount of noise.

3D DNR

OFF/ LOW/

MID/ HIGH

3D DIGITAL NOISE REDUCTION

3D-DNR reduces the noise on the screen in low light conditions and allows for clearer images, even at night.



COLOR

NOT USED

This is a License Plate Recognition Camera. As such, it has been programmed specifically to register license plates only. For optimal results, this camera is set to B/W mode only. There is no Color mode on this camera. As a result, White Balance and Color Gain under the Color Menu and Day/Night Mode, Control and Delay options under the Day/Night Menu are not used for this camera.



DAY & NIGHT

SMART IR - Select level value from 0 ~ 20.





FUNCTION

SHARPNESS

0 - 10 Sets the image sharpness. The higher the number, the sharper the image.

GAMMA

0.45 - 0.75 Select the desired gamma level. 0.7 is default setting.

MIRROR

OFF

MIRROR Reflects the camera horizontally.



Mirror OFF



Mirror ON

D-Zoom

1.0x ~ 16.0x Enable or Disable Digital zoom to the camera's field of view. By default, the zoom will go to the center of the camera's Field of View.



MOTION

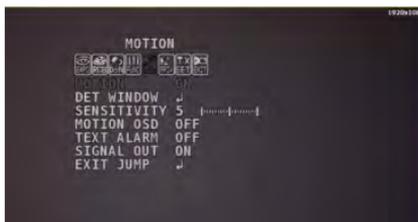
The camera can detect the movement and display an alarm on the screen when movement is detected.

MOTION

OFF / ON Select to enable or disable the camera's motion detection. If ON is selected:

DET WINDOW

- WINDOW ZONE: The camera supports up to 4 different masks. Select which ones to display.
- WINDOW USE: Select which one of the motion areas to enable.
- H-POS: Move the zone left or right. The higher the number, the zone will move to the right.
- V-POS: Move the zone up or down. The higher the number, the zone will move down.
- H-Size: Adjust the zone's size horizontally. The higher the number, the right side panel will move further to the right.
- V-Size: Reset the zone's size vertically. The higher the number, the bottom panel will move down.





MOTION (CONT.)

SENSITIV.

0 ~ 10 Motion Detection will be more sensitive at a higher number.

MOTION OSD

OFF / ON If enabled, when motion occurs, the camera will display the motion zone's borders.

TEXT ALARM

OFF / ON If enabled, the following text will appear according to the alarm detected:

- WINDOW MOTION : An alarm associated with the camera occurs.
- CAMERA MOVING : The camera detects abnormal movement and shaking.
- BRIGHT CHANGE : The camera detects abnormally bright spots in the camera's view.

SIGNAL OUT

OFF / ON If enabled, when motion is detected, the camera can support 3.3V power output to an external signal.





PRIVACY

You can hide some parts of the camera's view to protect privacy and sensitive data.

A total of 24 different privacy masking zones are available, including 16 square zones and 8 polygon shaped zones.



- ZONE NUM: The camera supports 0~15 different masks. Select which ones to display.
- ZONE DISP.: Select which one of the motion areas to enable.
- DET H-POS: Move the zone left or right. The higher the number, the zone will move to the right.
- DET V-POS: Move the zone up or down. The higher the number, the zone will move down.
- DET H-Size: Adjust the zone's size horizontally. The higher the number, the right side panel will move further to the right.
- DET V-Size: Reset the zone's size vertically. The higher the number, the bottom panel will move down.



To adjust the mask's color, use the Y, CR, and CB Levels:

- Y Level- The higher the number, the brighter the color will appear.
- CR Level- The higher the number, the more red tone will be added to the zone's color. The lower the number, the more green will be added to the zone's color.
- CB Level- High CB Level + High CR Level = Red
 High CB Level + Low CR Level = Blue
 Low CB Level + High CR Level = Orange



PRIVACY (CONT.)

You can hide some parts of the camera's view to protect privacy and sensitive data.
A total of 16 different privacy masking zones are available.



POLYGON MASKS

- ZONE NUM: Select the zone number you want to setup from 0 to 7.
- ZONE DISP: To enable it, turn the display option ON.
- POS0-X: Move the mask's upper left angle left to right.
- POS0-Y: Move the mask's upper left angle up and down.
- POS1-X: Move the mask's upper right angle left to right.
- POS1-Y: Move the mask's upper right angle up and down.
- POS2-X: Move the mask's lower right angle left to right.
- POS2-Y: Move the mask's lower right angle up and down.
- POS3-X: Move the mask's lower left angle left to right.
- POS3-Y: Move the mask's lower left angle up and down.



- Y LEVEL- The higher the number, the brighter the color will appear.
- CR LEVEL- The higher the number, the more red tone will be added to the zone's color.
The lower the number, the more green will be added to the zone's color.
- CB LEVEL- High CB Level + High CR Level = Red
High CB Level + Low CR Level = Blue
Low CB Level + High CR Level = Orange



SETUP

COMMUNICATION

The Communications settings allow you to setup the camera's ID, Baudrate, Protocol, and UTC.

- CAM ID: Provide an ID number for the camera (0 ~ 255).
- BAUDRATE: 9600bps is default. Select the baudrate from the following options:
2400/4800/9600/57600 and 115200bps.

CAM TITLE

OFF / ON If ON is selected, you can display the camera title on the screen. If enabled, manually enter the camera's display name using the joystick controller.

IMAGE RANGE

Based on the equipment connected to the camera, select one of the following:

FULL: Display all BLACK level and WHITE level without compression.

COMP: Display BLACK level and WHITE level with compression.

USER : Reset the BLACK level by changing the OFFSET value.





SETUP (CONT.)

FRAME RATE

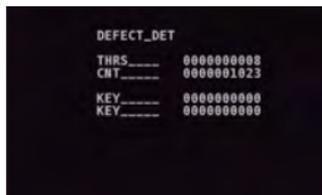
Set the camera's display resolution: 720-30P, 720-60P, 1080-30P.

LANGUAGE

The camera supports the following languages: ENG / CHN / CHN(S) / JPN / KOR.

DEFECT_DET

If you find DEFECT, then press the Enter key in OSD and come out from the Menu.



INITIAL

Push the OSD joystick to reset the camera's settings back to their default values.



EXIT

SAVE & EXIT

EXIT

Exit the OSD menu after saving the recent changes.

Exit the OSD menu without saving recent changes.



TROUBLESHOOTING

Before sending your camera for repair, check the following or contact our technical specialist.

FOR NO VIDEO

Check the coaxial cable and make sure it is connected securely.

Check the lens' iris adjustment at the camera's OSD menu.

Check the power supply and make sure the camera has the proper voltage and current.

FOR OUT-OF-FOCUS VIDEO

Check the clear dome cover and the lens for dirt or fingerprints. Use a soft cloth and gently clean. Check the lens' manual focal and zoom adjustment. The use of a field test monitor is recommended.



WARRANTY INFORMATION*

Digital Watchdog (referred to as “the Warrantor”) warrants the Digital Watchdog Camera against defects in materials or workmanship as follows:

LABOR: For the initial five (5) years and one (1) year on IR LED from the original purchase date, if the camera is determined to be defective, the Warrantor will repair or replace the unit with a new or refurbished product at its option at no charge.

PARTS: In addition, the Warrantor will supply replacement parts for the initial five (5) years and one (1) year on IR LED.

To obtain warranty or out of warranty service, please contact a Technical Support Representative at **1-866-446-3595** Monday through Friday from 9:00AM to 8:00PM Eastern Standard Time.

A purchase receipt or other proof of the original purchase date is required before warranty service is rendered. This warranty only covers failures due to defects in materials and workmanship which arise during normal use. This warranty does not cover damage which occurs in shipment or failures which are caused by products not supplied by the Warrantor or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification, faulty installation, set-up adjustments, improper antenna, inadequate signal pickup, maladjustment of consumer controls, improper operation, power line surge, improper voltage supply, lightning damage, rental use of the product or service by anyone other than an authorized repair facility or damage that is attributable to acts of God.

LIMITS & EXCLUSIONS*

There are no express warranties except as listed. The warrantor will not be liable for incidental or consequential damages (including damage to recording media without limitation) resulting from the use of these products or arising out of any breach of the warranty. All express and implied warranties, including the warranties of merchantability and fitness for particular purpose, are limited to the applicable warranty period set forth above.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the exclusions or limitations listed above may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state-to-state.

If the problem is not handled to your satisfaction, then write to the following address:

Digital Watchdog, Inc.
ATTN: RMA Department
5436 W. Crenshaw Street
Tampa, FL 33634

Service calls which do not involve defective materials or workmanship as determined by the Warrantor, in its sole discretion, are not covered. Costs of such service calls are the responsibility of the purchaser.

SPECIFICATIONS*

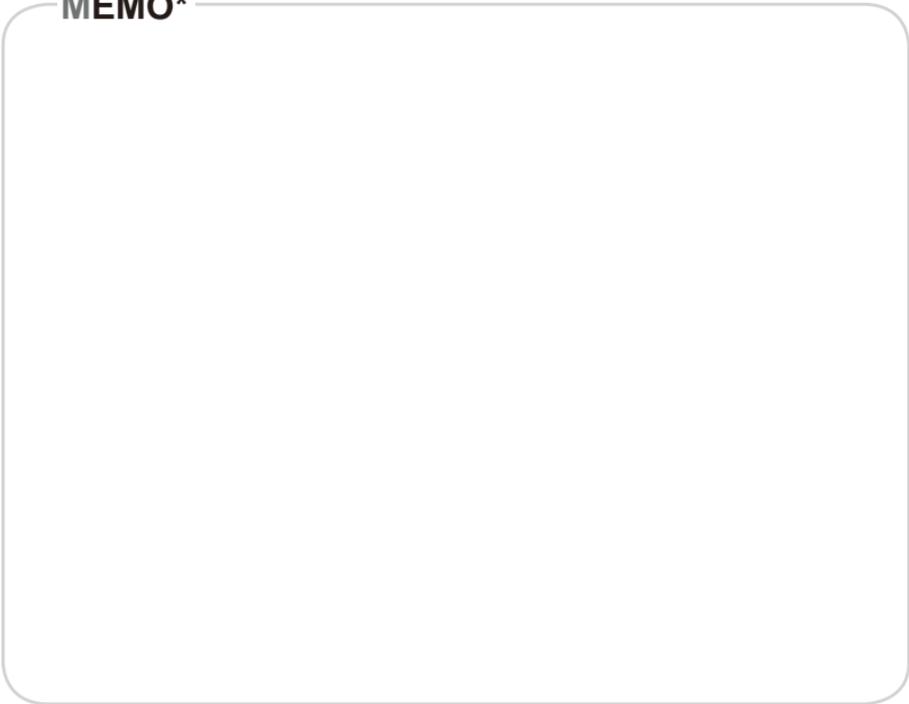
VIDEO	
Image Sensor	Panasonic 1/3" CMOS
Active Pixels	1944(H) x 1092(V)
Scanning System	Progressive scan
Frequency	60Hz/50Hz
Signal Technology	2.0 Megapixel AHD
Synchronization	Internal
Resolution	1920x1080 (1080p)
Minimum Scene Illumination	F1.4 (30IRE): 0 Lux [B&W]
S/N Ratio	55dB
Video Output	AHD 1080p30fps/720p60fps/720p30fps
Alarm Output	1 Alarm Output
LENS	
Focal Length	6 ~50mm
Lens Type	P-Iris Vari-Focal
IR Distance	115ft
OPERATIONAL	
Shutter Speed	1/30(25)-1/30,000
Backlight	Off/ On
Digital Noise Reduction	Off, Low, Middle, High
White Balance	Auto / Auto-Ex/ Preset / Manual
Day and Night	Night

SPECIFICATIONS*

OPERATIONAL (CONT.)	
Flip / Mirror	Yes
Auto Gain Control	Max 60dB
Privacy Zones	24 Privacy Zones
Sharpness	0 ~ 10
RS485/ UTP Built-In	PELCO D / PELCO C
Digital Zoom	x1.0 ~ x16.0
ENVIRONMENTAL	
Operating Temperature	-20°C ~ 50°C (-4°F ~ 122°F)
Operating Humidity	No more than 90% (Non-Condensing)
IP Rating	IP66 (Weather Resistant)
Other Certifications	FCC, CE, ROHS
ELECTRICAL	
Power Requirements	DC12V/AC24V Dual Voltage
Power Consumption	DC12V: 6.12W, 510mA,
	AC24V: 6W, 250mA
MECHANICAL	
Housing Material	Aluminum
Dimensions	9.76" x 3.81" Inch (248 x 96.7mm)
Weight	1.65lbs

*Specification is subject to change without prior notice.

MEMO*





Complete Surveillance Solutions

5436 W Crenshaw St. Tampa, FL 33634

Tel : 866-446-3595 / 813-888-9555

Fax : 813-888-9262

www.Digital-Watchdog.com

technicalsupport@dwcc.tv

Technical Support Hours : Monday-Friday

9:00am to 8:00pm EST