

Analog High Definition Bullet Camera

DWC-B7753TIR



ABOUT MANUAL

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

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.

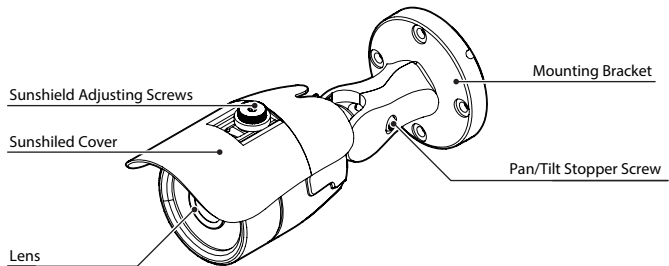
TABLE OF CONTENTS

Introduction	Features	4
	Parts and Descriptions	5
	Dimensions	6
Installation	Inside the Box	7
	Installation Instructions	8
	Connecting to Monitors	9
	Adjusting the Camera Angle	10
Module OSD Menu		11-26
Troubleshooting		27
Warranty Information		28-29
Specifications		30-31

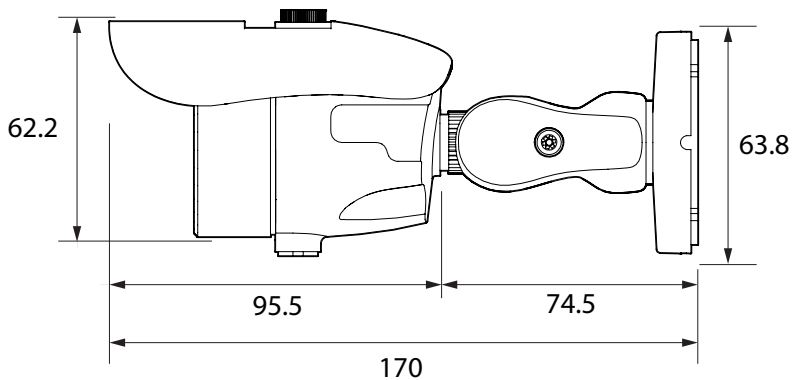
FEATURES*

- Analog High Definition (AHD) HD over Coax Technology
- STAR-LIGHT™ Super Low Light Technology
- 1/2.7" CMOS Sensor
- 1080P Resolution at 30fps
- 3.6mm Fixed Lens
- Smart IR™ with Intelligent Camera Sync. 50ft Range
- Smart DNR™ 3D Digital Noise Reduction
- Highlight Masking Exposure (HME)
- True Day/Night Mechanical IR Cut Filter
- Secondary Video-BNC Output
- OSD Control via Coax Cable using UTC
- Programmable Privacy Zones
- Auto Gain Control (AGC)
- Back Light Compensation (BLC)
- Dynamic Range Compressor (DRC) Reveals Low Light Detail
- Auto White Balance (AWB)
- IP66 Certified (Weather Resistant)

PARTS & DESCRIPTION*



DIMENSIONS IN MILLIMETERS (IN)*



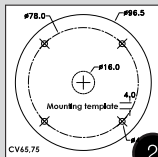
INSIDE THE BOX*

Included with Bullet Camera:

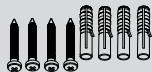
- 1 User Manual
- 2 Mounting Template
- 3 4 Machine Screws and 4 Dry Wall Anchors
- 4 L-Key



1



2



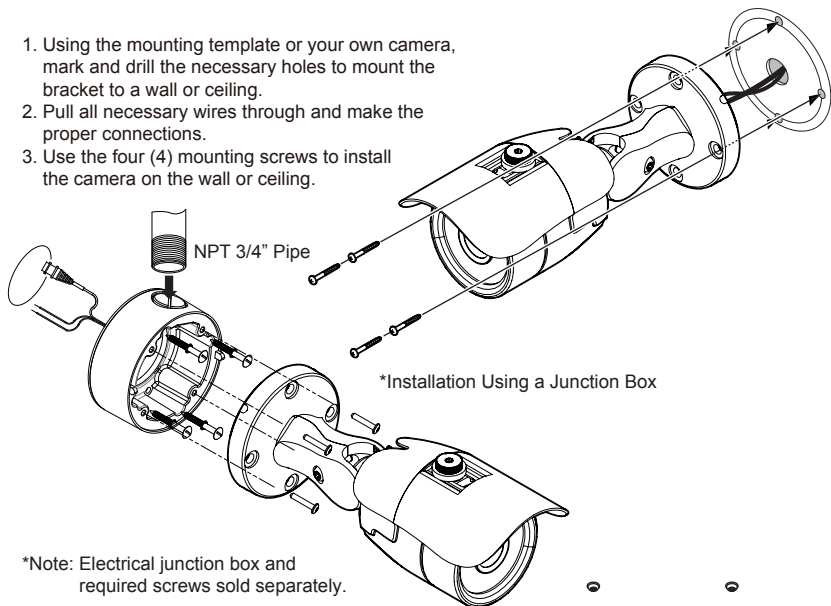
3



4

INSTALLATION INSTRUCTIONS*

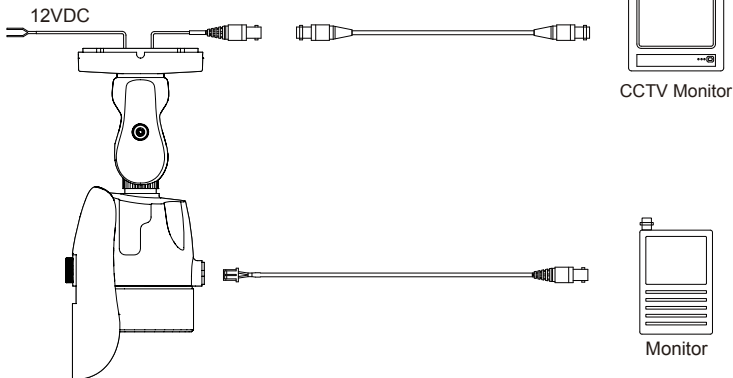
1. Using the mounting template or your own camera, mark and drill the necessary holes to mount the bracket to a wall or ceiling.
2. Pull all necessary wires through and make the proper connections.
3. Use the four (4) mounting screws to install the camera on the wall or ceiling.



*Note: Electrical junction box and required screws sold separately.

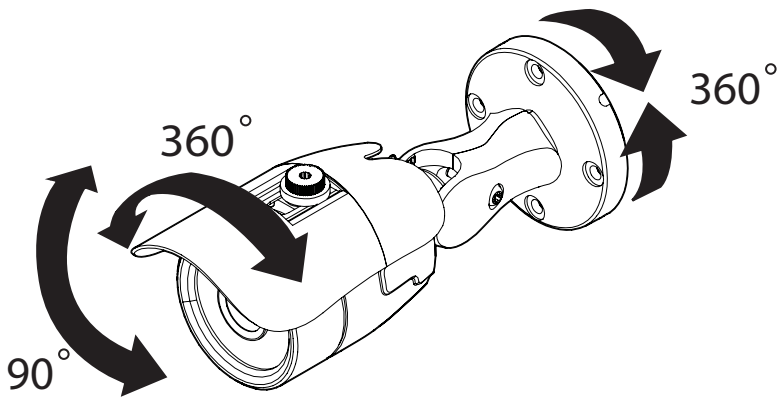
CONNECTING TO MONITORS*

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



- Power Connection - 12VDC Voltage.
- All cameras are equipped with a second video output for on-site configuration.

ADJUSTING THE CAMERA ANGLE*



CAUTION :

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

MODULE OSD MENU*

LENS	EXPOSURE	BACKLIGHT	WHITE BALANCE
<ul style="list-style-type: none"> — P-IRIS MANUAL / AUTO — MANUAL — DC INDOOR / OUTDOOR 	<ul style="list-style-type: none"> — SHUTTER AUTO / 1/30-1/50000 / X2-X30 — AGC 0 ~ 15 — STAR-LIGHT OFF / AUTO X2 ~ X30 — BRIGHTNESS 1 ~ 100 — DRC OFF / AUTO / ON (0 ~ 8) — DEFOG OFF / AUTO — RETURN 	<ul style="list-style-type: none"> — OFF — BLC LEVEL / AREA / DEFAULT / RETURN — HME AREA / DISPLAY / BLACK MASK / LEVEL / MODE / DEFAULT / RETURN 	<ul style="list-style-type: none"> — ATW — PUSH — MANUAL BLUE(0-100) / RED(0-100) — AWB
DAY & NIGHT	NR (Noise Reduction)	SPECIAL	ADJUST
<ul style="list-style-type: none"> — AUTO AGC / CDS — COLOR — B/W BURST / IR SMART / AREA / RETURN — EXT 	<ul style="list-style-type: none"> — 2DNR LOW / MIDDLE / HIGH — 3DNR LOW / MIDDLE / HIGH — RETURN 	<ul style="list-style-type: none"> — CAM TITLE OFF / ON — D-EFFECT FREEZE / MIRROR / NEG. IMAGE / RETURN — MOTION SELECT 1 ~ 4 — PRIVACY SELECT 1 ~ 4 — LANGUAGE ENGLISH / CHINESE1 / CHINESE2 / GERMAN / FRENCH / ITALIAN / ARABIC / SPANISH / POLISH / RUSSIAN / PORTUGUESE / DUTCH / TURKISH / KOREAN / JAPANESE / HEBREW / — DEFECT BLACK DPC / WHITE DPC / LIVE DPC — RS485 CAM ID / ID DISPLAY / BAUDRATE / RETURN 	<ul style="list-style-type: none"> — SHARPNESS AUTO / OFF — MONITOR LCD / CRT — LSC OFF / ON — VIDEO OUT NTSC / PAL — RETURN
			EXIT
			<ul style="list-style-type: none"> — SAVE & END — NOT SAVE — RESET

NOTE

This camera does not have OSD control options. Use the UTC function to control the camera's OSD settings from the VMAX AHD DVR

LENS

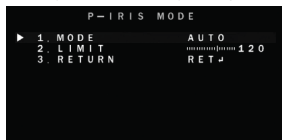
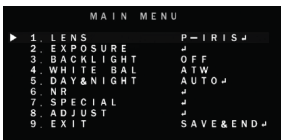
MANUAL Manual mode supports the fixed board lens or the manual iris lens.

P-IRIS If the camera includes a P-Iris lens, you can select this option to adjust the lens and iris settings.

If P-Iris is selected, adjust the following:

MODE: Select from AUTO or MANUAL. If AUTO is selected, the camera's iris and lens will be adjusted automatically.

LIMIT: If MANUAL is selected, the camera's iris can be adjusted manually using the LIMIT value.



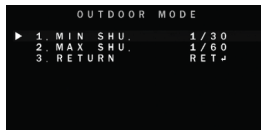
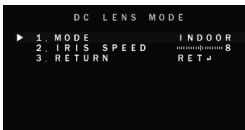
DC DC lens mode allows you to setup the camera for indoor or outdoor modes.

If DC is selected, adjust the following options:

MODE: Select from INDOOR or OUTDOOR

IRIS SPEED: Set the reaction speed of the camera's iris.

If OUTDOOR mode is selected, you can adjust the minimum and maximum shutter speed. By default, the MIN SHU is set to 1/30. The MAX SHU can be adjusted as needed. The lower the number, the darker the image will appear in bright areas.



EXPOSURE

SHUTTER

Set the camera's shutter speed from the available options (AUTO/1/30~1/50000/x2~x30/FLK)
 If Iris is set to AUTO in the lens menu, the camera's shutter will be set automatically and the values in this menu will not be adjustable.
 If Iris is set to AUTO in the lens menu, the camera's shutter speed will be deactivated.

AGC AUTO GAIN CONTROL

0~15 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.

STARLIGHT

OFF / AUTO /
 x2 ~ x30

Automatically activates slow shutter function when the image is too dark. High values are not recommended as they may causes the image to lag. To adjust the STAR-LIGHT values, select AUTO and enter the sub-menu. Starlight menu cannot be controlled if the SHUTTER setting is above 1/60. If AGC is set to 0, the STAR-LIGHT menu will be inactive.

BRIGHTNESS

0 ~ 100

Adjust the camera's brightness from 0~15. The higher the number, the brighter the image will appear.



EXPOSURE (CONT.)

DRC DYNAMIC RANGE COMPRESSOR

DRC enables dark areas in images to become more visible without overexposing the bright areas to create one perfect image. Select from: OFF / ON / AUTO. If ON is selected, adjust the DRC value from 0 ~ 8.

NOTE: If WDR or DEFOG are enabled, the DRC settings are set automatically and will not be available for adjustment.

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

- POS/SIZE: Set the location and size of the defog mask. Use the joystick controller on the camera's board to adjust the De-Fog zone's position. Press the enter key and use the joystick controller to adjust the zone's size.

- GRADATION: Set the DEFOG level from 0 ~ 2. The higher the number, the stronger the Defog mask will be.

- DEFAULT: Return the Defog settings to their default values.



BACKLIGHT

BLC BACK LIGHT COMPENSATION

If BLC is selected, adjust the size and position of the mask:

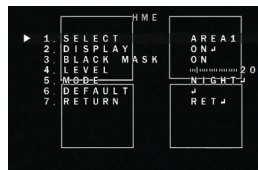
- Level: Set the BLC levels LOW / MIDDLE / HIGH
- AREA: Use the joystick controller on the camera's board to adjust the zone's position. Press the enter key and use the joystick controller to adjust the zone's size.
- DEFAULT: Return the BLC settings to their original default values.



HME HIGHLIGHT MASKING EXPOSURE

HME allows objects to appear clearly on the screen by masking extremely bright areas.

- SELECT: The camera supports up to four (4) different HME zones. Select which zone to setup.
- DISPLAY: For the selected zone, select ON to adjust its position and size. Use the joystick controller on the camera's board to adjust the zone's position. Press the enter key and use the joystick controller to adjust the zone's size.
- BLACK MASK: Select whether the HME mask will display in black on the camera's view.
- LEVEL: Set the working range of the HME. The higher the value, the HME mask will appear only around bright sources. Set the value from 0 ~ 100. Default value is 20.
- MODE: Select whether the HME mask will appear during night mode only or all day. If the zone is set to night mode, the zone will appear based on the AGC setting value.
- DEFAULT: Return the settings to their original default values.



WHITE BALANCE

ATW Auto Tracking White Balance Control mode compensates for color temperature changes between 2400K^o and 11000K^o.

PUSH Push fixes the white balance based on the current lighting automatically. To use this function, press the ENTER key for five (5) seconds.

MANUAL Control the white balance manually by changing RED and BLUE.

RED: Adjusts the low color temperature in the image between 0 ~ 100. The default value is 42.

BLUE: Adjusts the low color temperature in the image between 0 ~ 100. The default value is 40.

AWB Auto White Balance Control mode compensates for color temperature changes lower than 2500K^o and higher than 12000K^o.



DAY & NIGHT

- AUTO / Day/ Night switch is based on the CDS levels (IR models) or AGC levels (non-IR models).
- COLOR / The camera always stays in day/color mode.
- B&W/ The camera always stays in night/B&W mode.
- EXT The camera's Day & Night settings are set according to an external IR LED board.

AUTO

For cameras with no IR LED Built-in:

- D -> N Threshold (AGC): Set when the camera switches from day to night mode by the AGC value. When the camera detects AGC levels beyond the set threshold, it will switch from color to B/W.
- D -> N Delay (AGC): Set a delay for the camera when switching from day to night mode.
- N -> D Threshold (AGC): Set when the camera switches from night to day mode by the AGC value. When the camera detects AGC levels beyond the set threshold, it will switch from B/W to color.
- N -> D Delay (AGC): Set a delay for the camera when switching from night to day mode.

For cameras with IR LED Built-in:

- D -> N Threshold (CDS): Set when the camera switches from day to night mode. The lower the value, the camera will require less light (more darkness) to switch to Night Mode.
- D -> N Delay (CDS): Set a delay for the camera when switching from day to night mode.
- N -> D Threshold (CDS): Set when the camera switches from night to day mode. The lower the value, the camera will require less light (more darkness) to switch to Night Mode.
- N -> D Delay (CDS): Set a delay for the camera when switching from night to day mode.
- EXT LED: AUTO: The LEDs are enabled/ disabled by the CDS Sensor on the LED Board.
OFF: The camera's LEDs are disabled manually.

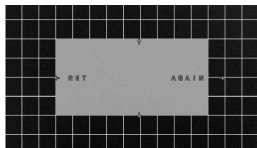
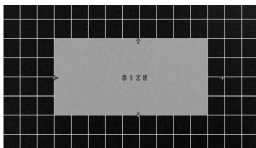
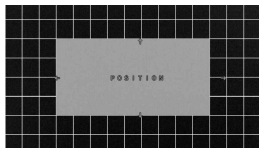
DAY & NIGHT (CONT.)

COLOR

If COLOR mode is selected, the camera's display will always appear in color, regardless of the lighting condition.

B/W

- BURST: Select to enable or disable color burst when the camera switches from color to B/W.
- IR SMART (0~15): Enable Smart IR and set the level. Higher values will make Smart IR stronger.
- AREA: Set the Smart IR's zone. Use the joystick controller on the camera's board to adjust the zone's position. Press the enter key and use the joystick controller to adjust the zone's size.



EXT

The Day & night settings are set according to a CDS sensor in an external IR LED board.

- D -> N Delay: Set a delay for the camera when switching from day to night mode.
- N -> D Delay: Set a delay for the camera when switching from day to night mode.
- EXT LED: AUTO: The LEDs are enabled/ disabled by the CDS Sensor on the LED Board.
OFF: The camera's LEDs are disabled manually.
- NIGHT S/W: Based on the CDS settings in the external LED board, set the value for LOW / HIGH.

NR

Smart DNR

3D DIGITAL NOISE REDUCTION

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

2DNR

Set the Digital Noise Reduction values for general illumination. Select from LOW / MIDDLE / HIGH. If the 2DNR settings are set to HIGH, image sharpness may be affected.

3DNR

Set the Digital Noise Reduction values for very low light situations. Select from LOW / MIDDLE / HIGH. If the 3DNR settings are set to HIGH, lagging issues may appear when motion occurs.



SPECIAL

CAM. TITLE

Add a name to the camera. Set the title by using the OSD joystick.

D-EFFECT

FREEZE

Freeze image from the camera at the selected moment.

MIRROR

Reflects the camera: OFF / MIRROR / V-FLIP / ROTATE

NEG. IMAGE

Display the camera's view in negative colors.



Mirror / Flip OFF



Mirror ON



Flip ON



Mirror & Flip ON

MOTION

- **SELECT:** The camera supports up to 4 separate motion detection areas. Select which one to adjust.
- **DISPLAY:** For the selected zone, select ON to adjust its position and size. Use the joystick controller on the camera's board to adjust the zone's position. Press the enter key and use the joystick controller to adjust the zone's size.
- **SENSITIVITY:** Set the camera's sensitivity to motion. The higher the value, the more sensitive the camera is to motion.
- **COLOR:** Set the color for the motion zone. Select from green, blue, white, or red.
- **TRANS:** Set the zone's transparency. The lower the number, the more transparent the zone will appear on the camera's display.
- **DEFAULT:** Reset the motion detection settings to their default values.

SPECIAL (CONT.)

MOTION

- ALARM:

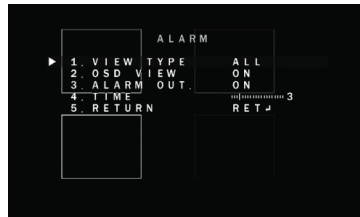
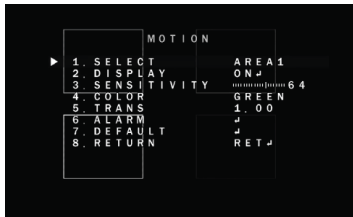
VIEW TYPE: When motion is detected, select from the following display options:

1. OFF - do not display motion alarm
2. ALL - Show all motion zones when motion alarm is detected.
3. BLOCK - show the area where motion is detected as a solid block.
4. OUTLINE - Show the area where motion is detected as an outline only.

OSD VIEW: If enabled, ALARM will appear on the screen when motion is detected.

ALARM OUT: The camera supports 3.3V alarm output. When motion is detected, an alarm output can be triggered if enabled.

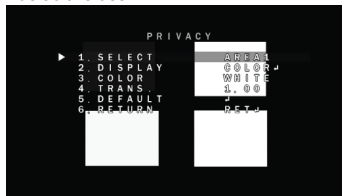
TIME: Set the dwell time after motion is detected. Values are in seconds.



SPECIAL (CONT.)

PRIVACY

- SELECT: The camera supports up to 4 separate privacy zones. Select which one to adjust.
 - DISPLAY: There are three types of privacy masks you can apply. Select from MOSAIC, INV., or COLOR.
 - MOSAIC: The privacy mask will appear as a mosaic over the camera's image.
 - INV.: The privacy mask will appear as a negative of the image behind it, reversing the colors and brightness.
 - COLOR: The privacy mask will appear as a block of color according to the settings in the COLOR menu.
- To adjust the zone's position and size, once the type of mask is selected, use the joystick controller on the camera's board to adjust the zone's position. Press the enter key and use the joystick controller to adjust the zone's size.
- COLOR: If COLOR is selected under the display options, set the color for the motion zone. Select from white, black, red, blue, yellow, green, cyan, or user. If user is selected, the mask's color will default to dark green.
 - TRANS: Set the zone's transparency. The lower the number, the more transparent the zone will be.
 - DEFAULT: Reset the motion detection settings to their default values.



SPECIAL (CONT.)

LANGUAGE

Select from the available options: English, Chinese 1, Chinese 2, German, French, Italian, Spanish, Polish, Russian, Portuguese, Dutch, Turkish, Korean, Japanese, Arabic, or Hebrew.

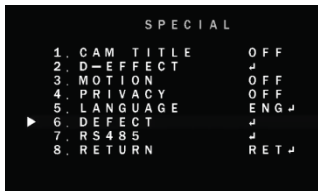
DEFECT

- LIVE DPC:

- AGC LEVEL: Set the AGC levels for the Live DPC.
- LEVEL: Set the level of Live DPC based on the AGC levels.

- BLACK DPC

- POS / SIZE: Set the size and position for the DPC Zone. Use the joystick controller on the camera's board to adjust the zone's position. Press the enter key and use the joystick controller to adjust the zone's size.
- START: Press START to begin the DPC test. The screen will get bright and compensate for the black defect.
- DPC VIEW: Show the Defect pixels which have been compensated.
- LEVEL: Set the range of DPC application.

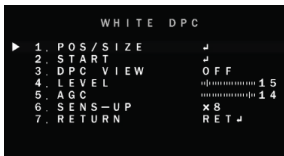


SPECIAL (CONT.)

DEFECT (CONT.)

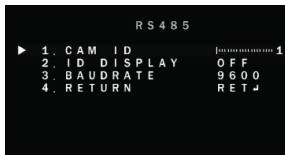
- WHITE DPC

- POS / SIZE: Set the DPC Zone. Use the joystick controller on the camera's board to adjust the zone's position. Press the enter key and use the joystick controller to adjust the zone's size.
- START: Press START to begin the DPC test. The screen will get bright and compensate for the black defect.
- DPC VIEW: Show the Defect pixels which have been compensated.
- LEVEL: Set the range of DPC application.
- AGC: Set the value level for AGC while DPC is on.
- SENS-UP: Set the value level of Sens-Up while DPC is on.



RS485

- CAM ID: Set the camera's ID from 0-255.
- ID DISPLAY: Select to show or hide the camera ID on the screen.
- BAUDRATE: Set the camera's baudrate. Select from: 2400/4800/9600/19200/38400. Default is 9600.



ADJUST SHARPNESS

Set the sharpness of the image. The Sharpness values can be increased or lowered according to the AGC levels in the camera's view. If AUTO is selected, adjust the following values:

- LEVEL: Set the sharpness level. The higher the number, the sharper the image will appear.
- START AGC: Select the AGC value where the image's sharp lines may start to appear smeared in low light.
- END AGC: Select end AGC value for sharpness smearing in low light. Once the AGC values pass the set END AGC, the image's sharp lines will no longer appear smeared if the environment gets darker.

MONITOR

Adjust the camera's signal according to the monitor you are using.

- LCD Mode: If using an LCD monitor, adjust the following settings:

- GAMMA: Set the gamma level from 0.45 ~ 1.00. 0.55 is default setting.
- BLUE GAIN: Set the blue levels form 0 ~ 100.
- RED GAIN: Set the red levels form 0 ~ 100.

- CRT Mode: If using an CRT monitor, adjust the following settings:

- BLUE GAIN: Set the blue levels form 0 ~ 100.
- RED GAIN: Set the red levels form 0 ~ 100.



LSC

The LSC function improves the brightness around the lens. Select whether to enable or disable according to the camera's image.

VIDEO OUT

The camera's video output is set by default to NTSC. If you need to change the camera's video output, select from NTSC or PAL. Reboot the camera after making any changes to the video signal settings.

EXIT

SAVE & END

Save all changes made to the camera's settings and exit the OSD menu.

NOT SAVE

Exit the OSD menu without saving any changes made to the camera's settings.

RESET

The camera's settings will be reset to their factory default values once you exit the OSD menu.





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 Warranter”) 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 Warranter will repair or replace the unit with a new or refurbished product at its option at no charge.

PARTS: In addition, the Warranter 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 Warranter 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 warranter 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 Warranter, in its sole discretion, are not covered. Costs of such service calls are the responsibility of the purchaser.

SPECIFICATIONS*

VIDEO	
Image Sensor	1/2.7" CMOS Sensor
Active Pixels	1920(H) x 1080(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): 1.0Lux [Color]
	F1.4 (30IRE): 0 Lux [B&W]
S/N Ratio	55dB
Video Output	AHD 1080p30fps/720p60fps/720p30fps
LENS	
Focal Length	3.6mm Fixed Lens
IR Distance	50ft
OPERATIONAL	
Shutter Speed	1/30(25)-1/30,000
Backlight	OFF / BLC / HME
STAR-LIGHT	OFF, x2 -x30

SPECIFICATIONS*

OPERATIONAL (CONT.)	
Digital Noise Reduction	Off, Low, Middle, High
White Balance	Auto / Push / Manual / AWB
Day and Night	Auto / Color / B/W / EXT
Auto Gain Control	0 ~ 15
Motion Detection	Yes
Privacy Zones	4 Privacy Zones
Sharpness	0 ~ 10
Gamma	0.45 ~ 1.00
UTC	Yes
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,
Power Consumption	LED OFF: 3.06W, 255mA
	LED ON: 3.43W, 285mA
MECHANICAL	
Housing Material	Aluminum
Dimensions	169.5 x 71.2mm (5.7 X 4.28 in)
Weight	1.65lbs

*Specification is subject to change without prior notice.



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