

HD CCTV Total Solution

IR Bullet Camera User Manual



The product image shown above may differ from the actual product.
Please use this camera with a DVR which supports HD video recording.
Please read the instructions thoroughly before using the product.



CAUTION

RISK OF ELECTRIC SHOCK



CAUTION:

To reduce the risk of electric shock, do not expose this apparatus to rain or moisture.

Only operate this apparatus from the type of power source indicated on the label.

The company shall not be liable for any damages arising out of any improper use, even if we have been advised of the possibility of such damages.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



ROHS Announcement

All lead-free products offered by the company comply with the requirements of the European law on the Restriction of Hazardous Substances (RoHS) directive, which means our manufacture processes and products are strictly "lead-free" and without the hazardous substances cited in the directive.



The crossed-out wheeled bin mark symbolizes that within the European Union the product must be collected separately at the product end-of-life. This applies to your product and any peripherals marked with this symbol. Do not dispose of these products as unsorted municipal waste.



CE Mark

This apparatus is manufactured to comply with the radio interference.

The company does not warrant that this manual will be uninterrupted or error-free. We reserve the right to revise or remove any content in this manual at any time.

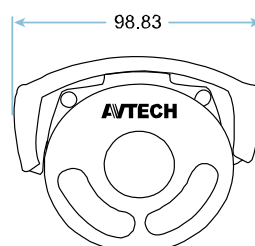
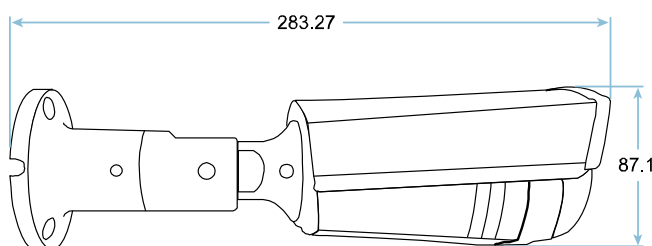
FEATURES

1. 1/2.8" CMOS sensor with 1080P video output
2. Starlight visibility to offer clear images even at night
3. External alarm I/O device connection
4. Day and night 24-hour surveillance with IR effective distance up to 70 meters
5. Manual adjustment of the brightness of the IR LEDs
6. WDR to increase image recognizability in overexposure and dark areas
7. IP66 for weather-proof application
8. EZUM series to support focus and camera parameters adjustment remotely from AVTECH HD CCTV DVR
9. Camera parameters adjustable when used with HD CCTV DVR

PACKAGE CONTENT

- IR camera
- User manual
- Accessories

DIMENSIONS*



*Dimensional Tolerance: ± 5mm

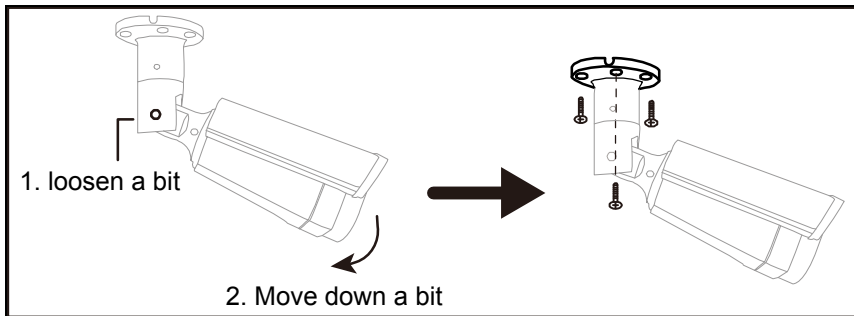
SPECIFICATIONS*

Pick-up Element	1/2.8" CMOS image sensor
Number of Pixels	1930(H) x 1088(V)
Video Frame Rate	1080P@30fps / 1080P@25fps
Min. Illumination	0.01 Lux / F1.6(Wide)~F2.8(Tele), 0 Lux (IR LED ON)
S/N Ratio	More than 48dB (AGC OFF)
Shutter Speed	1 ~ 1/30000
Lens	motorized f2.8 ~ f8.0mm / F1.6 ~ F2.8 (auto focus)
Lens Angle	Wide: 97° (Horizontal) / 52° (Vertical) / 118° (Diagonal) Tele: 53° (Horizontal) / 30° (Vertical) / 61° (Diagonal)
IR LED	6 units
IR Effective Distance	Up to 70 meters
IR Shift	YES
Day & Night Mode	YES
Smart Light Control	YES
IRIS Mode	AES
White Balance	AWB
AGC	YES
Sharpness	YES
Flickerless	YES
BLC	YES
WDR	YES
External alarm I/O	Digital in * 1 / Digital out * 1 / 12V DC
IP Rating	IP66
Operating Temperature	-25°C ~ 50°C
Operating Humidity	90% or less relative humidity
Power Source (±10%)	DC12V / 1A
Current consumption (±10%)	200mA (IR LED OFF) / 900mA (IR LED ON)
Net Weight (kg)	2.4

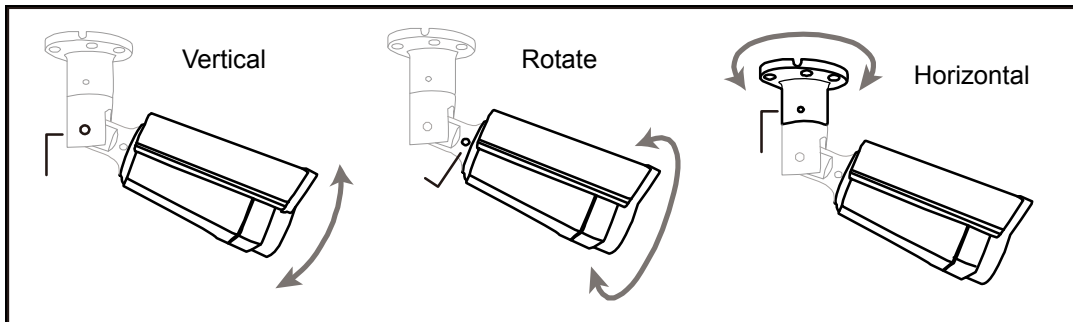
* The specifications are subject to change without notice.

INSTALLATION

Step 1: Loosen the screw as indicated below to move down the camera lens.
Then, fasten the camera to the ceiling or wall where you want to install.



Step 2: Adjust the viewing angle of the camera as indicated below.



Step 3: Power on the camera and fine-tune the viewing angle.
For details, please refer to the section, "**FOCAL LENGTH & FOCUS ADJUSTMENT**".

WIRE INDICATION FOR ALARM CONNECTION

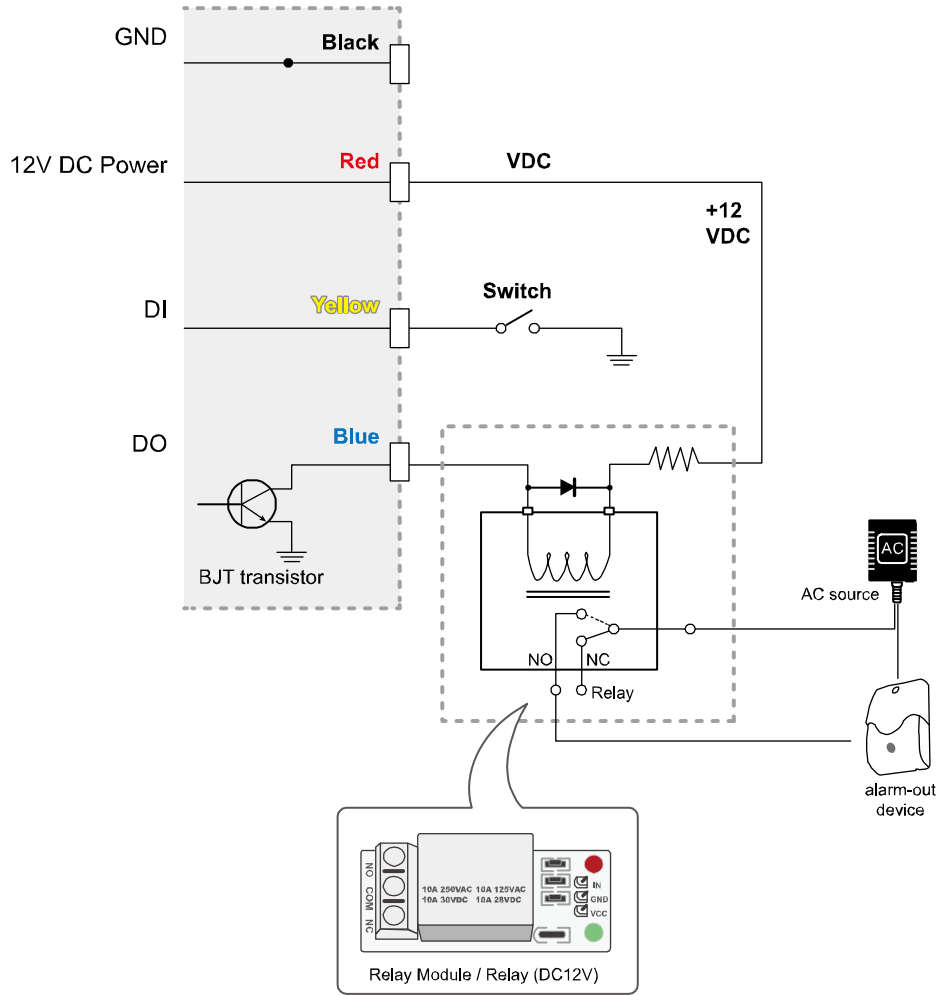
COLOR	FUNCTION	DESCRIPTION
Red	12V DC	Max. load 100mA
Blue	Digital out	Max. voltage +60VDC / Max. load 100mA
Black	GND	Command ground
Yellow	Digital in	CMOS 3.3V logic level

* Please use with a 12V relay or relay module

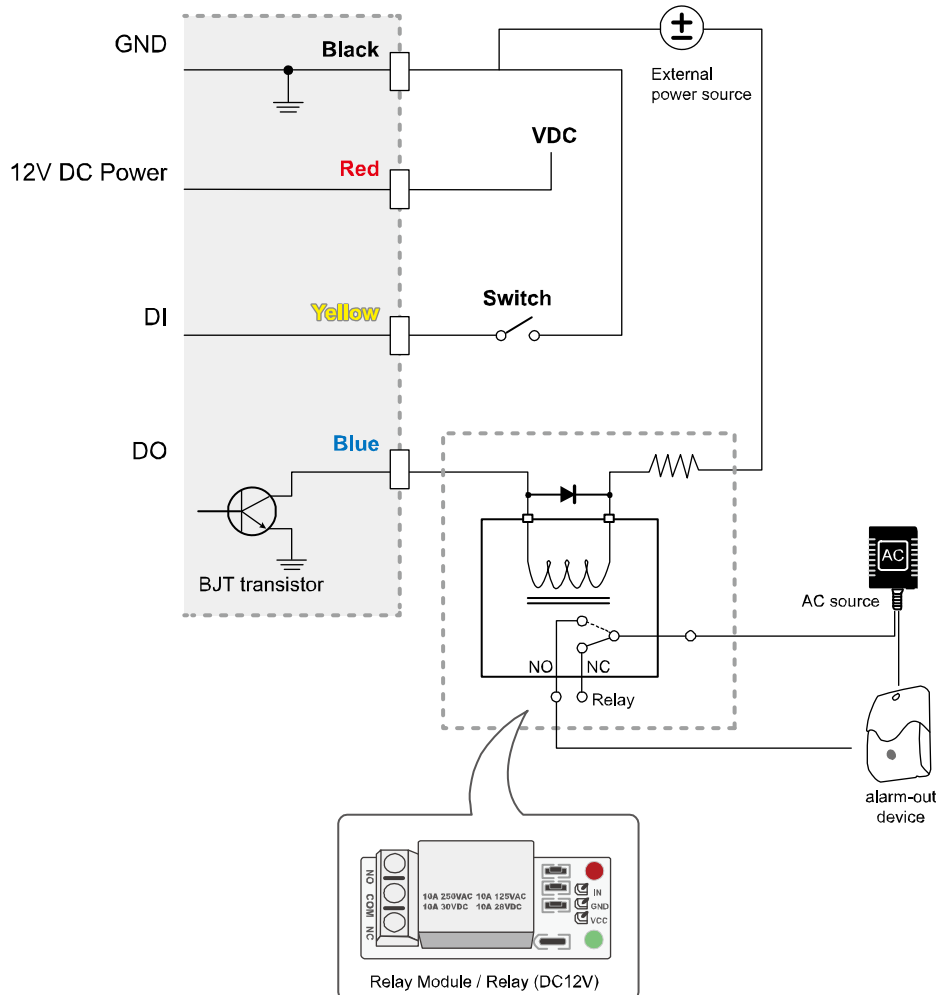
This camera is capable of providing power to an external relay or relay module when connecting an alarm output device. Please note that:

1. When an individual relay is used (instead of using a relay module), it's recommended to add a transient voltage suppression diode in parallel with the inductive load for protection against electrical spikes and surges.
2. The external alarm output device could also be power-supplied by the camera if its current request is no more than 100mA.
3. An external relay can be triggered by using the VDC or by an external power source, depending on the type of relay you use.

■ Relay power-supplied by using VDC



■ Relay power-supplied by using external power source



CONNECTION

1. DC12V Input Terminal

Connect the power terminal of the camera to a DC 12V regulated power supply.

Note: Please use the correct power adaptor, DC12V (regulated), to operate this unit. The power tolerance of this unit is DC12V \pm 10%. Over maximum DC 12V power input will damage this unit.

2. Video Output Connector

Connect the camera video output to the video input of a DVR with 75 Ω coaxial cable.

There are two connectors: the white one is for **TVI output**, and the gray one is for **CVBS output**.

Note: To ensure the camera has sufficient protection against moisture, an extra waterproof measure, such as by using an insulating tape, must be used to cover the power and video connectors after connection.

3. Alarm wires


Please see the section, "**WIRE INDICATION FOR ALARM CONNECTION**", for details.



FOCAL LENGTH & FOCUS ADJUSTMENT



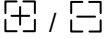

This camera supports remote focal length and focal adjustment remotely from our HD CCTV DVR.

Note: The icons described below are available only when the camera is used with our brand's HD CCTV DVR, and you might need to upgrade your DVR to see these icons.

There're two ways to open the control panel. On the DVR live view, click the channel which connects this camera to display in the full screen mode, and

1) Click  on the bottom left side of the channel, OR

2) Click  on the bottom left side of the channel, and choose  (ZOOM).

	Zoom in / out max	Click to zoom in on the image to the largest / zoom out on the image to its original size.
	Zoom in / out	Click to zoom in / out the image.
	Focus near / far	Click to adjust the focus of the image.
	Lens Reset	Click for lens calibration when you feel the focus is not clear after each zoom-in / -out.

IR LED BRIGHTNESS CONTROL (PWM)

This function is used to control the brightness of IR LEDs.

For example, if you feel the image is too bright when the night mode is on, resulting a little bit overexposure, you can use this function to modify as you wish.

Note: The icons described below are available only when the camera is used with our brand's HD CCTV DVR, and you might need to upgrade your DVR to see these icons.

There're two ways to adjust the IR brightness level. On the DVR live view, click the channel which connects this camera to display in the full screen mode, and

1) Click  on the bottom left side of the channel to show the control panel, and choose  (IR INTENSITY),


OR









2) Click  on the bottom left side of the channel, and choose  (IR MANAGEMENT).

There're 5 levels in total. The higher the value, the stronger the IR light at night. However, setting the value to the highest might jeopardize the lifetime of IR LEDs. It's not recommended to set the value to the highest for too long.

FREQUENTLY-USED CAMERA PARAMETERS

Note: The icons described below are available only when the camera is used with our brand's HD CCTV DVR, and you might need to upgrade your DVR to see these icons.

Click  on the bottom left side of the channel, and you'll see the icons below:

	Day & Night Configure the day and night modes of the camera		IR Management Manually adjust the brightness of IR LEDs.
	Noise Reduction Reduce image noise if needed.		Optics Manually change the shutter speed if needed.
	Color Manually adjust the color-related parameters if needed.		Image Enhancement Enhance the image performance for better sharpness and overall identification even in overexposure areas.
	Zoom Used with the motorized lens cameras for optical zoom.		Advanced Set other camera parameters such as camera system, and mirroring or flipping camera images.

CAMERA PARAMETERS





This camera series has its own configuration menu.

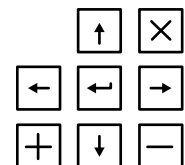
Note: The access path is taking our HD CCTV DVR as an example. For connecting to other brand's DVR, please refer to its own DVR user manual.

On the DVR live view, right click to show the DVR main menu, and select **ADVANCED CONFIG** → **DCCS** → **OSD MENU**. Then, select the channel which connects this camera, and click **SETUP** to enter the menu of camera parameters.

ADVANCED CONFIG				
CAMERA	CH1	CH2	CH3	CH4
DETECTION	OSD MENU			SETUP
ALERT	DCCS MENU			SETUP
NETWORK				
DISPLAY				
RECORD	F.W.			1015
DCCS	DEVICE			AVTXXX
NOTIFY	CONNECTION			OK
EXIT				

When the camera menu is entered, you'll see the keys on the bottom right corner to move between and change those configurations.

-  Move between selections.
-  Change settings.
-  Call the camera parameters menu or enter the currently-selected item.
-  Quit the camera parameters mode.



MENU				REMARK	
IRIS	ELC			auto light control	
	ALC			electronic light control	
EXPOSURE	BRIGHTNESS	0 ~ 20			
	SHUTTER	MANUAL			
		FLICKER			
		AUTO		NORMAL / DEBLUR	
SENS-UP	OFF x2 / x4 / x8 / x16 / x32			Used as slow shutter	
AGC	0 ~ 10				
BACKLIGHT	OFF				
	HLC	Level		The lower the value, the more light area will be covered.	
		Color			
	BLC	H-POS			Horizontal position
		V-POS			Vertical position
H-SIZE				Horizontal size	
V-SIZE				Vertical size	
WDR	HIGH / MIDDLE / LOW			Available only for the TVI output.	
DAY & NIGHT	AUTO	IR LED	ON / OFF		
		ANTI-SAT.	0 ~ 20		
		LED_LEVEL	1 ~ 5		
		AGC THRES	0 ~ 20		
		AGC MARGIN	0 ~ 20		
		DELAY	LOW / MIDDLE / HIGH		
	COLOR				
	B&W	IR LED	ON / OFF		
		ANTI-SAT.	0 ~ 20		
		LED_LEVEL	1 ~ 5		
EXTERN	IR LED	ON / OFF			
	ANTI-SAT.	0 ~ 20			
	LED_LEVEL	1 ~ 5			
	EXTERN SW	LOW / HIGH			
	D>N THRES	0 ~ 20			
	N>D THRES	0 ~ 20			
DELAY	MIDDLE / HIGH				
COLOR	AWB	AUTO			
		AUTOext			
		PRESET			
		MANUAL	C-TEMP R-GAIN (0 ~ 20) B-GAIN (0 ~ 20)	5000K / 8000K / 3000K The higher the value, the thicker the color	
	COLOR GAIN	0 ~ 20			
	Y GAIN	0 ~ 32			
	CB GAIN	0 ~ 32			
	CR GAIN	0 ~ 32			
	POSITION				
	BURST FREQ				
	BURST GAIN				
DNR	OFF			3D Denoise	
	HIGH / MIDDLE / LOW				
IMAGE	SHARPNESS	TVI	0 ~ 10		
	GAMMA	0.45 / 0.55 / 0.65 / 0.75			
	MIRROR	OFF / ON			
	FLIP	OFF / ON			
	ACE	OFF			Adaptive Contrast Enhancer, used to balance the back light and reveal image, like Digital WDR.
LOW / MIDDLE / HIGH					

MENU				REMARK	
IMAGE	DEFOG	OFF			
		ON	MODE LEVEL	MANUAL / AUTO LOW / MIDDLE / HIGH	
	PRIVACY	OFF			
		ON	ZONE NUM		16 zones could be moved to where you want to cover. Choose the zone number to move and change its size.
			ZONE DISP		
			H-POS		Horizontal position
			V-POS		Vertical position
			H-SIZE		Horizontal size
			V-SIZE		Vertical size
			Y LEVEL (0 ~ 20)		
			CB LEVEL (0 ~ 20)		
			CR LEVEL (0 ~ 20)		
	TRANS (0 ~ 3)		The higher the value, the more transparent the mask.		
MOTION	OFF				
	ON	DET WINDOW	WINDOW ZONE		Up to 4 zones could be set in one window. The selected zone will be marked in yellow, and you'll see the shape of the other zone.
			WINDOW USE		
			DET H-POS		Horizontal position
			DET V-POS		Vertical position
			DET H-SIZE		Horizontal size
		DET V-SIZE		Vertical size	
		DET ZONE	0 ~ 4		0: Only shows the detection zone. 1 ~ 3: the undetected zones will be transparent, the higher the value, the more transparent the undetected zone. 4: You don't see the detection zone(s), but when you move in the zone, you'll see the red flash on the screen.
			MDRECT FILL	OFF / ON	
			SENSITIVITY	0 ~ 10	
			MOTION OSD	ON / OFF	Enable / disable all motion related OSD.
TEXT ALARM	ON / OFF				
SIGNAL OUT	OFF / ON				
SYSTEM	FRAME RATE				
	FREQ	60HZ / 50HZ			
	COM.	CAM ID			
		BAUDRATE			
		SET ZONE			
	IMAGE RANGE	FULL			
		COMP			
		USER			
	COLOR SPACE				
	COLOR BAR	OFF / ON			
LANGUAGE	ENG / CHN / CHN(S) / JPN / KOR				
CAM TITLE	OFF / ON		8 alpha-numeric characters		
RESET	ON				