EZ930F/950F eZ.HD Series

1080p Full High Definition
True Day/Night Outdoor IR Bullet Camera

User's Manual

EverFocus

Precautions

1. **Do not install the camera near electric or magnetic fields.** Install the camera away from TV/radio transmitters, magnets, electric motors, transformers and audio speakers since the electromagnetic fields generated from these devices may distort the video image or otherwise interfere with camera operation.

2. **Never disassemble the camera beyond the recommendations in this manual nor introduce materials other than those recommended herein.** Improper disassembly or introduction of corrosive materials may result in equipment failure or other damage.

3. **Try to avoid facing the camera toward the sun**. In some circumstances, direct sunlight may cause permanent damage to the sensor and/or internal circuits, as well as creating unbalanced illumination beyond the capability of the camera to compensate.

4. **Keep the power cable away from water and other liquids and never touch the power cord with wet hands.** Touching a wet power cord with your hands or touching the power cord with wet hands may result in electric shock.

5. **Never install the camera in areas exposed to oil, gas or solvents.** Oil, gas or solvents may result in equipment failure, electric shock or, in extreme cases, fire.

6. **Cleaning.** For cameras with interchangeable lenses, do not touch the surface of the sensor directly with the hands. Use lens tissue or a cotton tipped applicator and ethanol to clean the sensor and the camera lens. Use a damp soft cloth to remove any dirt from the camera body. Please do not use complex solvents, corrosive or abrasive agents for cleaning of any part of the camera.

7. **Do not operate the camera beyond the specified temperature, humidity or power source ratings.** This camera is suitable for indoor operation only. Use the camera at temperatures within -40°C~50°C (-40°F~122°F) and humidity between 20%~80%; this device is not rated as submersible. The input power source is 12VDC or 24VAC. Be sure to connect the proper + / - polarity and voltage, as incorrect polarity or too high a voltage will likely cause the camera to fail, and such damage is not covered by the warranty.

8. **Mounting.** Use care in selecting a solid mounting surface which will support the weight of the camera plus any wind, snow, ice or other loading, and securely attach the camera to the mounting surface using screws and anchors which will properly support the camera. If necessary (e.g. when mounting to drop ceilings) use a safety wire to provide additional support for the camera.

Safety Notice

Federal Communication Commission Interference Statement

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 in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE   **ATTENTION!** This is a class A product which may cause radio interference in a domestic environment; in this case, the user may be urged to take adequate measures.

RoHS   This Product is RoHS compliant.

WEEE   Your EverFocus product is designed and manufactured with high quality materials and components which can be recycled and reused. This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste. Please, dispose of this equipment at your local community waste collection/recycling centre. In the European Union there are separate collection systems for used electrical and electronic product.
Please, help us to conserve the environment we live in!

Contents

1.   Introduction

The EverFocus eZ.HD Series EZ930F/950F provides incredible performance in bright light or low light, and the resolution listed in the specification from the actual camera you install. To take full advantage of the amazing resolution available from this advanced imaging technology, the EverFocus eZ.HD Series EZ930F/950F uses a vari-focal lens together with 1/2.9" SONY 2.24M pixels CMOS to deliver 1080p high resolution together with a useable native low light sensitivity of 0.08lux without using digital slow shutter. This camera truly provides optimized images without compromising 1080p high resolution. The Digital Wide Dynamic Range function provides clear color images in the most challenging of bright or unbalanced lighting conditions. The true day/night IR enhances images in low light environments with guaranteed ZERO ghosting. The EZ930F/950F cameras are equipped with an IP66 weather resistant housing and a 3-axis rotation mechanical design that delivers wall or ceiling mounting flexibility. Users can take the advantage of vari-focal DC iris lens to easily adjustable field of view from the cameras. The cameras also feature dual voltage operation and a full suite of OSD Menu and DSP functions controllable at the camera (3DNR to save DVR HDD space, privacy masking, mirroring, and much more). This is the camera that you have been waiting for to create analog CCTV systems that produce astounding image clarity in a wide range of outdoor applications at the widest range of light levels. The EZ930F/950F support both NTSC and PAL scanning systems, which can be switched via OSD.

| Model	Image Sensor	Resolution	IR LEDs	Lens Type	IR Distance	Day / Night
EZ930F	1/2.9" SONY 2.24M pixels CMOS	1080p	80 Units	2.8-12mm DC Iris with ICR	35m/115ft.	True Day/Night
EZ950F			8 Units	5-50mm DC Iris with ICR	50m/165ft.	

1.1 Packing List

- Camera Body x 1
- User Manual x 1
- Test Lead x 1
- DC Power Pigtail Cable x 1
- Screw x 3
- Quick Installation Guide x 1

- Hexagon Wrench x 1
- Screw Driver x 1
- Plastic Anchor x 3
- Template Plate x 1
- Desiccant Bag x 1
- Warning Label x 1

1.2 Features

- 1080p full HD with high flexibility and performance for astounding image
- 1/2.9" Sony 2.24M pixels CMOS sensor, delivering amazing high sensitivity
- Vari-focal 2.8~12mm**(EZ930F)**/ 5~50mm**(EZ950F)** DC iris lens to captures the desired field of view
- Extended IR range of up to 35m/115ft. with 80 LEDs (depending on scene IR reflectivity) **(EZ930F)**;
  Up to 50m/165ft. with 8pcs 3G array IR LEDs **(EZ950F)**
- D-WDR to improve the visibility under high contrast scene
- 3D Noise Reduction ensures less blurry moving subjects, vivid and high SN ratio images even under low light environments
- Supports 1080p, 720p & 960H analog signal output, which can be easily switched using OSD Joystick
- Internal wire system with anti-cut bracket
- Weather Resistant IP66 and built-in heater
- Supports ceiling mount and wall mount
- eZ.Controller function: Control camera OSD settings and PTZ operation directly from DVR end
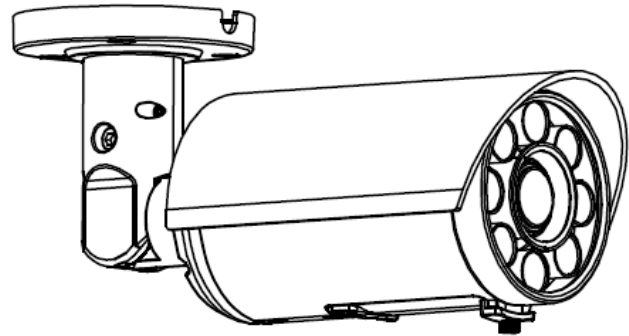
2.   Cable Description

Black: Negative (-)
Red: Positive (+)
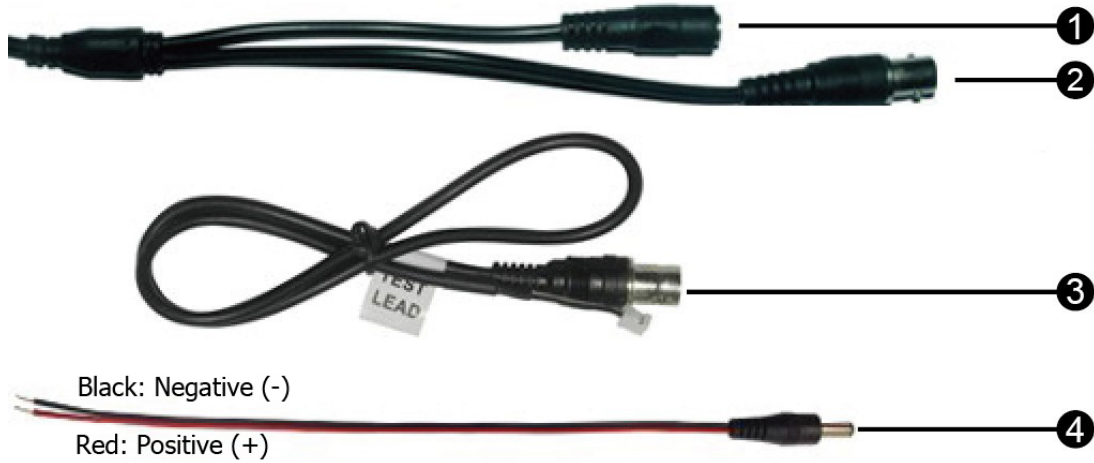
No.	Name	Descriptions
1	**Power Cable**	Connect to a 12VDC or 24VAC power source.
2	**Video Output**	1080p, 720p and 960H output, using a 75 Ohm BNC-type coaxial cable.
3	**Test Lead**	Connect to a monitor for setting image aim and focus.
4	**DC Power Pigtail Cable**	Optional power pigtail cable. The red wire is positive (+); while the black wire is negative (-).

3. Installation

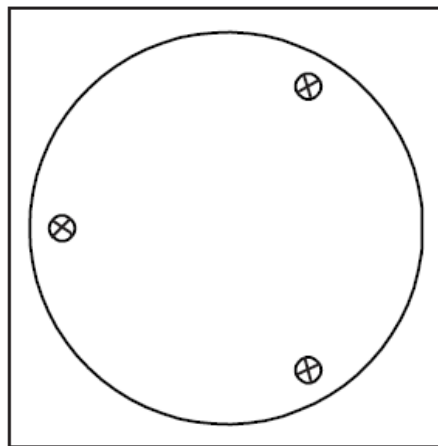## 3.1 Installation and Adjustment
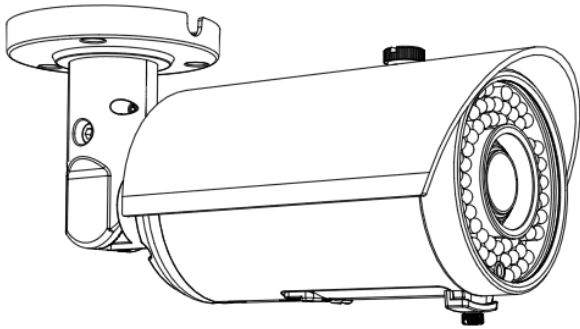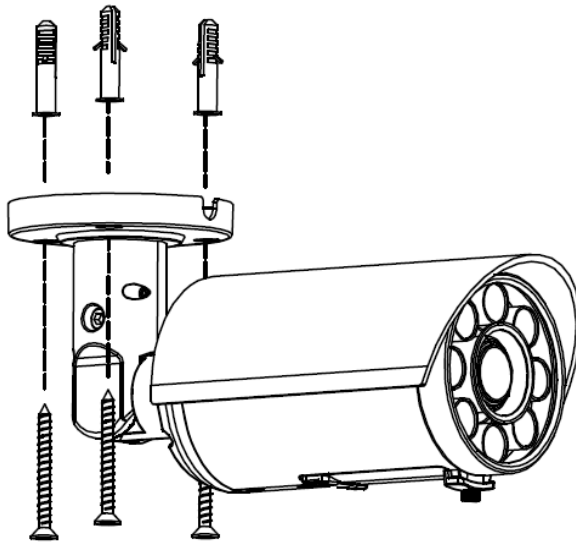

**Overview for EZ930F**   **Overview for EZ950F**

1. For Ceiling Mount / Wall Mount users: Stick the **Template Plate** on the position where you want to attach the camera.

2. Drill three holes and insert the supplied **Plastic Anchors** into the holes, then screw the camera to the ceiling or wall by using the supplied **Screws**.


3. Loosen the screw on the bracket with **Hexagon Wrench**, and adjust camera angles by tilting or rotating the camera. Then fasten the bracket with the **Hexagon Wrench** (Note: The bracket base can be rotated by 360°, the housing body also can be rotated by 360° and tilted by 90°).
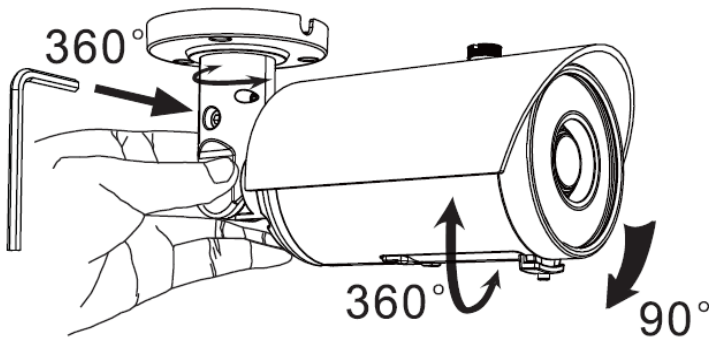
4. Connect the camera to the 12VDC or 24VAC power source. (For 12VDC power source, you can optionally use the supplied **DC Power Pigtail Cable**.
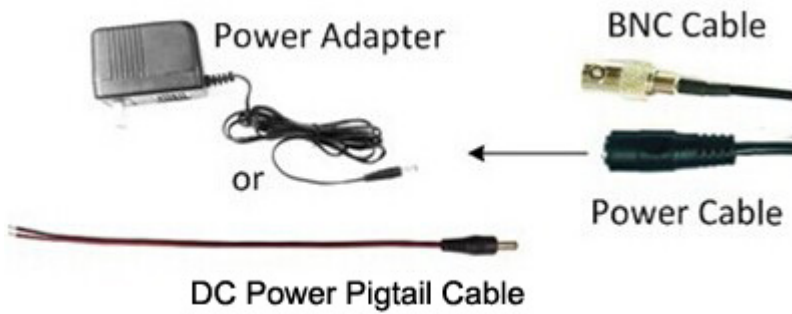
5. Loosen the screws on the bottom of housing, then pull out the OSD panel to configure camera settings using the OSD Menu Joystick, connect one end of the **Test lead** to the Test-out connector on the camera module and the other end to the portable monitor.
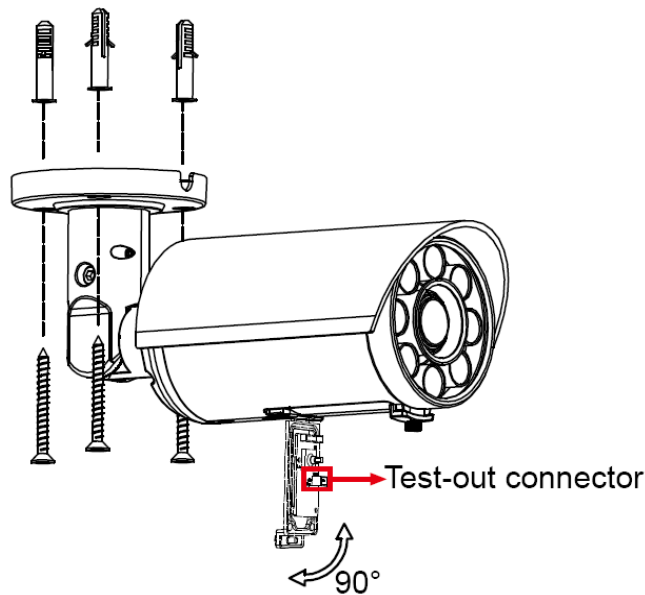
OSD indication as shown in the figure:
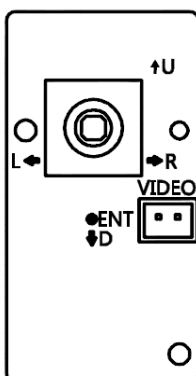
- Push the Joystick up / down to select among menu items.
- Push the Joystick left / right to adjust the level of the selected item.
- Press the Joystick to enter the submenu or exit the OSD Setup Menu.

Note: The function button is using to control direction, and also to switch video format and video output. Please follow the detailed instruction as below to switch the camera to:
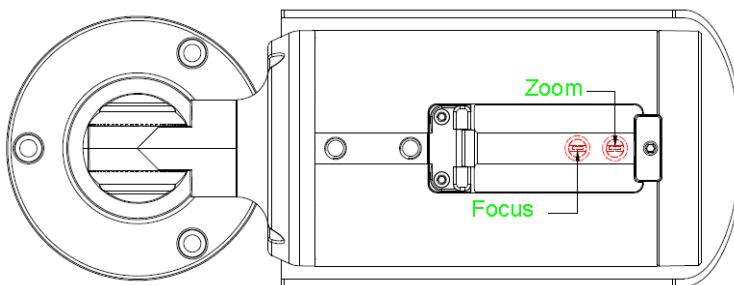
✦   Switch between 1080p and 720p (Default, 1080p): Press Upward for 5 Seconds

✦   Switch from HD (1080p / 720p) to 960H: Press Left for 5 Seconds

✦   Switch from 960H to HD (1080p / 720p): Press Right for 5 Seconds

✦   Switch between NTSC and PAL: Press Downward for 5 Seconds

6.   Enter the OSD setup menu and adjust the focus & zoom nuts inside the housing by using the supplied **Screw Driver**.

7. Tear apart the outer packing (figure 1) to take out the **Desiccant Bag** (figure 2), and put it into the camera housing (figure 3).
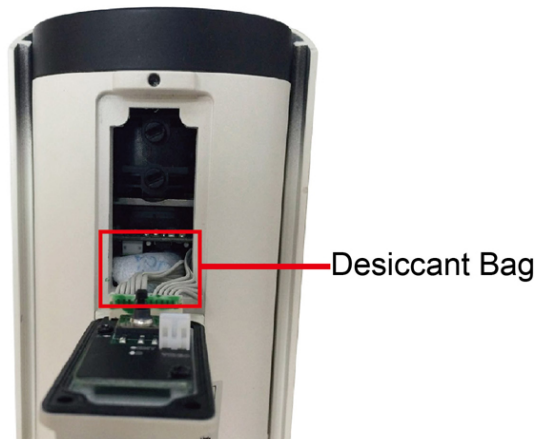

Note: It's recommended to close the OSD panel immediately in case of reducing the absorption capacity of the **Desiccant Bag** inside the camera.

8.   Screw back the OSD panel using the supplied **Hexagon Wrench**.

4. Configuration in the OSD Menu

You can use the Joystick on the bottom housing of the camera to configure camera settings in the OSD menu. The OSD menu structure is as below:

No.	Main	Sub Menu	Sub Menu / Function			
1	Lens	DC	Mode	Indoor		
				Outdoor	Min Shu.	NTSC: 1/30
						PAL: 1/25
					Max. Shu.	NTSC: 1/60,FLK,1/240, 1/480,1/1000, 1/2000,1/5000, 1/10000, 1/50000
						PAL: 1/50,FLK,1/200, 1/400,1/1000, 1/2000*,1/5000, 1/10000, 1/50000
			Iris Speed	0 – 15		
		Manual				
2	Exposure	Shutter	NTSC: 1/30, 1/60, FLK, 1/240, 1/480, 1/1000, 1/2000, 1/5000, 1/10000, 1/50000, X2, X4, X6, X8, X10, X15, X20, X25, X30, Auto			
			PAL: 1/25, 1/50, FLK, 1/200, 1/400, 1/1000, 1/2000, 1/5000, 1/10000, 1/50000, X2, X4, X6, X8, X10, X15, X20, X25, X30, Auto			
		AGC	0 – 15			
		Sens-up	Off			
			Auto	Sens-up	X2, X4, X6, X8, X10, X15, X20, X25, X30	
		Brightness	1-100			
		D-WDR	Off			
			On	Level	0-8	
			Auto			
		Defog	Off			
			Auto	Pos/Size	Position, Size, ↑ , ↓ , → , ←	
				Gradation	0-2	
				Default		
3	Backlight	Off				
		BLC	Level	Middle, High, Low		

5			Area	Position, Size, ↑, ↓, →, ←		
			Default			
		HSBLC	Select	Area1, Area2, Area3, Area4		
			Display	Off		
				On	Position, Size, ↑, ↓, →, ←	
			Black Mask	On/Off		
			Level	0-100		
			Model	All Day		
				Night	AGC Level	0-255
			Default			
4	White Balance	ATW				
		AWC→SET				
		Indoor				
		Outdoor				
		Manual	Blue	1-500		
			Red	0-100		
		AWB				
5	Day & Night	Ext	D→N(Delay)	0-60		
			N→D(Delay)	0-60		
		Auto	D→N(AGC)	1-255		
			D→N(Delay)	0-60		
			N→D(AGC)	1-255		
			N→D(Delay)	0-60		
		Color				
		B/W	Burst	Off/On		
			IR Smart	Off		
				On	Level	0-15
					Area	Position, Size, ↑, ↓, →, ←
			IR PWM	Off		
				0-100		
6	NR	2DNR	Middle/Low/Off/High			
		3DNR	Middle/Low/Off/High			
7	Special	Cam Title	Off			
			On	0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ▶→←↑↓()¯-_■/=&:~,.		
		D-effect	Freeze	Off/On		
			Mirror	Off, Mirror, V-flip, Rotate		

			Neg. Image	Off/On		
		Motion	Off			
			On	Select	Area1,Area2,Area3,Area4	
				Display	On	Position, Size, ↑, ↓, →, ←
					Off	
				Sensitivity	0-100	
				Color	Green, Blue, White, Red	
				Trans	1.00,0.75,0.50, 0.25	
				Alarm	View Type	Off, Block, Outline, All
					OSD View	On/Off
					Alarm Out	On/Off
					Time	1-15
				Default		
		Privacy	Off			
			On	Select	Area1,Area2,Area3,Area4	
				Display	Off	
					Color	Position, Size, ↑, ↓, →, ←
					Mosaic	Position, Size, ↑, ↓, →, ←
					Inv	Position, Size, ↑, ↓, →, ←
				Color	White, Black, Red, Blue, CYAN, Yellow, Green	
				Trans	1.00,0.75,0.50, 0.25	
				Default		
		Language	ENG/CHN1/CHN2/GER/FRA/ITA/SPA/POL/RUS/POR/NED/TUR			
		Defect	Live DPC	Off		
				On	AGC level	0-255
					Level	0-100
			White DPC	Off		
				On	Pos/Size	Position, Size, ↑, ↓, →, ←
					Start	Close the iris then press
					DPC View	Off/On
					Level	0-60
					AGC	0-14
					Sens-up	x2, x4, x6, x8,x10, x15, x20,

						x25, x30
		Black DPC	Off			
			On	Pos/Siz		Position, Size, ↑ , ↓ , → , ←
				Start		Press Enter
				DPC View		Off/On
				Level		0-255
		RS485	CAM ID	0-255		
			ID Display	Off/On		
			Baud Rate	2400,4800,9600,19200 ,38400		
8	Adjust	Sharpness	Off			
			Auto	Level		0-10
				Start AGC		0-255
				End AGC		0-255
		Monitor	CRT	Blue Gain		0-100
				Red Gain		0-255
			LCD	Gamma		User,0.45,0.50,0.55,0.60,0.65,0.70,0.75,0.80,0.85,0.90,0.95,1.00
				Blue Gain		0-100
				Red Gain		0-100
		LSC	Off/On			
		Video. Out	PAL/NTSC			
9	AF	AF Mode	Semi.			
			Auto			
			Manual			
		One Shot AF				
		TDN AF	On			
			Off			
		Lens Init.				
10	Exit		Save& END /Reset/Not Saved			

5. Specifications

P/N	EZ930F	EZ950F
Pickup Device	1/2.9" SONY 2.24M pixels CMOS	
Video Format	NTSC and PAL(can be switched via OSD)	
Effective Pixels	1920 (H)*1080 (V)	
Scanning System	Progressive Scan	
Sensitivity	0 lux with IR on	
S/N Ratio	Over 48 dB (AGC OFF)	
Electronic Shutter	AUTO, Manual (X30~1/ 50000), FLK	
Video Output	BNC 1.0Vp-p 75Ω	
Gamma Correction	0.45	
Lens Type	DC Iris 2.8-12mm, F1.4	DC Iris 5-50mm, F1.4
BLC	OFF/BLC/HS BLC Selectable	
AGC	0~15 Levels	
White Balance	ATW/AWC-SET/INDOOR/OUTDOOR/MANUAL/AWB	
Sync Mode	Internal	
Day/Night	Ext, Auto, Color, B/W	
IR LED	80 Units	8 Units
IR Distance	Up to 35m/115ft.	Up to 50m/165ft.
OSD Languages	12-Language	
DNR	2DNR/3DNR, Off	
DEFOG	Off/Auto(under B/W mode)	
D-WDR	On/Off	
Sens-up	Off/On(x2~x30)	
Mirror	Off, Mirror, V-flip, Rotate	
Motion Detection	Off/On for 4 selectable zones	
Privacy Mask	Off/On for 4 selectable zones	
Environmental	IP66 Weather Resistant	
Power Source	12VDC/24VAC	
Power Source	12VDC: 12w max./ 24VAC: 13w max.	12VDC: 15w max./ 24VAC: 14.5w max.
Operating Temperature	-40°C~50°C / -40°F~122°F	
Humidity	20%~80%	
Dimensions	236 x 84 x 110mm / 9.3" x 3.3" x 4.3"	
Weight	1100g/2.42lbs	
Certifications	CE/FCC/ RoHS	

Specifications and designs are subject to change for improving the functionality of this product without notice.

EverFocus Electronics Corp.

EverFocus Taiwan:
12F-1, No.79, Sec. 1, Shin-Tai Wu Road,
Hsi-Chih, New Taipei City, Taiwan
TEL: +886 2 2698 2334
FAX: +886 2 2698 3943
www.everfocus.com.tw
marketing@everfocus.com.tw

EverFocus Europe - Germany:
Albert-Einstein-Strasse 1, D-46446
Emmerich, Germany
TEL: +49 2822 93940
FAX: +49 2822 939495
www.everfocus.de
sales@everfocus.de

EverFocus China - Beijing:
Room 609, Technology Trade Building,
Shangdi Information Industry Base,
Haidian District, Beijing 100085, China
TEL: +86 10 6297 3336~39
FAX: +86 10 6297 1423
www.everfocus.com.cn
marketing@everfocus.com.cn

EverFocus China - Shenzhen:
4F, No. 2, D4 Building, Wan Yelong
Industrial Park, Tangtou Road, Shiyan,
Baoan, Shenzhen, Guangdong 518101, China
TEL: +86 755 2765 1313
FAX: +86 755 2765 0337
www.everfocus.com.cn
marketing@everfocus.com.cn

EverFocus USA - California:
1801 Highland Avenue, Unit A, Duarte, CA 91010,
USA
TEL: +1 626 844 8888
FAX: +1 626 844 8838
www.everfocus.com
sales@everfocus.com

EverFocus Japan:
3F Kuramochi, Buildingll 2-2-3 Koto-Bashi,
Sumida-Ku Tokyo, 130-0022, Japan
TEL: +81 3 5625 8188
FAX: +81 3 5625 8189
www.everfocus.co.jp
info@everfocus.co.jp