

EMC921F / EMW921F eZ.HD Series

1080p Full HD Super Wide Angle

IP67 Mobile IR Mini Camera

User's Manual



EMC921F



EMW921F



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All the images including product pictures or screen shots in this document are for example only. The images may vary depending on the product and software version. Information contained in this document is subject to change without notice.

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 $-10^{\circ}\text{C}\sim 50^{\circ}\text{C}$ ($14^{\circ}\text{F}\sim 112^{\circ}\text{F}$) and humidity less than 80%; this device is not rated as submersible. The input power source is 12VDC. 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.



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.



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!

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1. Introduction

Equipped with a 1080p CMOS sensor, the EverFocus eZ.HD series cameras - EMC921F and EMW921F deliver 1080p full HD image quality. Both of the models provide 2.1mm or 2.8mm lens (selectable) to capture the desired field of view. Featured with Digital Wide Dynamic Range (D-WDR), the camera can provide clear images even under backlight circumstances where intensity of illumination can vary excessively.

The EMC921F and EMW921F support both NTSC and PAL scanning systems and are IP67 certified (non-audio models). The IR LEDs enable night vision up to 10m (~32ft.). The models are designed with compact size, which is suitable for discreet surveillance. EMC921F and EMW921F are the ideal solution for your mobile surveillance needs.

EMC921F provides audio and non-audio models; EMW921F does not support audio function.

Model	Audio Function	Weather Resistance
EMC921F	Supported	IP67
	Not supported	IP67
EMW921F	Not supported	IP54

1.1 Packing List

EMC921F	EMW921F
<ul style="list-style-type: none"> • Camera x 1 	<ul style="list-style-type: none"> • Camera x 1
<ul style="list-style-type: none"> • User Manual x 1 	<ul style="list-style-type: none"> • User Manual x 1
<ul style="list-style-type: none"> • Screw x 2 	<ul style="list-style-type: none"> • Screw x 4
<ul style="list-style-type: none"> • Anchor x 2 	<ul style="list-style-type: none"> • Hexagon Wrench x 1
<ul style="list-style-type: none"> • Hexagon Wrench x 1 	

1.2 Features

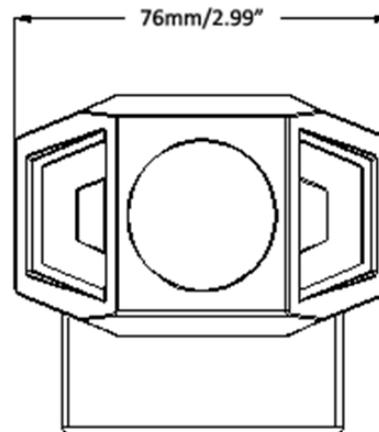
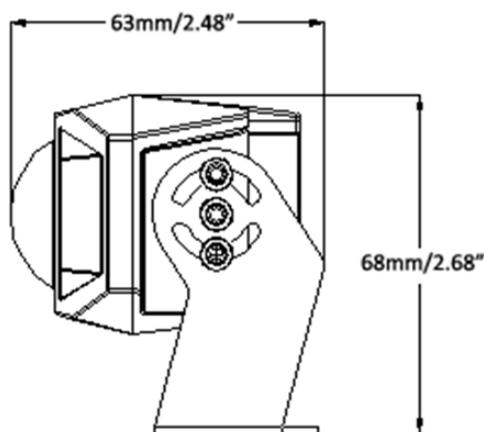
- 1080p Full HD with high flexibility and performance for astounding image
- 1080p CMOS sensor, delivering amazing high sensitivity
- 2.1mm/2.8mm lens (selectable) to capture the desired field of view
- Extended IR range up to 10m / 32ft. (depends on IR reflectivity in actual scene)
- D-WDR to improve 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

- Vandal-resistant construction enables the camera to withstand intentional damage
- IP67 (non-audio model) rated / IP54 (audio model) rated*
- Compact size for discreet surveillance
- eZ Controller function: Control camera OSD settings directly from DVR end

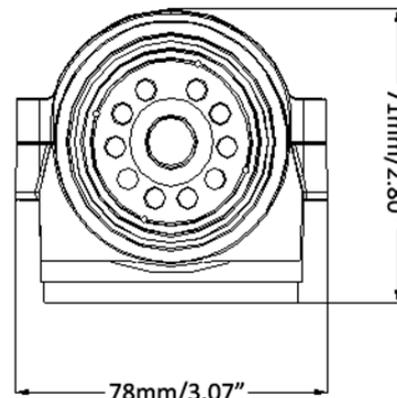
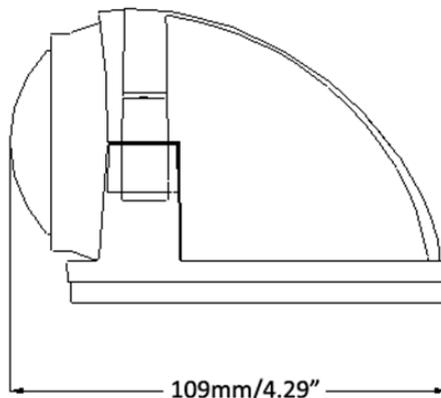
* EMC921F provides audio and non-audio models; EMW921F does not support audio function.

1.3 Dimensions

EMC921F



EMW921F



1.4 Optional Accessory

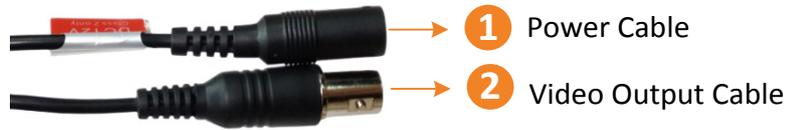
RCA Audio-Output Cable

EMC921F supports audio and non-audio function. If audio model is selected, a RCA Audio-Output Cable will be provided. The audio model is IP54 rated.

M12 Video-Output Cable

The standard model provides a BNC video-output cable. You can also optionally change the BNC video-output cable to M12 video-output cable.

2. Cable Description



No.	Name	Descriptions
1	Power Cable	Connects to a 12VDC power source.
2	Video Output	1080p output, using a 75 Ohm BNC-type coaxial cable.

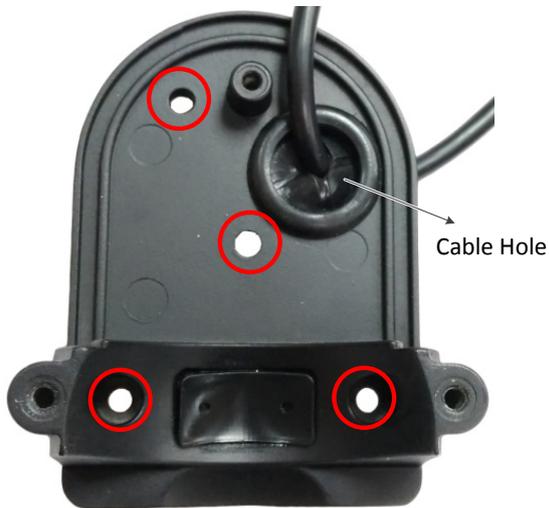
3. Installation

3.1 EMW921F

- Loosen the three screws using the supplied **Hexagon Wrench** and then remove the cover and camera from the base.



2. Attach the camera base to the mounting surface to mark the four screw holes on the mounting surface. You can optionally mark a cable hole only if you want to run the cables through the mounting surface. Drill the marked screw holes and cable hole on the mounting surface.



3. Screw the camera base to the surface using the supplied four **Screws**.
4. Place the camera back to the base, and then screw the cover back to the base.



Remark: Do not screw the cover too tight at this stage as you will have to adjust the camera angle later.

5. Connect the Power Cable to a 12VDC power source. Connect the Video Output Cable to a monitor or DVR.



- Adjust the camera angle by rotating the camera. After adjusting the camera angle, tighten the three cover screws using the supplied **Hexagon Wrench**.



3.1 EMC921F



- Attach the Camera Bracket to the surface where you want to mount the camera and mark the Screw Hole locations on the surface. Drill two screw holes on the surface and insert the supplied two Anchors to the holes. Screw the Camera Bracket to the surface using the supplied two Screws.
- Optionally drill another hole in the middle between the two screw holes only if you want to thread the cables through the surface.
- To adjust the Camera angle, loosen the two screws on both sides of the camera and then adjust the angle.
- Connect the Power Cable to a 12VDC power source. Connect the Video Output Cable to a monitor or DVR.

4. Configuration in the OSD Menu

You can configure camera settings in the OSD menu from DVR end. OSD menu structure is listed on the below table:

No.	Main	Sub Menu	Sub Menu / Function			
1	Lens	Manual	-			
		DC	Mode	Indoor		
				Outdoor	Min Shutter	1/30
					Max Shutter	1/60, 1/240, 1/480, 1/1000, 1/2000, 1/5000, 1/10000, 1/50000, FLK
IRIS Speed	0-15					
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	X2, X4, X6, X8, X10, X15, X20, X25, X30		
		Brightness	1-100 (50 default)			
		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		
			Area	Position, Size, ↑, ↓, →, ←		
			Default			
		HSBLC	Select	Area1, Area2, Area3, Area4		
			Display	Off		
				On	Position, Size, ↑, ↓, →, ←	
Black Mask	On/Off					
Level	0-100					

			Mode	All Day				
				Night	AGC Level	0-255		
			Default					
4	White Balance	ATW						
		AWC→SET						
		Special2*						
		Special1*						
		Manual	Blue	0-100				
			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		0-100						
6	NR	2DNR	Middle/Low/Off/High					
		3DNR	Middle/Low/Off/High					
7	Special	Cam Title	Off					
			On	0123456789ABCDEFGHIJKLMN OPQRSTUVWXYZ ▶→←↑↓()'-_█ /=&:~,.				
		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, 0.25, 0.00			
			Alarm	View Type	Off, Block, Outline, All			
				OSD View	On/Off			
				Alarm Out	On/Off			
				Time	0-15			
			Default					
	Privacy	On	Off					
				Select	Area1,Area2,Area3,Area4			
				Display	Off			
					Color	Position, Size, ↑, ↓, →, ←		
					Mosaic	Position, Size, ↑, ↓, →, ←		
				Inv	Position, Size, ↑, ↓, →, ←			
				Color	White, Black, Red, Blue, CYAN, Yellow, Green, User			
				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	On	Off				
				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	0-100	
		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	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		
			CRT	Blue Gain	0-100		
				Red Gain	0-100		
			LSC	Off/On			
		Video. Out	PAL/NTSC				
COMET	Off/On						
9	Exit	Save & END /Reset/Not Save					

Note:

- If the Color Temperature of your operation environment only stays around 6500K, you can select “Special 1” as the White Balance strategy.
- If the Color Temperature of your operation environment only stays around 2800K, you can select “Special 2” as the White Balance strategy.
- If the Color Temperature of your operation environment varies, or does not stay around 6500K / 2800K, please use the default White Balance strategy.

5. Specifications

Model Name	EMC921F	EMW921F
Pickup Device	1080p CMOS sensor	
Video Format	NTSC / PAL (switchable via DVR)	
Effective Pixels	1920 (H) x 1080 (V)	
Scanning System	Progressive Scan	
Sensitivity	0 Lux with IR On	
Electronic Shutter	Auto / Manual (x30 ~ 1/50,000) / FLK	
Gamma Correction	0.45	
Lens Type	2.1mm / 2.8mm (selectable)	
FOV (D x H x V)	2.1mm: 151° x 131° x 70° 2.8mm: 131° x 106° x 63°	
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	9 Units	10 Units
IR Distance	Up to 10m / 32ft. (depends on IR reflectivity in actual scene)	
OSD Languages	English / Simplified Chinese / Traditional Chinese / German / French / Italian / Spanish / Polish / Russian / Portuguese / Netherlands / Turkish	
DNR	2DNR / 3DNR, Off	
DEFOG	Off / Auto	
D-WDR	On / Off / Auto	
Sens-up	Off / Auto (x2 ~ x30)	
Mirror	Off / Mirror / V-Flip / Rotate	
Motion Detection	Off / On (4 selectable zones)	
Privacy Mask	Off / On (4 selectable zones)	
Audio Output	RCA x 1 (Optional)	Not supported
Environmental	IP67 (non-audio model) / IP54 (audio model)	IP67
Power Source	12VDC	
Power Consumption	1.8W	
Operating Temperature	-10°C ~ 50°C / 14°F ~ 122°F	
Humidity	Less than 80%	
Dimensions (L x W x H)	76mm x 63mm x 68mm / 2.99" x 2.48" x 2.68"	109mm x 78mm x 71mm / 4.29" x 3.07" x 2.80"
Weight	215g / 0.47lb	310g / 0.68lb
Certifications	CE, FCC, RoHS	

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 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 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 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 - Shenzhen:

3F, Building 7, Longcheng Industrial
Park, No.440, Longguan Road, Dalang Street,
Longhua, Shenzhen, Guangdong, China
TEL: +86 755 2765 1313
FAX: +86 755 2765 0337
www.everfocus.com.cn
marketing@everfocus.com.cn

EverFocus Japan:

3F Kuramochi, Building II 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



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Please, help us to conserve the environment we live in!

Ihr EverFocus Produkt wurde entwickelt und hergestellt mit qualitativ hochwertigen Materialien und Komponenten, die recycelt und wieder verwendet werden können.
Dieses Symbol bedeutet, dass elektrische und elektronische Geräte am Ende ihrer Nutzungsdauer vom Hausmüll getrennt entsorgt werden sollen.
Bitte entsorgen Sie dieses Gerät bei Ihrer örtlichen kommunalen Sammelstelle oder im Recycling Centre.
Helfen Sie uns bitte, die Umwelt zu erhalten, in der wir leben!



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