



VISIX Time of Flight People Tracking Camera

User Manual

This manual applies to the following camera models:

Camera Type	Model
VISIX Time of Flight People Tracking Camera	VX-VTOF-01

Thank you for purchasing our product. If there are any questions, or requests, please do not hesitate to contact your sales representative or a 3xLOGIC support representative.

The content of this guide is subject to change without notice. The manual will be amended if there are any hardware updates or changes.

Precaution

- Please read this manual carefully before installing the device.
- Never disassemble the device. Unauthorized disassembly may cause equipment failure or damage to the unit resulting in warranty failure.
- The device is for indoors only. Thus, please do not install the device in a place exposed to direct sunlight.
- Do not operate the camera in environments beyond the specified temperature.
- Refer to **Environment Condition** on **APPENDIX (A): SPECIFICATIONS** in this manual.
- Before applying power to the camera, check the power source to ensure that it is within the specifications. Refer to **Electrical Characteristics** on **APPENDIX (A): SPECIFICATIONS**.
- RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

Safety Instruction

These instructions are intended to ensure that the user can use the product correctly to avoid danger or property loss.

- This device complies with International Standard IEC/EN 60825-1:2014 for Class 1 laser products. To ensure safe use of the product, do not directly look into the laser emitters and do not disassemble the product. Failure to follow these instructions and warnings may result in injury or damage to the product.

CAUTION: Use of controls or adjustments or performances of procedures other than those specified herein may result in hazardous radiant exposure.

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1 Features

Imaging:

- Class 1 laser diode: the illumination power of 800 mW and the wave length of 850 nm
- Monochrome image of 320x240 pixels with infra-red

Network:

- 10/100 Base-T Ethernet

Integration:

- Software Development Kit (SDK) available

General:

- Micro SD/SDHC slot with a microSD card included
- Power Over Ethernet (PoE)

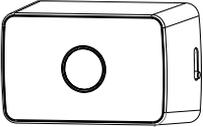
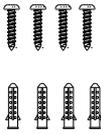
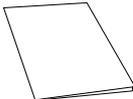
Video Contents Analytics (VCA):

- VCA Professional

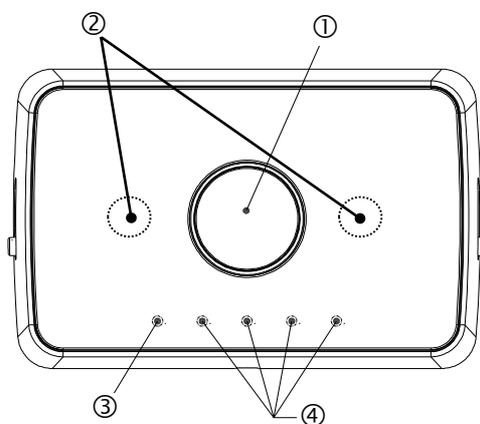
2 Package Contents

Please unpack the package carefully and handle the equipment with care.

The package contains:

Camera	Screws (M4x30) & Plastic Anchors	Installation Guide & Installation Template
		

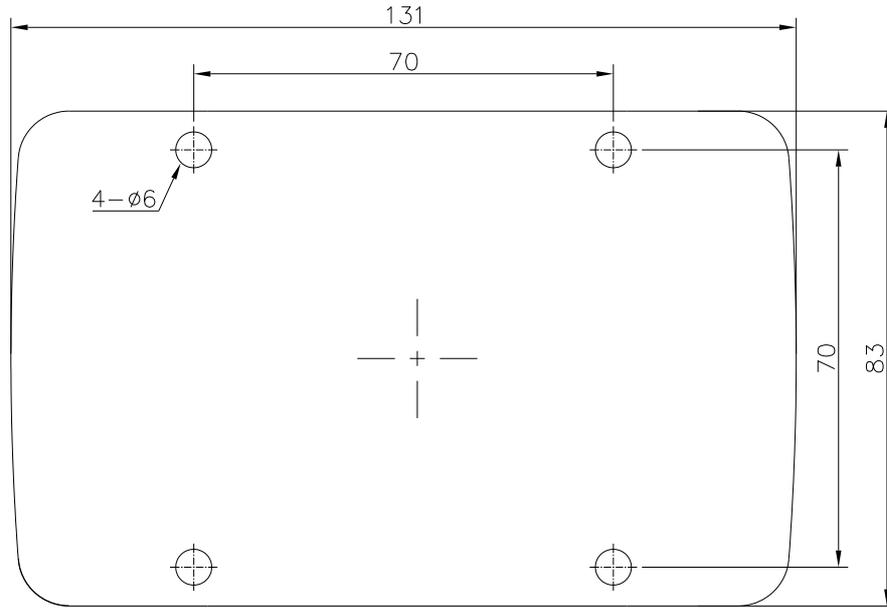
3 Part Names and Positions



* Model herein and their appearance are subject to change without any prior notice.

- 1). **Lens:** Lens is located inside the marked circle. It forms a 3D image by working with the IR illuminators on its sides.
- 2). **Laser Emitters:** Emits infrared lights.
- 3). **Status & Power LED:** The light indicates whether it is powered on and operating normally.
- 4). **VCA Information Indicator**

4 Installation



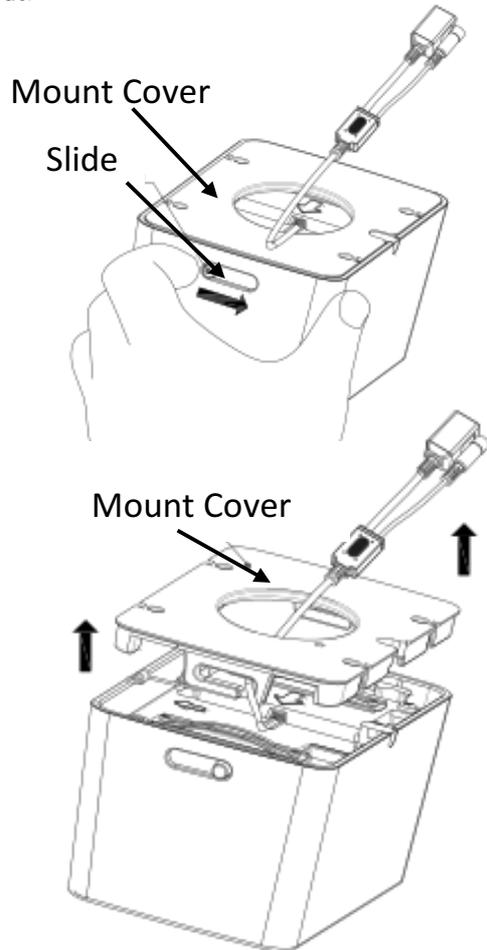
Unit: mm

CAUTION: Installation template's image size scale in this installation guide is not 1:1. The correct-size template design paper can be found inside the package separately.

4.1 Installation without Bracket

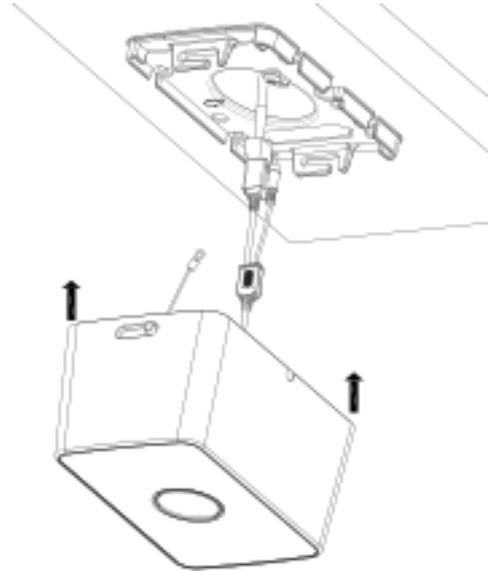
Steps:

- 1). Push the slides on both sides of the device to the other ends to detach the mount cover from the body.
- 2). Separate the mount cover from the body like the image on the left
- 3). Drill the holes on the ceiling based on the installation template, insert the plastic anchors into the four holes, and align the plastic anchors with the holes on the mount cover. Then, attach the mount cover by using the M4x30 screws included in the package. Tighten the screws for the firm attachment.

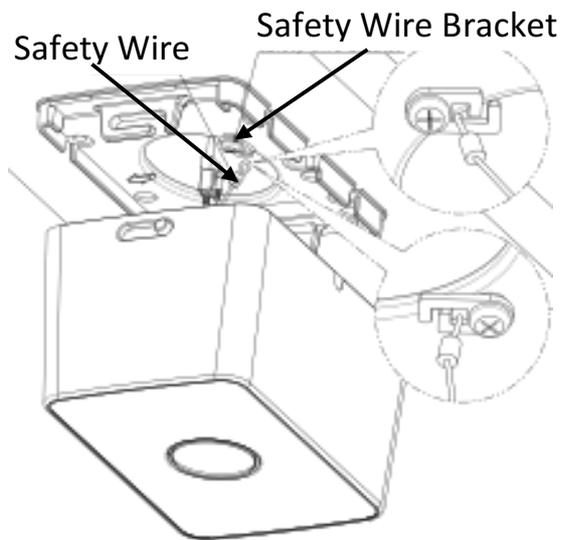


Steps:

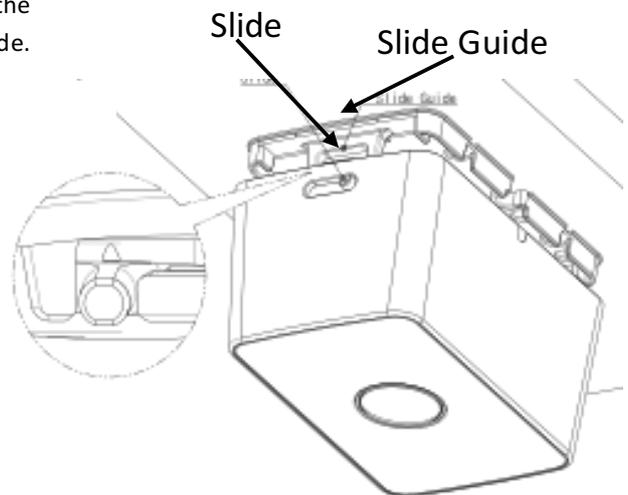
- 4). Connect the LAN cable from the ceiling to the LAN connector on the device for the PoE connection.



- 5). Connect the safety wire on the device to the safety wire bracket on the mount cover by referring to the image on the left.



- 6). Attach the device to the mount cover on the ceiling by aligning the slide guide with the slide.



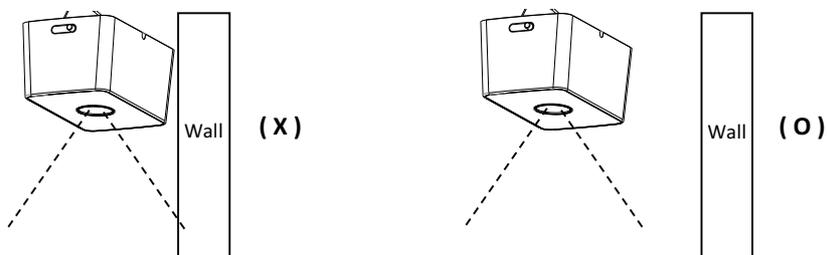
Steps:

- 7). Push the slides on both sides of the device to the other ends to lock the device onto the mount cover.



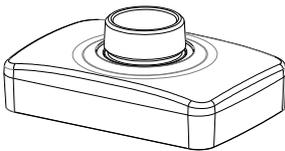
NOTE: For the best performance of the device, it is recommended that you install the device avoiding the places in direct sunlight. The suitable locations for installation are indoors with artificial lighting.

CAUTION: For the accurate measurement of object distance, avoid the areas as the installation spot if there is any object within the camera’s FOV (H: 60 degrees, V: 46 degrees).



4.2 Installation with Bracket

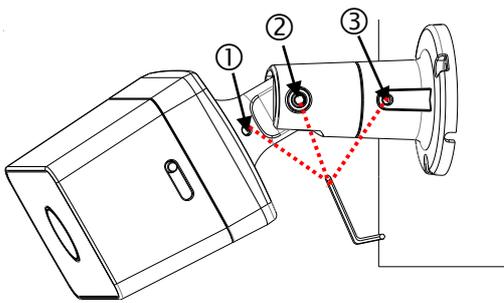
There are optionally two accessories available to attach the device to an installation surface.

VX-VTOF-BPT: Pan/Tilt Bracket	VX-VTOF-BPM: Pendant Mount Cap
	

4.3 Adjusting Angle of the Device

The angle of the device can be adjustable only when you attach the device to the pan/tilt bracket. Using a pan/tilt bracket is highly recommended to cover a wider viewing range (wider FOV) from the device.

Below are the instructions for the angle adjustment of the pan/tilt bracket:



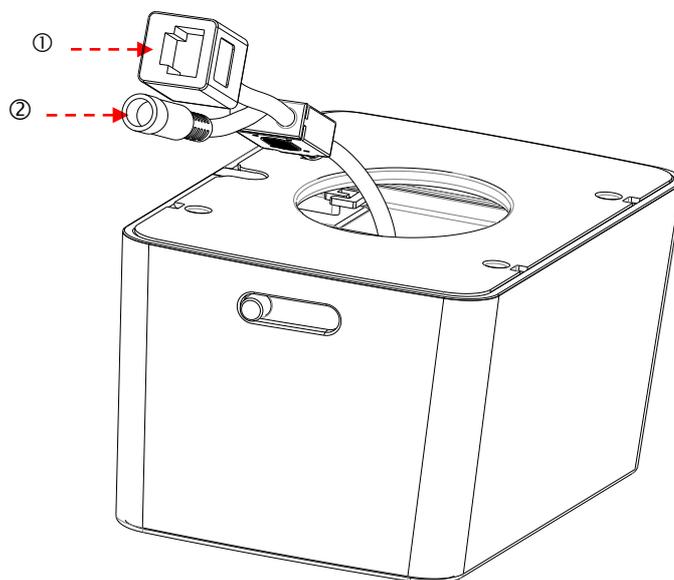
Tilt

- Loosen the bolt (②) with the L wrench included in the bracket package.
- Adjust the tilt angle, and fix the joint with the L wrench.

Pan

- Loosen the bolts (①,③) with the L wrench included in the bracket package.
- Perform the panning adjustment, and fix the joints with the L wrench.

5 Connections



- 1). **LAN Connection:** This is an RJ45 LAN connector for 10/100 Base-T Ethernet. Use the Ethernet cable (RJ45) to connect the device to a hub or a router in the network. Refer to **APPENDIX (B): POWER OVER ETHERNET** for more details.
- 2). **Power Connection:** The camera can be powered from either 12VDC or PoE.

6 Identifying the Camera on your Network

6.1 Identifying the Camera IP Address

To begin viewing video or configuring a camera's network settings from the camera's web/browser interface, the user must first identify the device's IP address. The default IP address of the camera is **192.168.XXX.XXX**. The default subnet mask is **255.255.0.0**.

On simple, private networks, a user can manually identify the IP address of the camera by converting the camera's MAC address hex values, however, the alternative method, which is recommended by 3xLOGIC, is to use the 3xLOGIC (VSX-IP) Camera Setup Utility. The utility makes detection and configuration of VISIX camera's in any network environment simple and easy, regardless of network complexity.

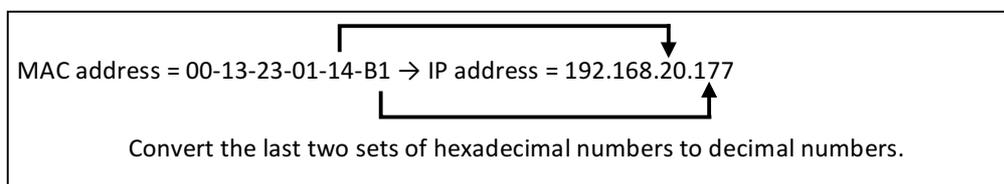
Please install the camera before continuing. Neither of the below methods require an external internet connection, however, the camera and the PC being used to communicate with it must reside on the same network.

MANUALLY IDENTIFY CAMERA IP ADDRESS (MAC ADDRESS HEX CONVERSION)

Users can access the camera's web interface and settings using a device's default IP address: In case of generic private network environment where IP address **192.168.XXX.XXX** are used, the following procedure can be used to identify a device's IP address.

Steps:

- 1). Convert the device's MAC address to the IP address. Refer to **Section 10: [Hexadecimal-Decimal Conversion Chart](#)** (the MAC address of the device is written on the label affixed to the side or bottom of the device).



- 2). Start the Microsoft® Internet Explorer web browser and enter the address of the device.
- 3). Web streaming and device configurations are supported through ActiveX program. When the ActiveX installation window appears, authorize and install the ActiveX.

AUTOMATICALLY IDENTIFY CAMERA IP ADDRESS WITH 3XLOGIC CAMERA SETUP UTILITY

Using the 3xLOGIC Camera (VSX-IP) Setup Utility is recommended for any network environment as it will find all VISIX cameras across multiple subnet masks, utilizing mDNS search discovery. Camera information such as IP Address, Subnet Mask and Gateway Settings will be displayed and can be edited from this utility. To search for a device, launch the utility ([VSXIPUtility.exe](#)).

NOTE: VSXIP Utility v9.40.0226 or newer is **required** for detection of the VX-VTOF-1.

Steps:

- 1). Click on **Detect Online Devices/ Change IP Address** to proceed to the Online Devices window.



Figure 2-1: 3xLOGIC Camera Setup Utility - Detecting Online Devices

- 2). After clicking **Detect Online Devices/ Change IP Address** on the main page you will be taken to the *Online Devices* window. A list of all VISIX devices discovered on your network will be visible.
- 3). To select a device, click on the desired device in the generated menu under the **Select Online Devices** area.
- 4). To change an IP address for a selected VISIX camera in the **Detect Online Devices** window, select the desired camera, click on the **Change IP Address** button. The fields under the **Configure IP Address** area will un-grey to allow for manual editing of camera IP addresses as well as other settings.

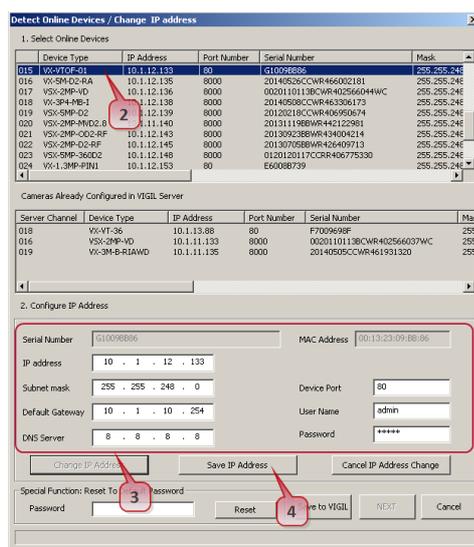


Figure 2-2: 3xLOGIC Camera Setup Utility - Identifying Device IP Address

When you have finished editing the settings, click **Save IP Address** to save new changes.

6.2 View Video on the Webpage

Type the proper IP address to view the live streaming images through a web browser. The default username and password is **admin / 12345**.

ACTIVEX INSTALLATION



Steps:

- 1). When the browser asks to install the AxUMF software, click Install to proceed.
- 2). When the Setup installation pop-up window appears, click **Install** to proceed with rest of installations.



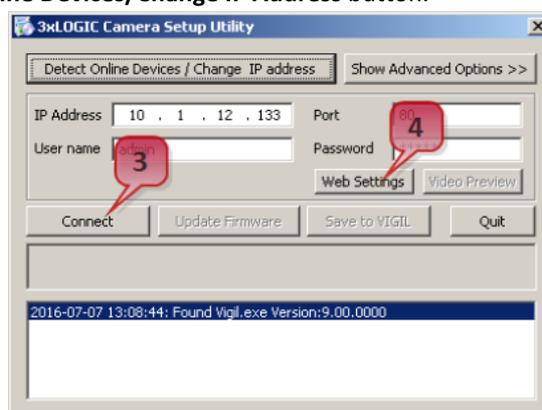
NOTE: Depending on system OS and Internet Explorer version, installation experience may differ from one another. Figures described above are from Windows 7, Internet Explorer 9 environment.

6.3 View Video Using 3xLOGIC Camera (VSXIP) Setup Utility

To access a video preview via the 3xLOGIC Camera Setup Utility, launch the utility and follow the below instructions.

Steps:

- 1). From the utility main window, click the **Detect Online Devices/Change IP Address** button.
- 2). Select the VX-VTOF-1 from the list of devices and click **Next**.
- 3). When the utility returns to the main interface, click the **Connect** button.
- 4). Allow sufficient time for the connection to initialize then click the **Web Settings** button. Your default browser will open with a Live video preview from the camera.



CAUTION: Whether directly accessing the streaming video by entering the IP address into a browser or taking steps through the 3xLOGIC Camera Setup Utility, ActiveX is required to be installed for Microsoft® Internet Explorer to access complete configuration privileges.

6.4 VCA Configuration

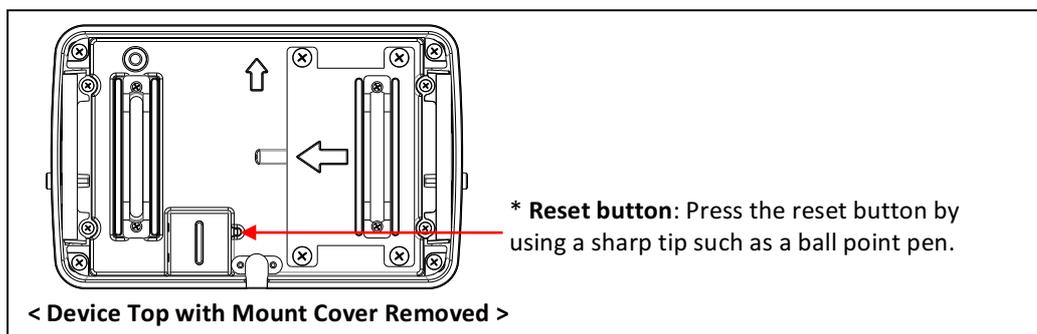
To configure video analytics for the device, refer to the **VCAsys On-Line Help** manual for the corresponding configuration instructions.

6.5 Reboot

Perform the following procedures to reset your device:

Steps:

- 1). Press the Reset button, and hold it for 2 seconds while the device is powered on.
- 2). Wait for the system to reboot.



CAUTION: Please do not press the reset button for more than 2 seconds. Otherwise, the camera may be switched to its factory default settings.

6.6 FACTORY DEFAULT

Resetting the device back to the factory default will initialize all the parameters of the device. However, the factory default performed via the device's webpage allows certain main parameters to be preserved.

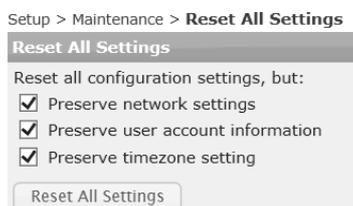
On the Camera

Steps:

- 1). Press the reset button for 10 seconds by making sure that booting is complete on the device.
- 2). Wait for the system to reboot.

On the Webpage**Steps:**

- 1). Go to Setup > Maintenance > Reset All Settings on the camera's webpage.



- 2). Select the items among network settings, user account information and time zone setting to keep them preserved from the initialization.
- 3). Click the Factory Default button. Then, the dialog box will appear to ask you if you want to reset all settings.
- 4). Click the OK button, and wait until the 'Reset All Settings' page is refreshed after the reboot. Then, all the parameters except for the unchecked items will be initialized.

NOTE: The factory default settings can be inferred as follows:

Factory Default Connection Settings	
IP Address	192.168.xx.yy
Network Mask	255.255.0.0
Gateway	192.168.0.1
Username	Admin
Password	12345

6.7 Safe Mode

What is Safe Mode?

There may be certain occasions that your camera repeatedly fails to boot. Then, your camera may enter safe mode to be recovered from the occasions.

What may have caused Safe Mode?

Here below are the main typical causes:

- The power supply is continually unplugged certain times in the middle of system booting.
- The firmware files required for system booting are damaged.
- There are conflicts in the system settings.

How to recover your system from Safe Mode?

Safe Mode

Your device has entered safe mode now. Device is usually forced to safe mode when device recognizes itself not operating normally over times.
In most cases, repeated unstable power connection during the boot is the main cause for safe mode.
If you have seen your device in safe mode for the first time, just follow the instructions below to reboot the device.

1. Click 'Start Reboot' on the current page.
2. Wait until the device completely reboots. (*It may take a few seconds to several minutes.)
3. Refresh the webpage to check if it appears normal.

If the device is not recovered after you have done the above instructions, it may indicate that settings in device may have been corrupted.
Then, try the instructions as follows to reset all settings.

1. Click 'Reset All Settings' on the current page.
2. Wait until the device resets all settings. (*It may take a few seconds to several minutes.)
3. Check if the webpage appears normal.

If the device is still in safe mode after you have done the above procedure, it may indicate that there may be a corruption on the firmware of the device.
In this case, the device cannot be booted normally.
Thus, perform the firmware update according to the instructions below.

1. Click 'Browse', and select the appropriate firmware file.
2. Click 'START' to restore the firmware to the device. (*You will see the relevant messages during the firmware update.)
3. Check if the webpage appears normal.

If you are still on this page even after the above procedure, your device may have encountered the worst situation. Certain part of the hardware on the device may have been broken. Thus, you should contact your local agency for further assistance.

Reboot

Reset All Settings

Upload Firmware Image

Choose a firmware image to upload:

The messages above will appear on the webpage when your device has been rebooted in safe mode. Then, you should follow the instructions on the webpage according to each step.

NOTE: If your device is still in safe mode after trying to update firmware, please contact your local agency to get further assistance.

7 Appendix (A): Specifications

CAMERA	
Image Sensor	Laser Diode - Class 1 Certificate (Eye safe with no special precautions needed)
Image Type	Monochrome (Infrared)
Effective Pixels	320 x 240
Lens	Field of View: (H) 60° (V) 45° Iris: Fixed

3D-FUNCTION	
Operating Range	2m – 8m (15 fps)
Coverage Area	Top View: TBD Side View: Typical Floor Coverage (6m – 4m)
Mounting Height	2m Ceiling – Good Performance 3m – 4m Optimal Performance
Suitable Locations	Indoors with artificial lighting (avoid direct sunlight)

FUNCTIONS	
Local Storage:	Built-in Micro SD (SD/SDHC/SDXC) up to 64GB
Automatic Tilt Angle Detection	Supported
Security	Multi-level access with password protection
Protocols	TCP/IP, HTTP, HTTPS, FTP, UDP/IP, RTSP, RTCP, RTP, UDP, RTP/TCP, mDNS, UPnP, SMTP, DHCP, DNS, NTP, IPv4, SNMPv1/v2c/v3(MIB-II), IGMP, ICMP
System Compatibility	ONVIF

INTERFACE	
Communication	1 RJ45 10M/100M Ethernet port Wi-Fi (802.11n) Bluetooth (4.0)

ELECTRICAL	
Power Supply	12 V DC \pm 10%; PoE 802.3af
Power Consumption	Max 9.6W

PHYSICAL	
Working Temperature	0°C 50°C (32°F 122°F) Humidity 85% max - non condensing
Dimensions (inches)	5.35 in (L) x 3.46 (H) in, Dome 2.66 in (H)
Dimensions (mm)	135.8 mm (L) x 87.8 mm (W) x 67.5 mm (H)
Weight:	2.1 lb / 970 g
Material	Aluminum Die Casting
Color	Ivory

VIDEO ANALYTICS	
High Performance	Advanced tracking algorithm
Easy to Use	Intuitive interface
Detection Zones and Rules	40 zones (Multi-segment Polygons and Lines) in total 60 rules in total
On-Screen Display	Real-time display of tracking data and events
Detection Behavior	Enter, Exit, Appear, Disappear, Stop, Direction, Dwell, Tailgating
Logical Rules	Extends standard rules to allow various combinations of the inputs
3D Behavior	Perspective Corrected size and speed filters

VIDEO ANALYTICS	
Object Classification	Configured Max./Min. object sizes and Max./Min. speeds
People Tracking	Tracks individuals separately among overlapped multiple people
Counting Line	High accuracy people counting
Counter	20 counters in total
Statistics	Statistics about counting and others
Meta Data	Plain XML Format

8 Appendix (B): Power over Ethernet

The Power over Ethernet (PoE) is designed to extract power from a conventional twisted pair Category 5 Ethernet cable, conforming to the IEEE 802.3af Power-over-Ethernet (PoE) standard.

IEEE 802.3af allows for two power options for Category 5 cables. The IEEE 802.3af-2003 standard allows up to 15.4 W to a device. However, 12.95W is the maximum available power as some of the power gets lost in the cable.

PoE has advantages over conventional power in such places where AC powers cannot be reached or is expensive to wire.

8.1 Power Consumption

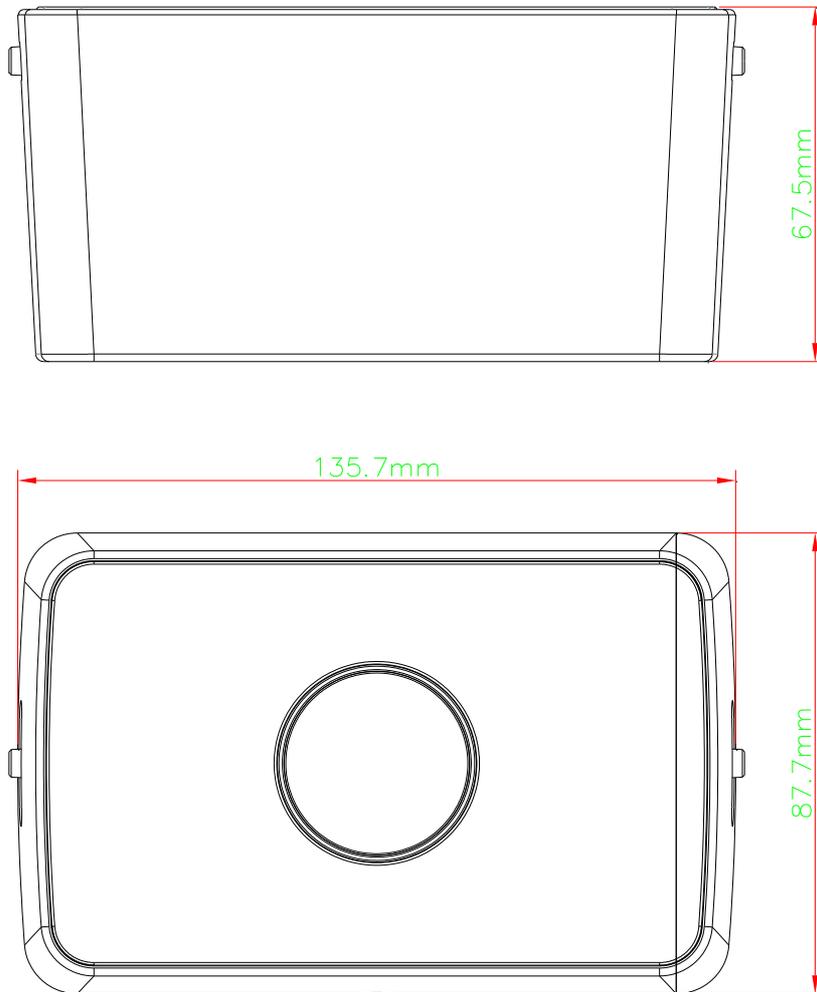
Property	802.3af	802.3at
Available Power	12.95 W	25.50 W
Max. Power by PSE	15.40 W	34.20 W
Max. Current	350 mA	600 mA
Supported Cable	Category 3 or higher	Category 5 or higher

NOTE: For proper activation of PoE, the Category 5 cable must be shorter than 100m and conform the PoE standard.

NOTE: With non-Power Sourcing Equipment (non-PSE): When it is connected with non PSE, the power adaptor should be connected.

NOTE: With power adaptor: Connecting both PSE and power adaptor does not do any harm to the product. Disconnecting PSE or power adaptor from device does not reboot the device as long as either one is connected to the device.

9 Appendix (C): Dimensions



10 Hexadecimal-Decimal Conversion Table

Refer to the following table when converting the MAC address of the device to the IP address:

Hex	Dec												
0	0	25	37	4A	74	6F	111	94	148	B9	185	DE	222
1	1	26	38	4B	75	70	112	95	149	BA	186	DF	223
2	2	27	39	4C	76	71	113	96	150	BB	187	E0	224
3	3	28	40	4D	77	72	114	97	151	BC	188	E1	225
4	4	29	41	4E	78	73	115	98	152	BD	189	E2	226
5	5	2A	42	4F	79	74	116	99	153	BE	190	E3	227
6	6	2B	43	50	80	75	117	9A	154	BF	191	E4	228
7	7	2C	44	51	81	76	118	9B	155	C0	192	E5	229
8	8	2D	45	52	82	77	119	9C	156	C1	193	E6	230
9	9	2E	46	53	83	78	120	9D	157	C2	194	E7	231
0A	10	2F	47	54	84	79	121	9E	158	C3	195	E8	232
0B	11	30	48	55	85	7A	122	9F	159	C4	196	E9	233
0C	12	31	49	56	86	7B	123	A0	160	C5	197	EA	234
0D	13	32	50	57	87	7C	124	A1	161	C6	198	EB	235
0E	14	33	51	58	88	7D	125	A2	162	C7	199	EC	236
0F	15	34	52	59	89	7E	126	A3	163	C8	200	ED	237
10	16	35	53	5A	90	7F	127	A4	164	C9	201	EE	238
11	17	36	54	5B	91	80	128	A5	165	CA	202	EF	239
12	18	37	55	5C	92	81	129	A6	166	CB	203	F0	240
13	19	38	56	5D	93	82	130	A7	167	CC	204	F1	241
14	20	39	57	5E	94	83	131	A8	168	CD	205	F2	242
15	21	3A	58	5F	95	84	132	A9	169	CE	206	F3	243
16	22	3B	59	60	96	85	133	AA	170	CF	207	F4	244
17	23	3C	60	61	97	86	134	AB	171	D0	208	F5	245
18	24	3D	61	62	98	87	135	AC	172	D1	209	F6	246
19	25	3E	62	63	99	88	136	AD	173	D2	210	F7	247
1A	26	3F	63	64	100	89	137	AE	174	D3	211	F8	248
1B	27	40	64	65	101	8A	138	AF	175	D4	212	F9	249
1C	28	41	65	66	102	8B	139	B0	176	D5	213	FA	250
1D	29	42	66	67	103	8C	140	B1	177	D6	214	FB	251
1E	30	43	67	68	104	8D	141	B2	178	D7	215	FC	252
1F	31	44	68	69	105	8E	142	B3	179	D8	216	FD	253
20	32	45	69	6A	106	8F	143	B4	180	D9	217	FE	254
21	33	46	70	6B	107	90	144	B5	181	DA	218	FF	255
22	34	47	71	6C	108	91	145	B6	182	DB	219		
23	35	48	72	6D	109	92	146	B7	183	DC	220		
24	36	49	73	6E	110	93	147	B8	184	DD	221		

11 Revision History

MAN#	DATE(M/D/Y)	Comments
11-2015-D	11/11/2015	First release version