



# Web Smart Camera Housing Series

Installation Guide



Rev. 1.1

**UNPACKING:**

Unpack carefully. Electronic components can be damaged if improperly handled or dropped. If an item appears damaged in shipment, place it properly in its carton and notify the shipper.

**IMPORTANT!:**

1. Read and follow Instructions: All operating and user instructions should be read and followed before the unit is to be operated.
2. Electrical Connections: Only a qualified electrician is allowed to make electrical connections.

**Specifications**

Model Number	M2000-I	M2000-AI	M2000-IW	M2000-AIW
Power Input	24VAC/6A	24VAC/6A	24VAC/6A	24VAC/6A
12VDC Output Power Budget	30W	30W	30W	30W
24VAC Output Power Budget	80W	100W	80W	100W
Power Consumption	Window heater: 10W Blower: 2W Camera: 12W	Window Heater: 10W Cold Start Heater: 30W Blower: 2W Camera: 12W	Window heater: 10W Blower: 2W Camera: 12W Wiper: 6W	Window Heater: 10W Cold Start Heater: 30W Blower: 2W Camera: 12W Wiper: 6W
Environmental Operation Temp.	-20°C ~ 65°C (-4°F ~ 149°F) 20°C ~ 50°C (w/IR LEDs)	-50°C ~ 65°C (-58°F ~ 149°F) -50°C ~ 50°C (w/IR LEDs)	-20°C ~ 65°C (-4°F ~ 149°F) -20°C ~ 50°C (w/IR LEDs)	-50°C ~ 65°C (-58°F ~ 149°F) -50°C ~ 50°C (w/IR LEDs)
Window heater ON/OFF	< 30°C (86°F) ON ≥ 35°C (95°F) OFF	< 30°C (86°F) ON ≥ 35°C (95°F) OFF	< 30°C (86°F) ON ≥ 35°C (95°F) OFF	< 30°C (86°F) ON ≥ 35°C (95°F) OFF
Blower Control ON/OFF	≥ 40°C (104 °F) ON ≤ 35°C (95 °F) OFF	≥ 40°C (104 °F) ON ≤ 35°C (95 °F) OFF	≥ 40°C (104 °F) ON ≤ 35°C (95 °F) OFF	≥ 40°C (104 °F) ON ≤ 35°C (95 °F) OFF
Protection Level	IP68, IK10	IP68, IK10	IP66, IK10	IP66, IK10
Construction	Cast Aluminum	Cast Aluminum	Cast Aluminum	Cast Aluminum
Coating	White epoxy powder coating	White epoxy powder coating	White epoxy powder coating	White epoxy powder coating
Dimensions	502.8 (L) x 170 (W) x 135.5 (H) mm	502.8 (L) x 170 (W) x 135.5 (H) mm	502.8 (L) x 170 (W) x 135.5 (H) mm - IR not included	502.8 (L) x 170 (W) x 135.5 (H) mm - IR not included
Net Weight	2.8 kg (6.17 lb)	2.8 kg (6.17 lb)	2.9 kg (6.39 lb)	2.9 kg (6.39 lb)

Model Number	M6000-I	M6000-AI	M6000-IW	M6000-AIW
Power Input	90W PoE bt	90W PoE bt	90W PoE bt	90W PoE bt
Output Power Budget	48 W thru 60W Bt PoE PSE 72 W thru 90W PoE bt PSE	48 W thru 60W Bt PoE PSE 72 W thru 90W PoE bt PSE	48 W thru 60W Bt PoE PSE 72 W thru 90W PoE bt PSE	48 W thru 60W Bt PoE PSE 72 W thru 90W PoE bt PSE
Power Consumption	Window heater: 10W Blower: 2W Camera: 12W	Window Heater: 10W Cold Start Heater: 30W Blower: 2W Camera: 12W	Window heater: 10W Blower: 2W Camera: 12W Wiper: 6W	Window Heater: 10W Cold Start Heater: 30W Blower: 2W Camera: 12W Wiper: 6W
Environmental Operation Temp.	-20°C ~ 65°C (-4°F ~ 149°F) 20°C ~ 50°C (w/IR LEDs)	-50°C ~ 65°C (-58°F ~ 149°F) -50°C ~ 50°C (w/IR LEDs)	-20°C ~ 65°C (-4°F ~ 149°F) -20°C ~ 50°C (w/IR LEDs)	-50°C ~ 65°C (-58°F ~ 149°F) -50°C ~ 50°C (w/IR LEDs)
Window heater ON/OFF	< 30°C (86°F) ON ≥ 35°C (95°F) OFF	< 30°C (86°F) ON ≥ 35°C (95°F) OFF	< 30°C (86°F) ON ≥ 35°C (95°F) OFF	< 30°C (86°F) ON ≥ 35°C (95°F) OFF
Blower Control ON/OFF	≥ 40°C (104 °F) ON ≤ 35°C (95 °F) OFF	≥ 40°C (104 °F) ON ≤ 35°C (95 °F) OFF	≥ 40°C (104 °F) ON ≤ 35°C (95 °F) OFF	≥ 40°C (104 °F) ON ≤ 35°C (95 °F) OFF
Protection Level	IP68, IK10	IP68, IK10	IP66, IK10	IP66, IK10
Construction	Cast Aluminum	Cast Aluminum	Cast Aluminum	Cast Aluminum
Coating	White epoxy powder coating	White epoxy powder coating	White epoxy powder coating	White epoxy powder coating
Dimensions	502.8 (L) x 170 (W) x 135.5 (H) mm	502.8 (L) x 170 (W) x 135.5 (H) mm	502.8 (L) x 170 (W) x 135.5 (H) mm- IR not included	502.8 (L) x 170 (W) x 135.5 (H) mm - IR not included
Net Weight	2.8 kg (6.17 lb)	2.8 kg (6.17 lb)	2.9 kg (6.39 lb)	2.9 kg (6.39 lb)

If you plan to install this camera enclosure into a tropical, sea coastal, or an environment where salt water or corrosive industrial waste water/moist are present, please seal each stainless steel screws and fittings with a silicon grease compounds. This will help prevent electrolysis to occur and extend the life span of the camera and housing.

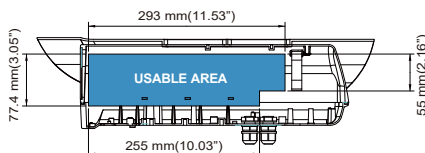
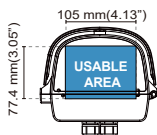
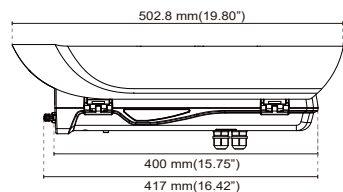
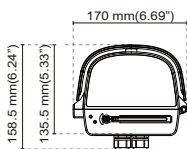
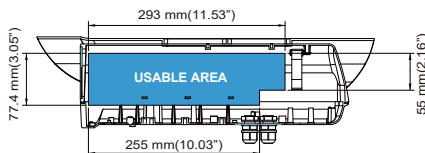
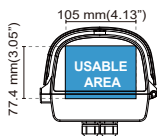
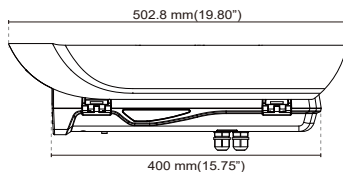
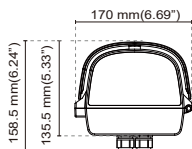


#### IMPORTANT:

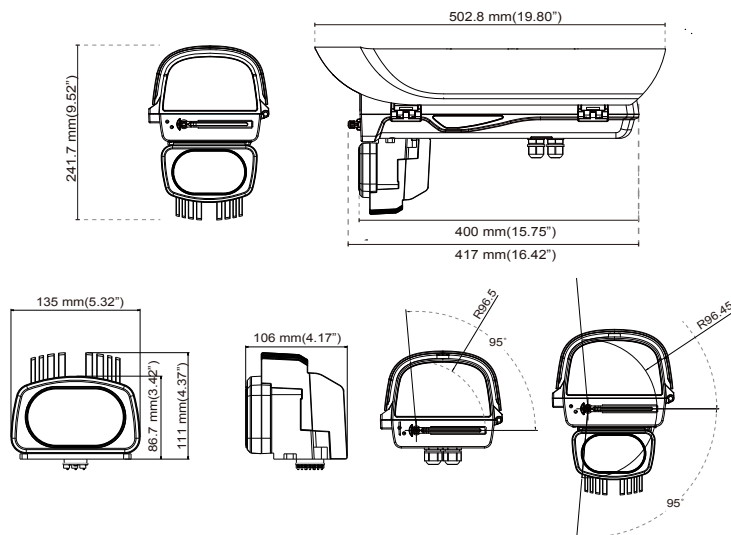
1. Disconnect devices: A readily accessible disconnect device in the building installation wiring should be incorporated.
2. Electrical Connection: Only a qualified electrician is allowed to make electrical connections.

## II Mounting Configuration & Dimensions

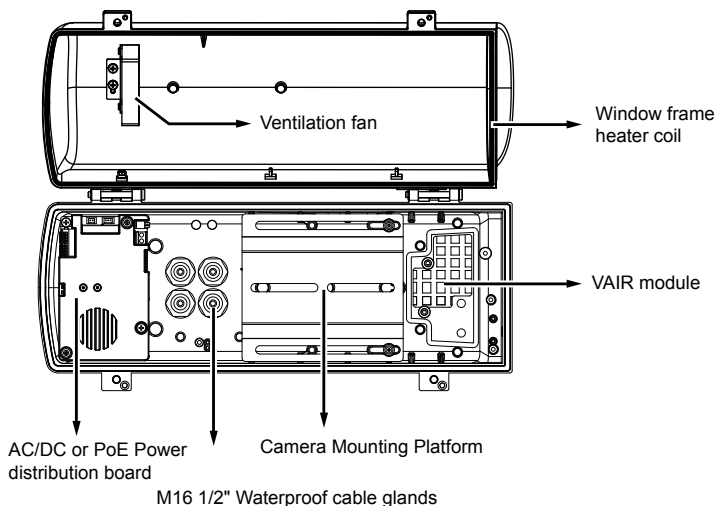
### Swivel Positions and Directions



## Dimensions with the IR unit and wiper



## III Component Description



## IV Installation Suggestions



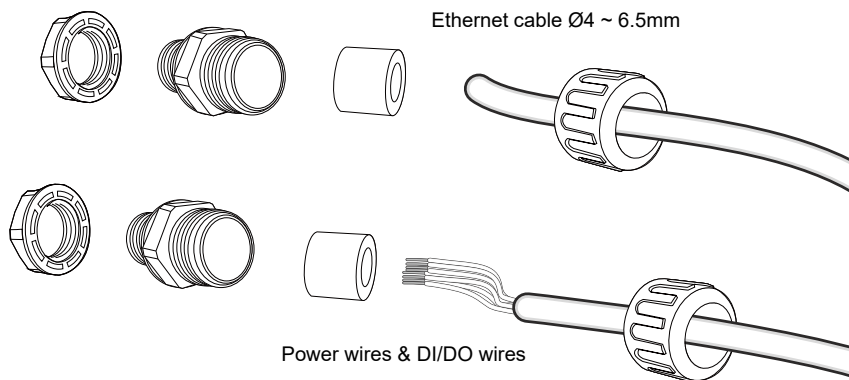
### WARNING:

- When install a housing with an IR illuminator:

Please avoid eye exposure or apply appropriate protection, such as wearing a pair of Infrared protection glasses, when working with the product. Always use camera live view to observe IR lighting effects.

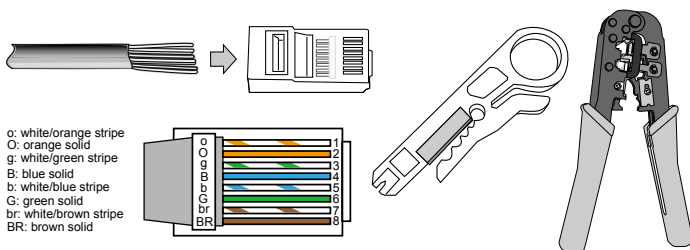
## V Installation

1. Prepare power wires, a ground wire, and a CAT5e Ethernet cable. Pass them through the M16 waterproof connectors and its waterproof components.



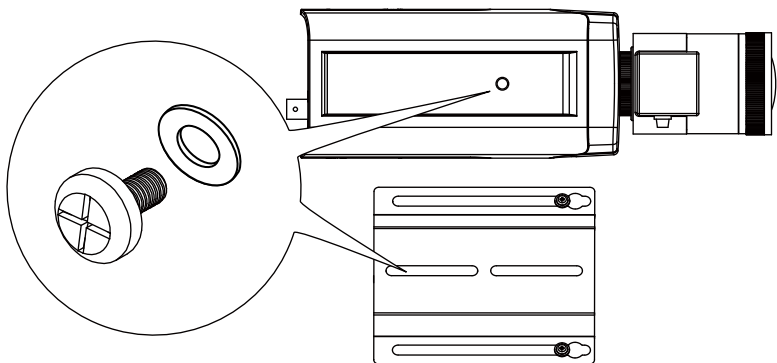
Note that some cables are connected when shipped. You do not need to connect heater, blower, and the front IR power wires.

You may need to remove the RJ45 connector, and use a crimping tool to connect the Ethernet wires to an RJ45 connector inside the enclosure. Use an Ethernet cable of the width of 5 ~ 6.5mm.

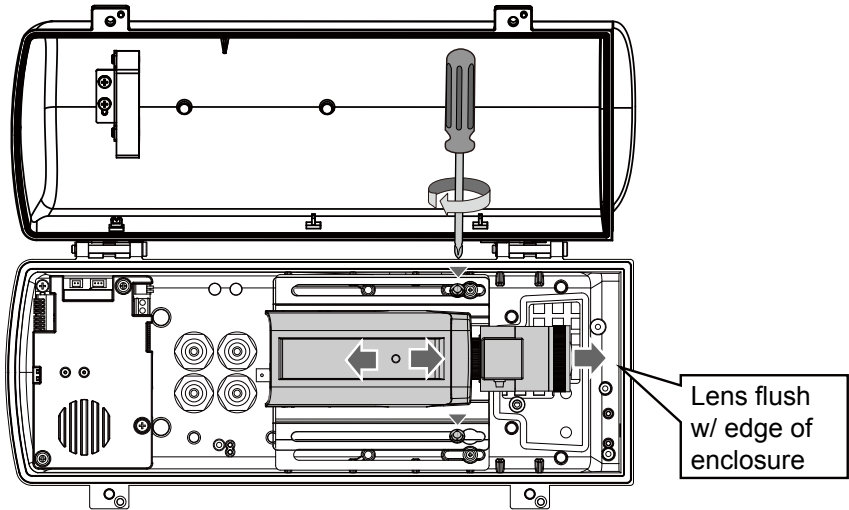


**2.** When done, tighten up and install the waterproof connectors.

**3.** Assemble the camera components, e.g., the CS ring and lens module. Secure the mounting plate to the bottom of the camera (the label side) using the included screw.



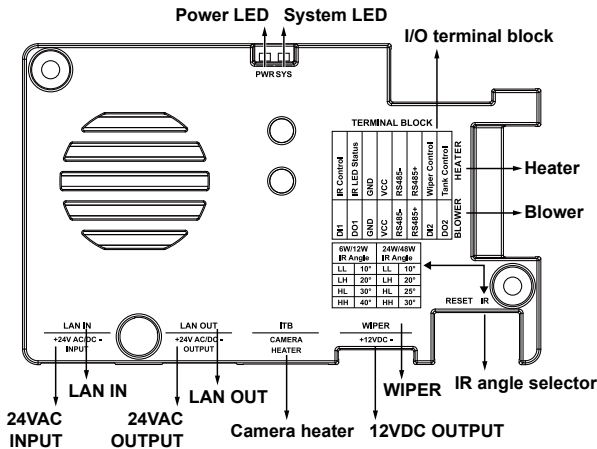
4. Adjust the camera's position so that the lens module can flush align with the tempered glass. Secure the camera using the screws and washers to the bottom of the housing.



5. Connect 24V power source to the power input terminal. Connect power wires from the DC 12V output to the camera. You may also connect the 24V power to drive an VAIR Illuminator or Water Tank.

Below is the distribution board drawing power from 24V AC.

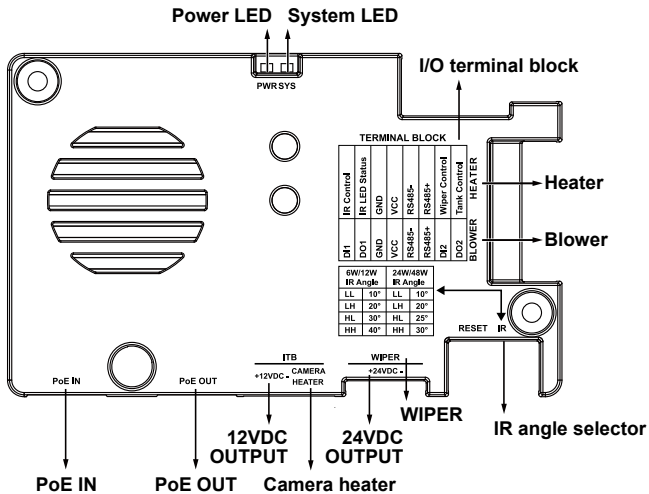
M2000-I, M2000-AI, M2000-IW, M2000-AIW







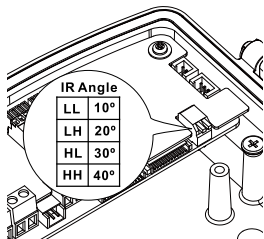
Below is the distribution board (M6000-I, M6000-AI, M6000-IW, M6000-AIW) that draws power from a 60/95W PoE PSE.



The PoE version housings have the same terminal pinouts with that of the 24V power source models:

DI1	IR Control or DI Input
DO1	IR LED status or DO Output
GND	GND
VCC	VCC
RS485-	RS485-
RS485+	RS485+
DI2	Wiper Control or DI Input
DO2	Water Tank Control or DO Output

## Configuring IR illuminator



### DIP Switch :

LL

LH

HL

HH



Below are the parameters of the IR illuminator. Use the onboard jumpers to configure the beam angle for different effective illumination range.

VAIR	VR-481: 48W				VR-241: 24W				VR-120: 12W			
no. of LEDs	18P				18P				2P			
Beam angle	10°	20°	25°	30°	10°	20°	25°	30°	10°	20°	30°	40°
Distance (meter)	350m	280m	215m	150m	200m	155m	115m	70m	140m	110m	80m	50m

VAIR	VR-060: 6W			
no. of LEDs	2P			
Beam angle	10°	20°	30°	40°
Distance (meter)	100m	80m	60m	40m

**6.** Connect the DI/DO signal lines from the distribution board, if applied, to the camera's terminal block.

The day/night mode DI connection enables the synchronization of IR light and the automated day/night switching mechanism on the camera.

A sample connection diagram consisting of a housing with Water Tank and Pan/Tilt driver and camera is shown below. Please refer to your camera's documentation if your camera comes with different pinouts.

In Power Setting UI, You can setup DO/DI function.

## IR LED Settings

IR LED Output

☐ Manual ☐ Triggered by DI 1 connected GND ☒ Triggered at night

Turn ON at < 100 lux Turn OFF at >= 110 lux.

Angle of the IR

☐ Manual ☒ IR angle adjustment by DIP switch

☒ LL ☐ LH ☐ HL ☐ HH

## Wiper Settings

Wiper Output

☒ Manual ☐ Triggered by DI 2 connected GND

☐ Start ☒ Stop

Wiper Range

☒ 90°C ☐ 180°C

## Digital Input / Output Settings

Digital Input 1 (Read Only)

☐ ON ☒ OFF

Digital Input 2 (Read Only)

☐ ON ☒ OFF

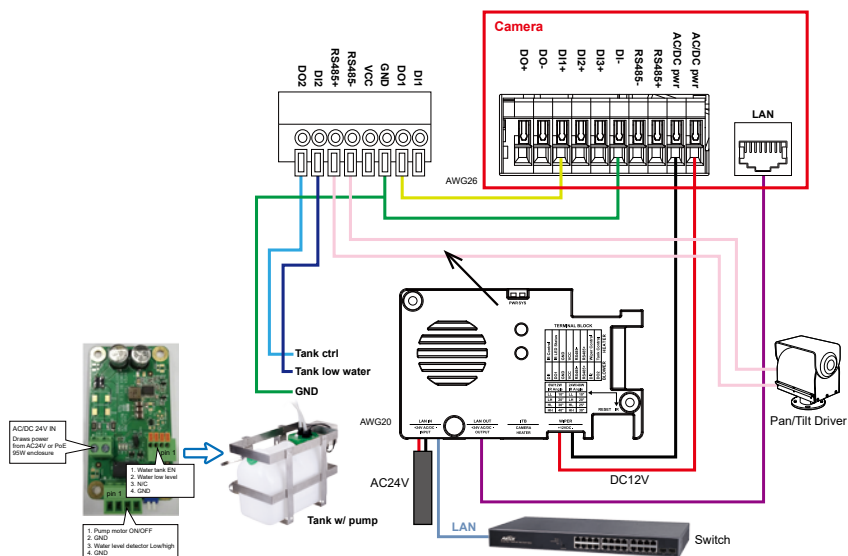
Digital Output 1

☒ Digital Output ☐ Triggered on after IR LED turn on

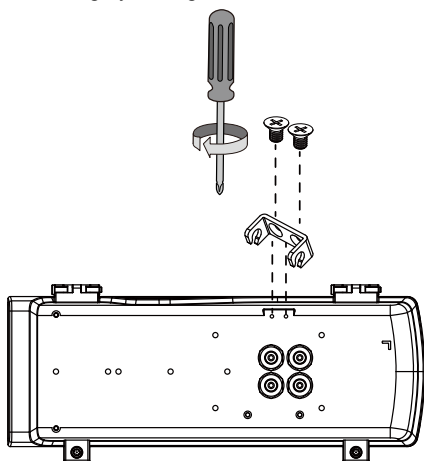
☐ ON ☒ OFF

Digital Output 2

☐ Digital Output ☐ As water tank, manual control ☒ As water tank, triggered on before wiper turn on

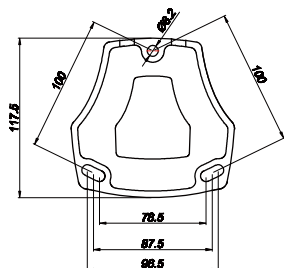


7. If using the BK-101 wall-mount bracket, secure the intersection bracket to the bottom of the housing by driving two screws.

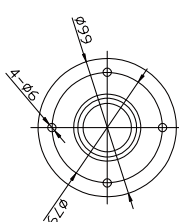


Below are the mounting hole dimensions for the mounting brackets. Chances are you may need to plan for the locations of the brackets.

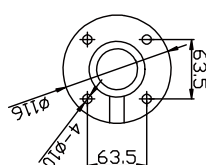
BK-100



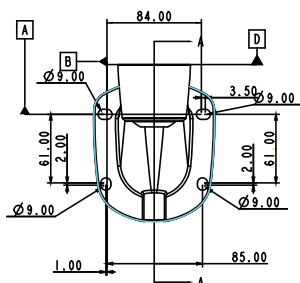
BK-200,201



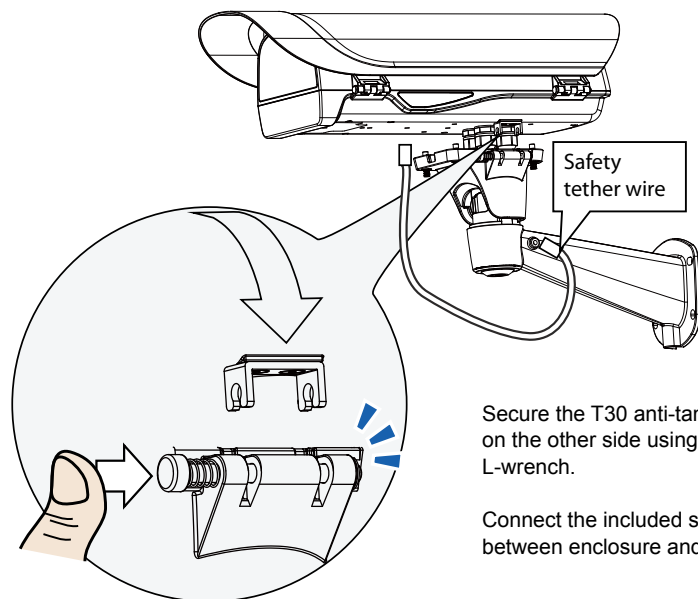
BK-300



BK-101/102



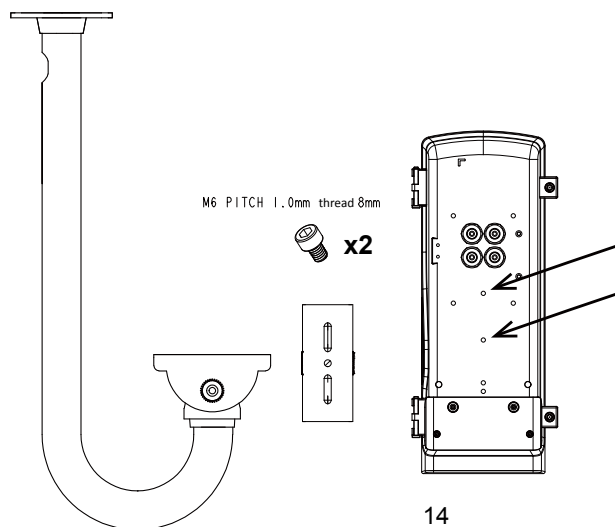
8. Install the housing to the wall-mount bracket by aiming and pressing the spring mortise, and hook the bracket onto the groove in the spring mortise.



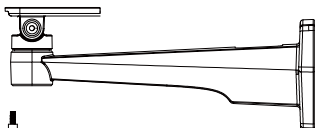
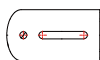
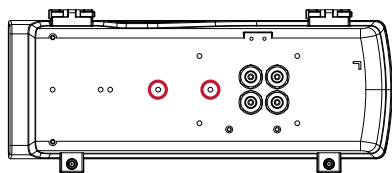
Secure the T30 anti-tamper screws on the other side using the included L-wrench.

Connect the included safety wire between enclosure and bracket.

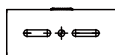
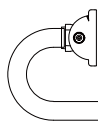
If using other mount brackets, use the included M6 screws to secure the housing to the bracket. Use the mounting holes indicated below.



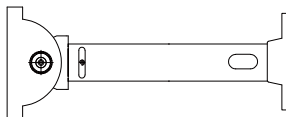
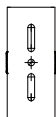
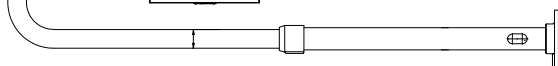
The BK-100 wall-mount, BK-200/201, and BK-300 pendant brackets use the two mounting holes as indicated below.



BK-100



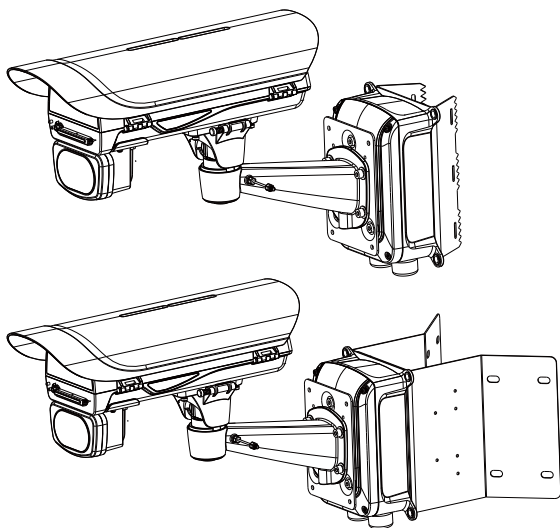
BK-200/201



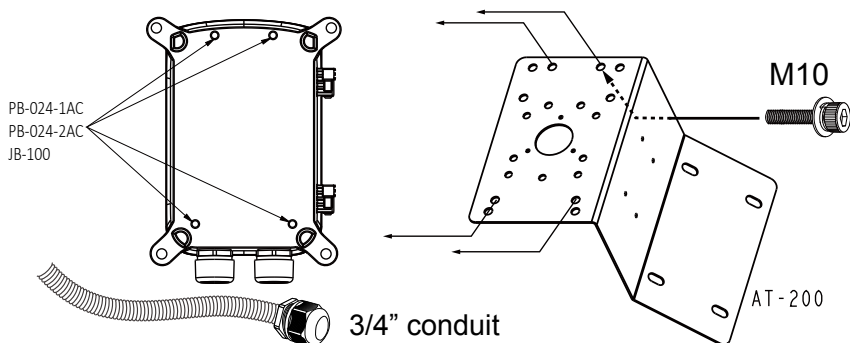
BK-300

- 9.** Adjust zoom and focus and open a web console with the camera to tune for the best image. When zoom and focus is done, Close the top cover and fasten the top cover screws.

The housing can also be installed using the pole-mount or corner-mount options along with a power box (PB-024-1AC, PB-024-2AC), outdoor PoE switch, or junction box.

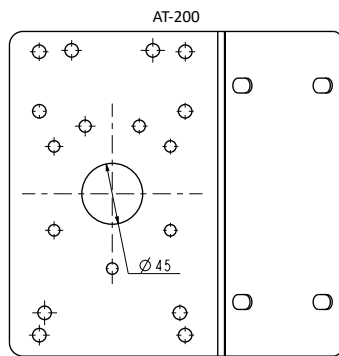
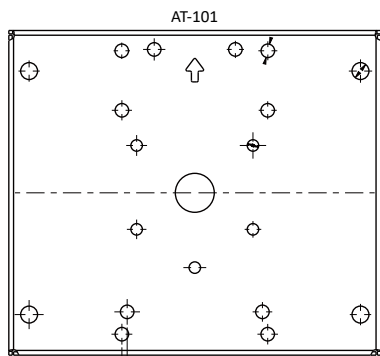
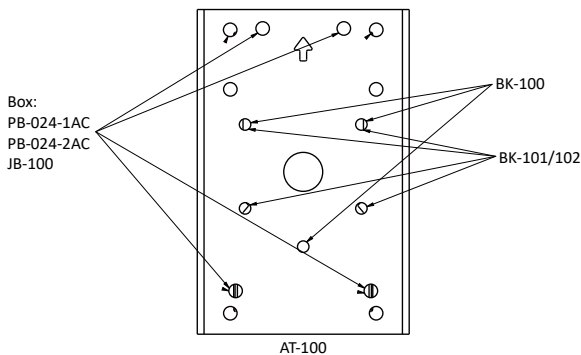


Use the included M10 hex socket screws to secure the power box to a pole-mount or corner mount bracket.

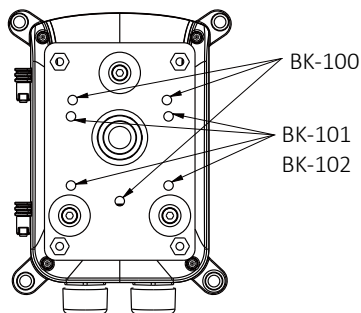
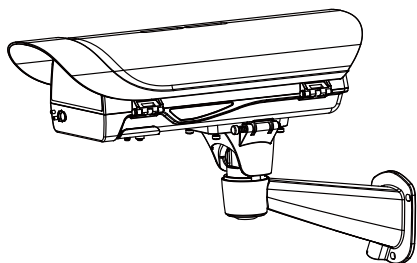




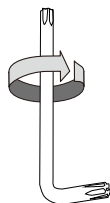
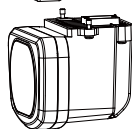
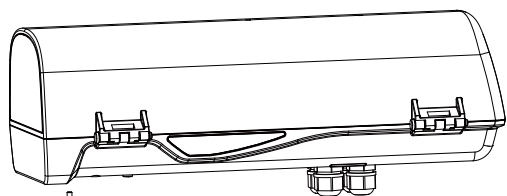
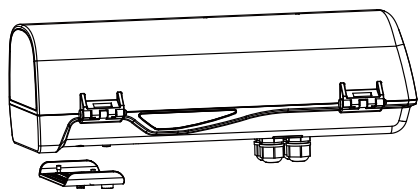
The mounting hole definition is illustrated below. The same mounting hole pattern apply to all pole-mount and corner-mount brackets.



If a power box or outdoor PoE switch is applied, Use the following mounting positions for the camera housings (via BK-100 and BK-101/102).



- 10.** If an IR illuminator is preferred, remove the metal cover from underneath the housing. Install the IR unit (VR-060, -120, -241, -481) by fastening 4 T30 anti-tamper screws. Note that the rubber gasket should be in place when you install the unit.



## VI TP-100 Installation

### UNPACKING:

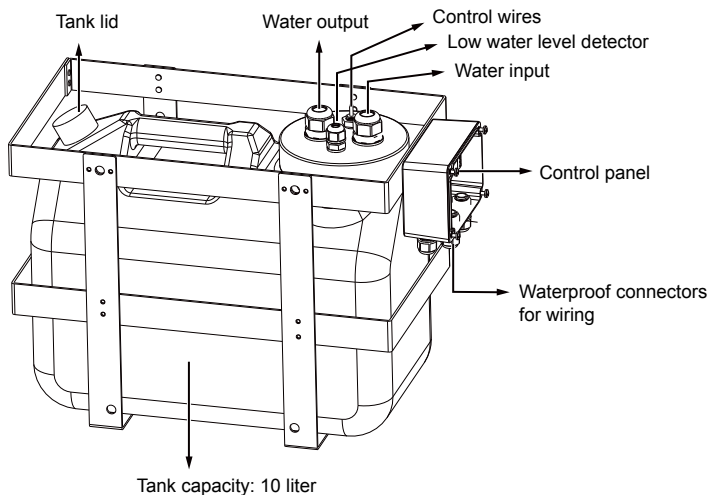
Unpack carefully. Electronic components can be damaged if improperly handled or dropped. If an item appears damaged in shipment, place it properly in its carton and notify the shipper.



### IMPORTANT!:

1. Read and follow Instructions: All operating and user instructions should be read and followed before the unit is to be operated.
2. Electrical Connections: Only a qualified electrician is allowed to make electrical connections.

## VI-1 Introduction

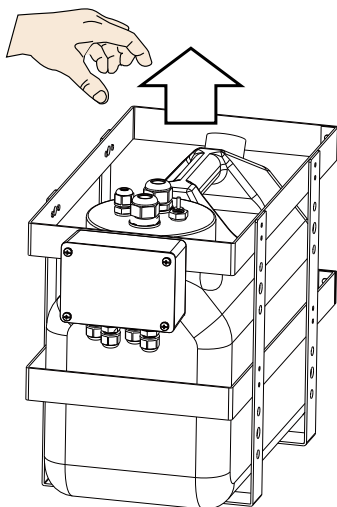


### IMPORTANT:

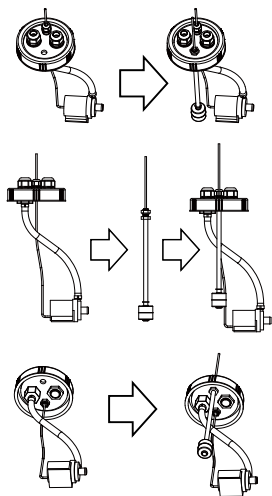
- Disconnect devices: A readily accessible disconnect device in the building installation wiring should be incorporated.
- The total weight of the tank pump is 12kgs. You need to rigid wall surface to support the weight or you can pole-mount the unit.

## VI-2 TP-100 Installation

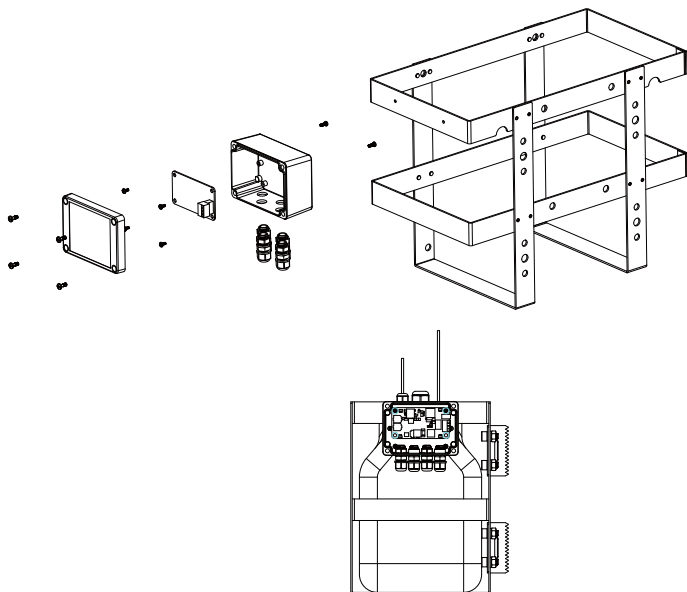
1. Before you install the pump tank, you can temporarily remove the water tank so that you can install the pole-mount brackets.



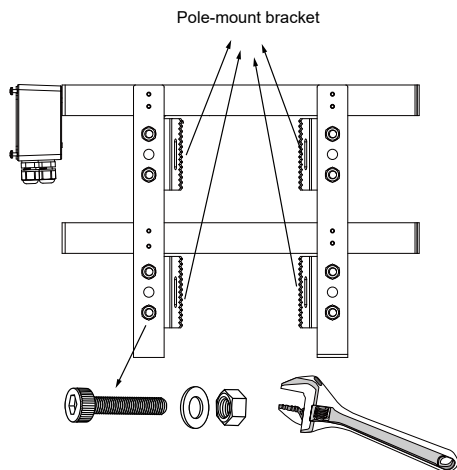
2. Assemble the pump head, water level sensor to the tank lid.



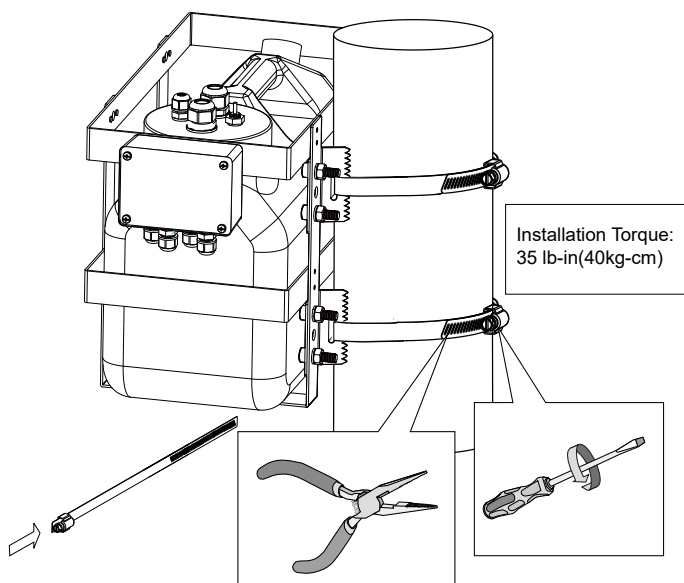
- 3.** Install the controller unit box to the pump bracket. Note that you do not need to install the PCB board.



- 4.** You can install the washer unit to a wall or using the pole-mount. If pole-mount is preferred, secure the pole-mount brackets to the metal cage.

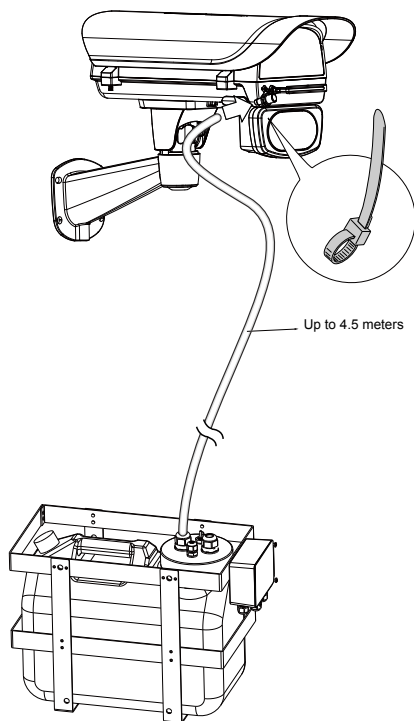


- 5.** Pass the stainless steel straps through the bracket and around the pole. Tighten the straps using a pincer plier and a flat blade screwdriver.



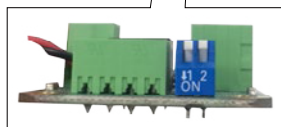
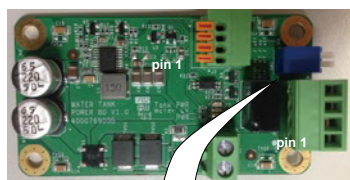
- 6.** Install the washer bracket (along with the washer nozzle) to the side of the M2000-IW, M2000-AIW, M6000-IW, M6000-AIW using the included screws. Connect the washer silicone pipe to the nozzle. Secure the connection with a cable tie.

The max. pump delivery is 4.5 meters.



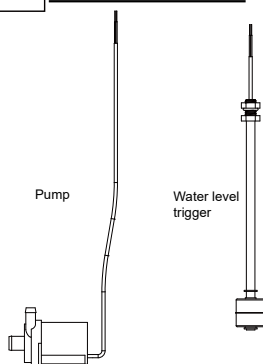
M2000-IW, M2000-AIW, M6000-IW,  
M6000-AIW housing with washer kit.

**7.** Open the waterproof panel box cover. Connect the DI/DO control wires from the Camera Housing to the control panel as illustrated below. Additional length of wires are user-supplied. The pump tank can be powered by 24V AC power source from the PB-024-1AC and PB-024-2AC power box.

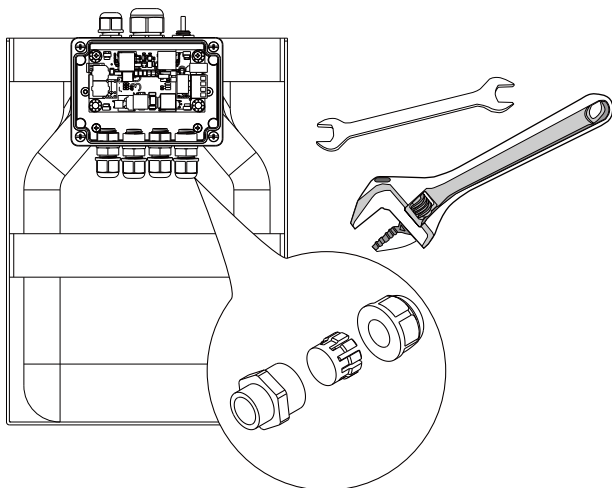


Water Pump Level  
High: ON/OFF  
Mid: OFF/ON  
Low: OFF/OFF

- |                                  |       |
|----------------------------------|-------|
| 4. Pump motor ON/OFF             | Red   |
| 3. GND                           | Black |
| 2. Water level detector Low/high | Red   |
| 1. GND                           | Black |



**8.** Make sure all wirings are waterproof. Lock the cable glands properly. When wiring is done, install the panel cover.





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