X2 Outdoor Housing

Installation Instructions

IQinvision®

When you can't afford to miss a thing.

Important Safeguards

1. **Read Instructions -** All the safety and operating instructions should be read before the unit is operated.

2. **Retain Instructions -** The safety and operating instructions should be retained for future reference.

3. **Heed Warnings -** All warnings on the unit and in the operating instructions should be adhered to.

4. **Follow Instructions -** All operating and use instructions should be followed.

5. **Cleaning -** Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. **Attachments -** Do not use attachments not recommended by the product manufacturer as they may cause hazards.

7. **Accessories -** Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury to a person and serious damage to the unit. Use only with a stand, tripod, bracket, or mount recommended by the manufacturer or sold with the product. Any mounting of the unit should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

8. **Ventilation -** Openings in the enclosure, if any, are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. This unit should not be placed in a built-in installation unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

9. **Power Sources -** This unit should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply you plan to use, consult your appliance dealer or local power company. For units intended to operate from battery power or other sources, refer to the operating instructions.

10. **Power Cord Protection -** Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.

11. **Power Lines -** An outdoor system should not be located in the vicinity of overhead power lines or other electric light or power circuits or where it can fall into such power lines or circuits. When installing an outdoor system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal. U.S.A. models only - refer to the National Electrical Code Article 820 regarding installation of CATV systems.

12. **Overloading -** Do not overload outlets and extension cords as this can result in a risk of fire or electric shock.

13. **Object and Liquid Entry -** Never push objects of any kind into this unit through openings, as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.

14. **Servicing -** Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

15. **Damage Requiring Service -** Unplug the unit from the outlet and refer servicing to qualified service personnel under the following conditions:
    a. When the power supply cord or plug is damaged.
    b. If liquid has been spilled or objects have fallen into the unit.
    c. If the unit has been exposed to rain or water.
    d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
    e. If the unit has been dropped or the cabinet has been damaged.
    f. When the unit exhibits a distinct change in performance--this indicates a need for service.

16. **Replacement Parts -** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

17. **Safety Check -** Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

18. **Lightning -** For added protection of this unit during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the unit due to lightning and power line surges.

Important Safeguards

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT OPEN COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This label may appear on the bottom of the unit due to space limitations.

The lightning flash with an 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.

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

Contents

1. Unpacking

Unpack carefully. This is mechanical equipment and should be handled with care. Check for the following:

Housing *(with correct model number)*.

Hardware Kit -

(1) Philips Head Screw 1/4-20 x 3/8
(1) Wrench, Hex Key 1/8 long arm
(4) Screws Button Head Socket Caps, stainless steel 10-24 x 1/2 patch lock
(4) 5mm Flat Washers
(2) 3/8 NPT Liquid Tight Fittings
(2) Rubber Plug, 1/2-in NPT

If an item appears to have been damaged in shipment, replace it properly in its carton and notify the shipper. If any items are missing, notify IQinVision.

The shipping carton is the safest container in which the unit may be transported. Save it for possible future use.

2. Service

If the unit ever needs repair service or parts, the customer should contact IQinVision.

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San Clemente, CA 92672 USA
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3. Care and Maintenance

Regularly scheduled maintenance will help prolong the operation life of this unit. Clean the viewing window as needed with a mild, nonabrasive detergent in water and a soft cloth.

4. Description

The X2 Outdoor Housing, specifically designed for the IQ5XX Series megapixel cameras, offers an easy to install, compact, sleek design that compliments any mounting environment. With an IP65/NEMA4 rating it will protect against dust and heavy rain, and with it's preinstalled heater and sunshield it will minimize fogging and promote cooling when used outdoors.

5. Installation

This installation should be made by qualified service personnel and conform to the National Electrical Code and applicable local codes.

5.1. Model Designation

Model # - X2 Outdoor Housing
Heater - Heater
Voltage/Power V/W - 24VAC/25W
Use Cameras with these Voltage Ratings - 24VAC

The heater operates at 50/60 Hz.

Do Not Exceed 30 VAC Input on 24 VAC models. Operation above 30 VAC violates low voltage operation (Class 2 Specifications). Normal operation is 24 VAC.

TUV Approved 24 VAC Models - Caution: Use an approved power supply incorporating reinforced insulation from primary to secondary to isolate unit from Mains.

5.2. Tools Required

- Small flat blade screwdriver.
- Phillips screwdriver (P2).
- Adjustable wrench.
- Wire cutter/stripper/crimper tool.
- 5/32-in (or 4 mm) hex wrench.

5.3. Cable Requirements

Data Transmission (Ethernet)

Cable Type:	Cat5e for runs < 328 ft (100 m).
Cable Size:	Outside diameter between 4.6mm (0.181-in)–7.9 mm (0.312-in).
Cable Shape:	Round.
Agency Rating:	UL.
Environmental:	Outdoor rated.
Temp. Rating:	-40°F - +140°F (-40°C - +60°C).
Sources:	Belden 1594A.

Input Power Cord - North American

Cable Type:	SJTOW-A rated.
Cable Size:	Outside diameter between 4.3mm (0.170 in)–11.9 mm (0.470 in).
Cable Shape:	Round.
Conductors:	2 conductor version.
Agency Rating:	UL/C.S.A., UL VW-1.
Environmental:	Outdoor rated.
Temp. Rating:	105 °C.
Voltage Rating:	300 V.
Sources:	Belden 19506. Belden 19509. Northwire 573939.

Input Power Cord - European

Cable Type:	H05RN-F3G0.75 and H05RN-F3G1.00.
Cable Size:	Outside diameter between 4.3mm (0.170 in)–11.9 mm (0.470 in).
Cable Shape:	Round.
Conductors:	2 conductor version.
Agency Rating:	VDE.
Environmental:	Outdoor rated.
Sources:	Olflex 1600252. Olflex 1600253.

5.4. Housing Mounting

The supplied feed-through wall mount is designed for camera housing installations up to 20lb (9kg) rated load. The mount is made of light weight aluminum and features welded construction providing an extremely rigid mount.

1. Determine a secure wall mounting location.

   WARNING: All mounts are designed to support a load only in a vertical direction. The mount must be positioned as shown under specifications.

   a. For a secure installation use four 8-mm (5/16-in) diameter fasteners (not included). Use stainless steel or zinc plated fasteners.

   b. If bolts are used, they should extend through the mounting surface and be secured with flat washers, lock washers, and nuts on the opposite side. Each bolt must have a minimum pull-out strength of 450lb (200kg).

   c. If studs are used, they should be anchored in concrete or welded to a steel backer plate. Each stud must have a minimum pull-out strength of 450lb (200kg).

   d. If the wall mount is attached to wood or to a blind structure (with no access to the rear), each fastener must have a minimum pull-out strength of at least 450lb (200kg).

2. Locate the four holes or stud locations using the flange as a template (four holes equally spaced on a 2 3/4-in (69.9-mm) bolt circle.

3. Feed wires through the large hole in the flange or through the slot on the surface where the camera housing mounts

4. Install the mount using bolts or studs at least 5/15-in (8-mm) in diameter.

5. To mount the camera housing:

   a. Slide the mounting head attached to the housings base over the wall mount.

   b. Fasten the housing to the wall mount using the 4 button head screws and washers (supplied) as shown below. See **Figure 1**. The supplied 1/8-inch long-arm hex wrench can be used to tighten the four hex head screws.

Figure 1

5.5. Cover Removal

1. Loosen the top two screws on the rear of the housing. These screws are captive and will not come out all the way. **Do not** remove the bottom two screws. See **Figure 2**.

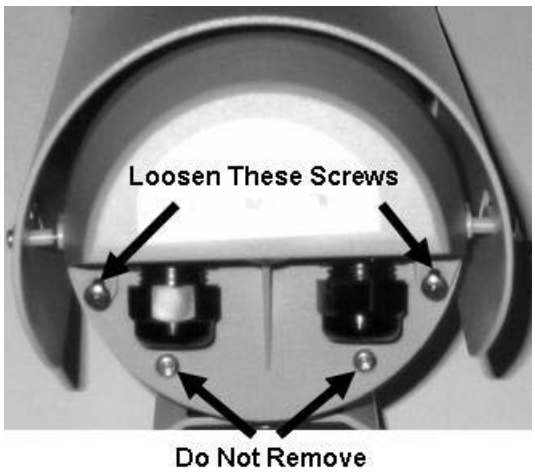


Figure 2

2. Loosen the front screw on the top of the sunshield. Lift up on the sunshield and adjust backward. See **Figure 3**.

   NOTE: Do not remove the screw from the top of the sunshield. Stop loosening the screw when the sunshield hinges up.

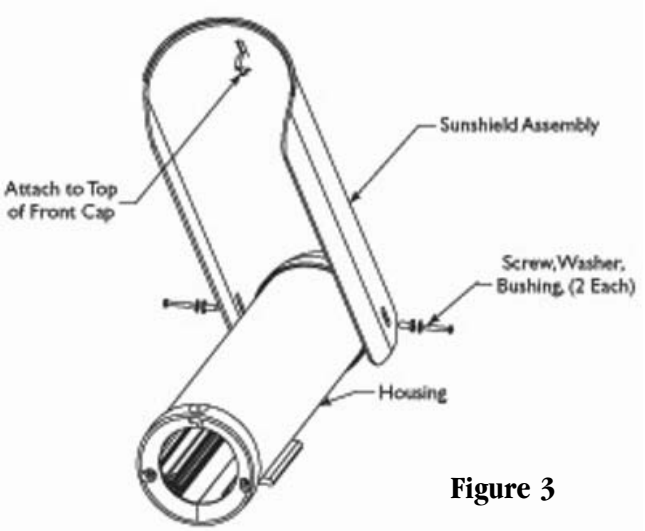


Figure 3

Warning: It is strongly recommended to not remove the sunshield if the housing will be used outdoors. The sunshield provides protection from the sun and promotes cooling to reduce internal housing temperatures.

3. Grasp the housing's front cap and pull forward. Do not squeeze the cover itself. This will make it difficult to slide off the cover. See **Figure 4**.

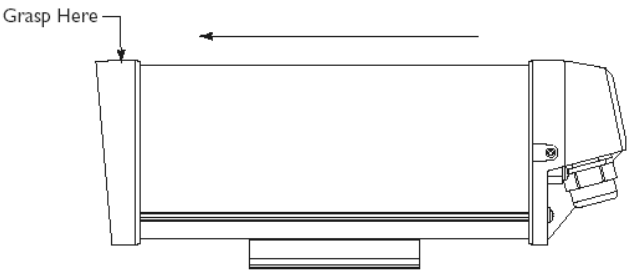


Figure 4

4. The cover is attached to the base. Allow the cover to dangle from the base.

5.6. Camera/Lens Installation

1. Loosen the single screw holding the camera sled to the base. Slide the sled out the front of the housing. See **Figure 5**.

Figure 5

2. Remove the camera bracket from the base. See **Figure 6**. If you are using the feed-through feature, refer to Section 5.9 at this time.

Figure 6

3. Attach the lens to the camera.

4. Use the supplied 1/4-20 x 3/8-inch screw to mount the camera to the camera bracket. Align the front of the lens with the front of the camera bracket. See **Figure 7**.

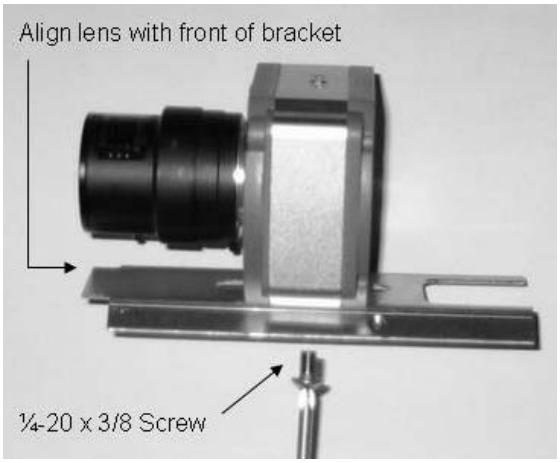


Figure 7

5. Slide the camera & bracket back into the base from the front and secure with screw. See **Figure 8**.

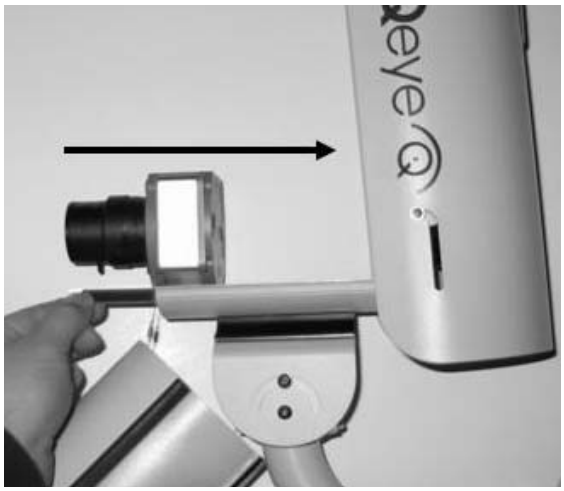


Figure 8

5.7. Fittings

The two large 1/2-inch NPT fittings accept round cable with diameters from 4.3 mm (0.17-inch) to 11.9 mm (0.47-inch). The small fittings will accept cables with diameters from 4.6 mm (0.181-inch) to 7.9 mm (0.312-inch).

Be sure to securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and damage the camera and lens.

If a sealant is to be used, be sure it is a neutral cure type. Sealants that release acetic acid may harm camera electronics.

Use of "drip loops" is recommended on the wiring outside of the rear end cap.

5.8. Conduit

These housings are designed to allow conduit to be directly connected.

Remove the rear fittings and attach the conduit and conduit fittings directly to the housing rear cap. The holes accept 1/2-inch conduit fittings and PG 13.5 conduit fittings. Any unused holes can be covered using the plugs provided in the hardware kit.

5.9. Feed-through Wiring

These housings have the capability of having the cabling feed through the mount and the foot of the housing.

Prior to mounting the camera. Remove the two dome plugs located inside the housing. See **Figure 9.**

Screw the two 3/8-inch NPT fittings into the foot of the housing.

Pull the cabling through the fittings and into the housing. Tighten the fitting to 4.0 N.m to 4.5 N.m (35 in.lb to 40 in.lb). This torque rating is approximately 1 to 1-1/2 turns past the point where the fitting starts to grip the wire. Failure to do so will result in water damage to all electronic parts.

Attach the foot to the top bracket of the mount.

Cover the holes in the rear cap with the rubber plugs provided. Push in until flush and then release.

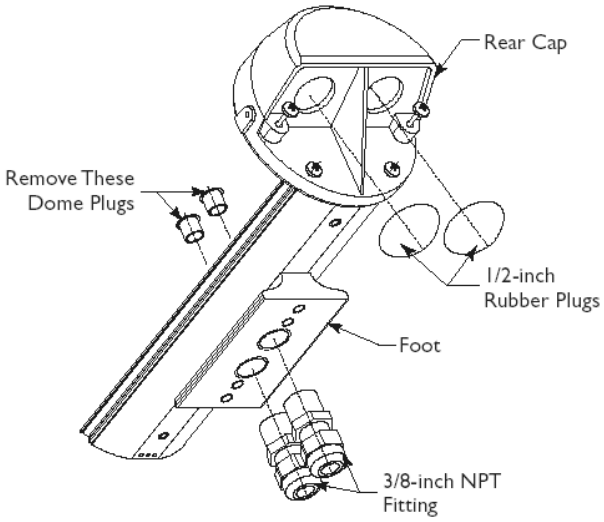


Figure 9

5.10. Power Connections

Power connection into the housings is to be supplied through a minimum type UL Standard "SJ" cord acceptable for outdoor use. Installation must conform to acceptable NEC and local codes. For 24 volt housings, use the chart below for selecting the proper wire size.

Recommended Maximum Cable Lengths for Housings Equipped with 24 Volt Cameras and Heaters

Wire Size		Housing Distance	
mm²	AWG	Meters	Feet
0.5	20	28.6	94
1	18	45.7	150
1.5	16	70.1	230
2.5	14	115.5	379
4	12	183.8	603
6	10	292.6	960
10	8	464.2	1523

NOTE: The use of wire sizes larger than 1.5 mm² (14 AWG) will require a splice in order to accommodate the terminal block.

1. Route the power cable through one of the 1/2-inch NPT fittings on the rear cap or one of the feed-through fittings on the base.

2. The terminal block provided accepts wire ranging from 20 to 14 AWG or 1.5 mm². When using larger wire sizes, splice to a smaller size wire at the terminal block end. The splice may need to be enclosed in a junction box if it does not pass through the fittings.

3. Pull any excess wire out of the housing and tighten the fitting to 8.5 N.m to 9.0 N.m (75 in.lb to 80 in.lb). This torque rating is approximately 1 to 1-1/2 turns past the point where the fitting starts to grip the wire. Failure to do so will allow water to enter and damage all electronic parts.

   Be sure to securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and damage the camera and lens.

4. Connect the supply power wires to the top side of the terminal block provided. See **Figure 10.** Strip no less than 6 mm (0.25-inch) and no more than 8 mm (0.31-inch) of insulation away from the wire. Be sure not to nick the wires.

5. Make sure the heater wires stay connected to the terminal block.

Figure 10

5.11. Data Transmission (Ethernet) Connection

WARNING: Only use the cables specified under "INSTALLATION, Cable Requirements" for wiring of the data (Ethernet) connection.

1. Route the data (Ethernet) cable through one of the 1/2-inch NPT fittings on the rear cap or one of the feed-through fittings on the base.

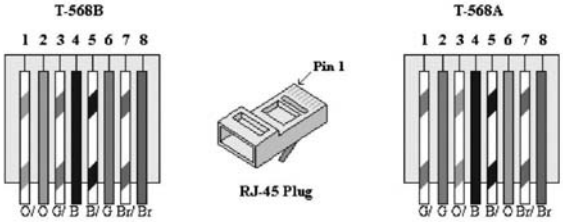
2. Attach an RJ45 connector to the Ethernet cable and connect it to the camera. Pull any excess cable out of the housing and tighten the fitting to 8.5 N.m to 9.0 N.m (75 in.lb to 80 in.lb). This torque rating is approximately 1 to 1-1/2 turns past the point where the fitting starts to grip the wire. Failure to do so will result in water damage to all electronic parts.

   Be sure to securely tighten all fittings to ensure a liquid-tight seal. Failure to do so could allow water to enter the housing and damage the camera and lens.

   Use of "drip loops" is recommended on the wiring outside of the rear end cap.

5.12. CAT5 Color Code & Pin-out

The two most common schemes for wiring CAT5 cables are 568A and 568B. The 568B wiring scheme is widely used in the US, and for off-the-shelf CAT5 cables. New installations should use the 568A CAT5 wiring scheme. Either wiring standard will work, but you will need to stick to one standard.



To terminate a CAT5 cable you will need to use RJ-45 connectors and a crimping tool. Look at the 568A diagram and match the colors on both plugs. The green/white wire should be on the left with the tab of the RJ-45 connector facing down.

5.13. Camera/Lens Adjustment

Verify camera and lens operation before final assembly of the cradle into the housing. Adjust the camera focus and iris as necessary. See individual camera instructions.

5.14. Final Assembly

1. Use the plugs or fittings provided to plug any remaining holes in the rear cap.

2. Reinstall the cover. Align the bottom of the cover ribs with the top of the base. Slide the cover onto the base. Make sure the seal is not folded over or torn. Use silicone grease to lubricate the seals if necessary. See **Figure 11.**

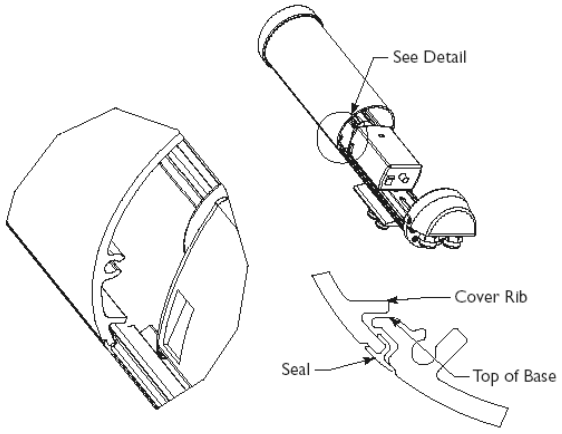


Figure 11

3. As the cover nears the rear cap, make sure the captive screws in the back are not blocking the cover from engaging into the rear cap.

4. Screw the two rear captive screws into the housing.

5. Pivot the sunshield to cover the housing while lining up the top screw with the hole in the housings's front cap.

6. The sunshield can be adjusted forward or back to obtain the desired amount of front coverage. See **Figure 12.**

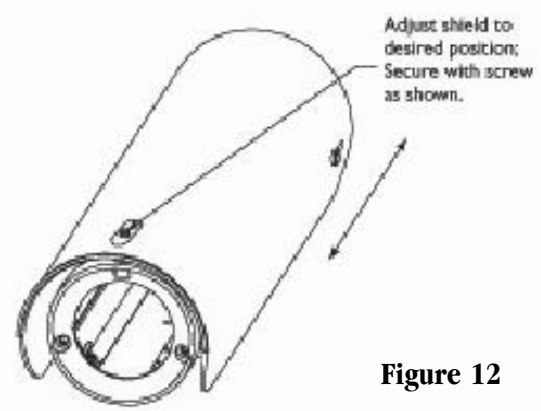
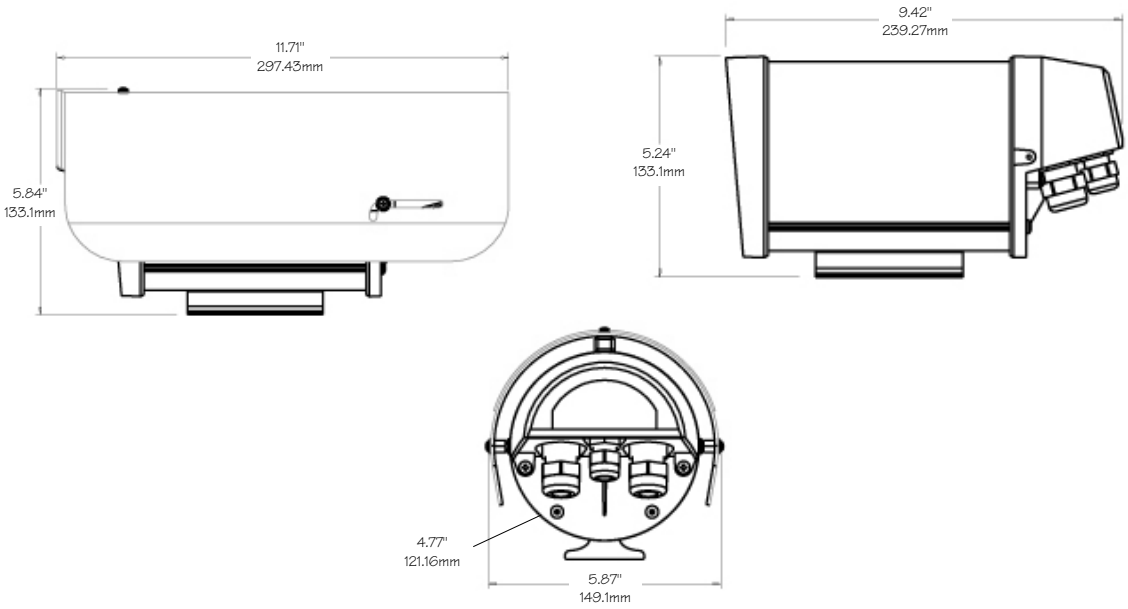


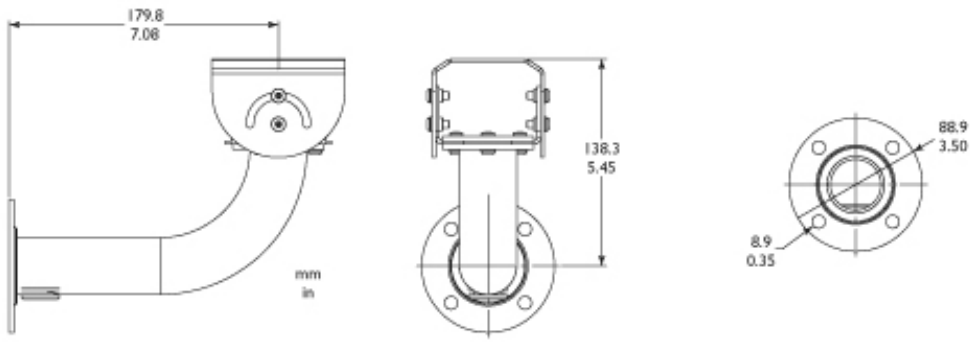
Figure 12

7. Secure the sunshield by tightening the top and the back two screws.

6. Specifications



Feed-Through Mount



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