



PTZA6 Series Pan-Tilt-Zoom Domes Installation Manual

Aigis Mechtronics, Inc.
1124 Louise Road, Winston-Salem, NC 27282
Ph (336)785-7740 Fax (336)785-7744
www.aigismech.com

Table of Contents

1.	Important Safeguards.....	3
1.1.	Warnings.....	3
1.2.	Environmental Specifications.....	3
1.3.	Lightning-Proof Requirements.....	3
1.4.	Lightning and Surge Proofing.....	4
1.5.	Water Proofing.....	4
2.	Installation	4
2.1.	Before You Start.....	4
2.2.	Materials Required.....	4
3.	Bracket Installation.....	4
3.1.	Overview.....	4
3.2.	Bracket Installation.....	5
3.2.1.	Wall Bracket Installation	5
3.2.2.	Pendant Bracket Installation	5
3.2.3.	Corner Bracket Installation.....	6
3.2.4.	Pole Bracket Installation	7
3.3.	Wiring and Installing the Dome Cover.....	8
3.4.	Pan/Tilt Module Installation	9
4.	Recess Mount Installation.....	10
4.1.	Ceiling Hole Preparation.....	10
4.2.	PTZ Module Installation.....	12
4.3.	Trim Ring and Dome Bubble Attachment	12



IMPORTANT SAFEGUARDS

- Read Instructions - All the safety and operating instructions should be read before the unit is operated.
 - Retain Instructions - The safety and operating instructions should be retained for future reference.
 - Heed Warnings - All warnings on the unit and in the operating instructions should be adhered to.
 - Follow Instructions - All operating and use instructions should be followed.
 - Cleaning - Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
 - Attachments - Do not use attachments not recommended by the product manufacturer as they may cause hazards.
 - 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.
- 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 should 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.
 - 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.
 - Grounding or Polarization - This unit may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. Alternatively, this unit may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
 - 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.
 - 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.

- Overloading - Do not overload outlets and extension cords as this can result in a fire or electric shock.
- 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.
- 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.
- Damage Requiring Service - Unplug the unit from the outlet and refer servicing to qualified service personnel under the following conditions:
 - When the power supply cord or plug is damaged.
 - If liquid has been spilled or objects have fallen into the unit.
 - If the unit has been exposed to rain or water.
 - 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.
 - If the unit has been dropped or the cabinet has been damaged.
 - When the unit exhibits a distinct change in performance—this indicates a need for service.
- 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.
- 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.
- Coax Grounding - If an outside cable system is connected to the unit, be sure the cable system is grounded. U.S.A. models only—Section 810 of the National Electrical Code, ANSI/NFPA No.70-1981, provides information with respect to proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.
- 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.



	<p>CAUTION</p> <p>RISK OF ELECTRIC SHOCK. DO NOT OPEN!</p>	
<p>CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT OPEN COVERS. NO USER SERVICEABLE PARTS ARE INSIDE. REFER SERVICE TO QUALIFIED SERVICE PERSONNEL.</p>		

- Ensure any lift equipment used employs proper safety features.

1. Important Safeguards

1.1. Warnings

- Read this manual fully before attempting installation.
- Do not install this product near flammable or explosive materials.
- Installation must be performed by qualified service personnel in accordance with the national and local safety codes.

- Cut off power to the unit before servicing.
- Do not exceed 30VAC on 24 volt models. Operation above 30VAC violates low voltage operation (Class 2) specifications. Normal operation is 24VAC.
- Be careful not to drop the camera module or camera housing during installation.
- Do not install this dome in any environment exceeding the environmental conditions described below.

1.2. Environmental Specifications

Indoor Domes:

Operating Temperature:

-10° ~ +50° C
(+14° ~ 122° F)

Humidity:

Non-condensing
< 95% R.H.

Air Pressure

0.86 ~ 1.06 bar

Power Supply (included)

24VAC, 50/60 Hz
1.0 Amps

Outdoor Domes:

Operating Temperature

-40° ~ +60° C
(-40° ~ +140° F)

Humidity:

Non-condensing
< 95% R.H.

Air Pressure

0.86 ~ 1.06 bar

Power Supply (included)

24VAC, 50/60 Hz
2.5 Amps

1.3. Lightning-Proof Requirements

Refer to Figure 1 throughout this section.

- Maintain a minimum of 50 meter (164 feet) distance from any high voltage cables or equipment.
- Run outdoor rated cable under building eaves if possible.
- Run cabling to the site in buried, sealed steel tubes (conduit). In areas exposed to the elements, shield the cables with steel conduit. Connect the conduit to ground at a single point; connect the ground to a Bus.
- In strong thunderstorm or high faradic zones (such as high voltage transformer substations), extra strong lightning proof equipment and a lightning rod must be employed.
- Take the building lightning proof requirements into account to design the lightning proof and grounding system of outdoor equipment and cable. Ensure that the system is in accordance with national and industrial standards.
- The system must be grounded with equal potentials. The earth ground connection must satisfy the anti-interference and electrical safety requirements and must not short circuit with the high voltage electricity net. When the system is grounded separately, the resistance of the ground conductor should be $<4\Omega$ and the cross-sectional area of the ground conductor should be $<25\text{mm}^2$.

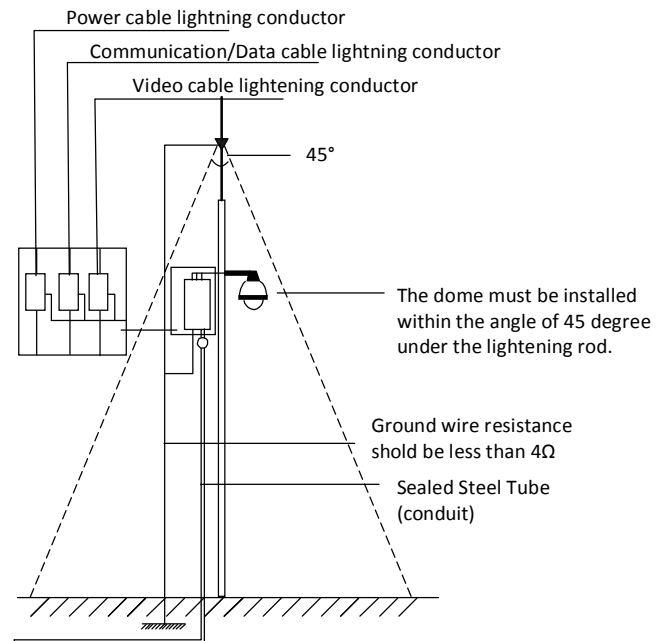


Figure 1 – Typical Outdoor Installation

1.4. Lightning and Surge Proofing

This product uses TVS Lightning Proof technology which can prevent damage to the equipment caused by lightning strikes below 1500W and impulse signals such as surge; but it is also necessary to abide by the above stated precautions to ensure electrical safety.

1.5. Water Proofing

Outdoor domes are IP66 rated which indicates they are dustproof, waterproof, and moisture proof. Do not install an indoor dome in an outdoor environment. Protect the unit from damaged caused by long term water wear. Utilize thread sealant tape and RTV sealant on outdoor units.

2. Installation

Note: Disregard references to RTV sealant and thread sealant tape for indoor installations.

2.1. Before You Start

- Read this manual in detail.
- Ensure that all installation and maintenance work is performed by technical personnel with proper qualifications and experience with this type of equipment.
- All electrical work must be in accordance with the latest local and national laws and regulations including fire prevention measures.
- Ensure that all components were included in the shipment. If any parts are missing contact the shipper.
- Handle the pan/tilt module carefully. The camera module is designed to snap into the dome with very little effort. Do not bend and components or attempt to force the unit into place. Do not handle the dome bubble with your hands.

- Make sure the installation site is sufficient in terms of structural integrity and/or available space before commencing the installation. Maintain a safety coefficient of at least 4 when installing this product.
- The unit is shipped in the safest possible packaging. Keep it for possible future use. If the unit needs to be returned, replace it properly in its packaging and contact your supplier for return authorization and shipping instructions.
- When using a wall mount, pendant mount, or corner mount, ensure that the mounting accessory can support at least 4 times the weight of the unit. When using a pole mount, ensure that the installation is in accordance with the lightning-proof requirements stated above. When mounting an indoor unit into the ceiling, utilize support wires if necessary and ensure that the ceiling can support the weight of the unit.

2.2. Materials Required

Minimum Video Coaxial Cable Requirements:

- 75Ω impedance
- All copper conductor wire (core)
- 95% copper shield mesh

International Gauge	Max Transmission Distance
RG59/U	750ft (229m)
RG6/U	1,000ft (305m)
RG11/U	1,500ft (457m)

- RS485 Communications cables (refer to Appendix)
- 24VAC Power supply cables (refer to Appendix)
- Thread sealant tape
- Room Temperature Vulcanizing (RTV) sealant
- Customer-supplied 1.5" NPT pipe for Pendant Mount installations (cut to desired length)

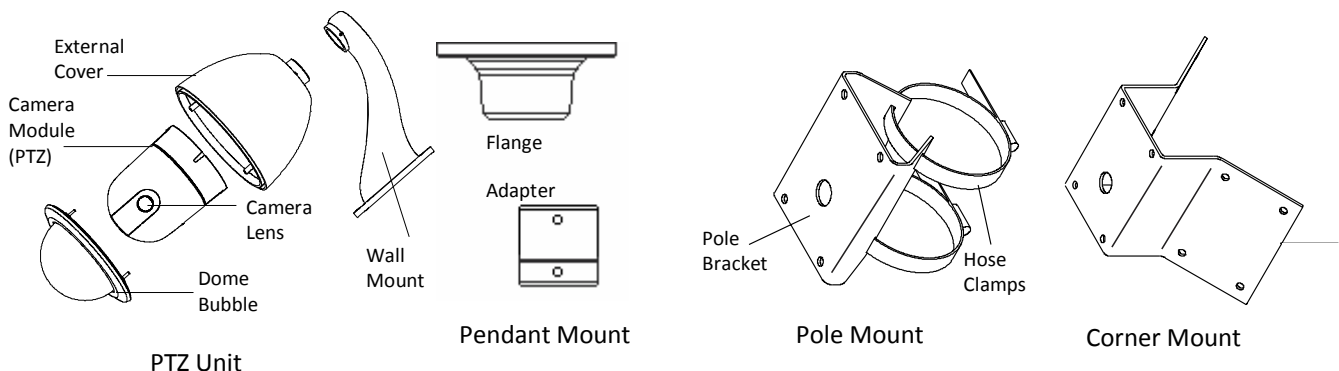
3. Bracket Installation

3.1. Overview

Figure 2 – PTZ Unit and Acces

These units were designed the the installer in mind. Quick and simple connections are required to complete the installation. Some of the features include:

- External threading of the external cover to easily connect the cover to the mount bracket.
- Quick-attach and release mechanism used to connect the camera module to the external cover.
- Simple, clearly marked connection board.
- Mounting options include wall mount, pole mount, pendant mount and corner mount.



3.2. Bracket Installation

Select an appropriate mounting location such that a safety factor of 4 can be achieved.

3.2.1. Wall Bracket Installation

Hold up the wall arm to the desired installation location and use it as a template to mark the center of the drill holes. The upper two holes are slotted for easy installation. Mark the portion of the slotted holes as shown in Figure 3.

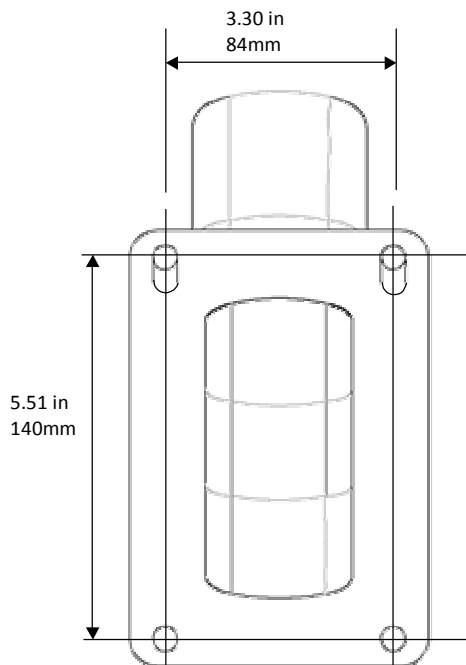


Figure 3 –
Back of Wall
Mount

Drill out the four holes in the mounting surface with a bit large enough to accept an M8 or 1/4" wall anchor. Drill to an approximate depth of 3.0 inches (75mm). Insert the wall anchor (not provided, see Figure 4) into the holes.

3.2.2. Pendant Bracket Installation

Hold the pendant mount flange up to the ceiling and mark the hole pattern. Figure 5 shows the bolt hole pattern. Be mindful of the orientation of the notch used for cable entry.

Drill holes large enough for M6 (3/16 in.) wall anchors and drill the hole to an appropriate depth (i.e. 75mm depth for M6 x 70mm anchor).

Apply a generous bead of RTV sealant around the entire edge of the mount base (see Figure 6). Seat the pendant mount over the wall anchors.

Run the power, video, and data (alarm optional) cables through the back of the wall mount and down through the threaded hole in the arm (see Figure 4). Leave enough length of cable hanging out of the arm that the connections can be made inside the dome (leave approx. 2-inches for the video cable and 3.5-inches for the other cables).

Run the cables out of the notch in the bottom of the wall mount (not shown) or through a previously drilled hole through the wall (preferred method).

Apply a generous bead of RTV sealant around the entire edge of the wall mount as shown in Figure 4. Apply additional sealant to the notch at the base of the mount.

Position the mount over the wall anchors and begin to tighten the nuts and washers. Tighten down the nuts until the anchors are secure. Wipe off any excess RTV from the edges of the mount.

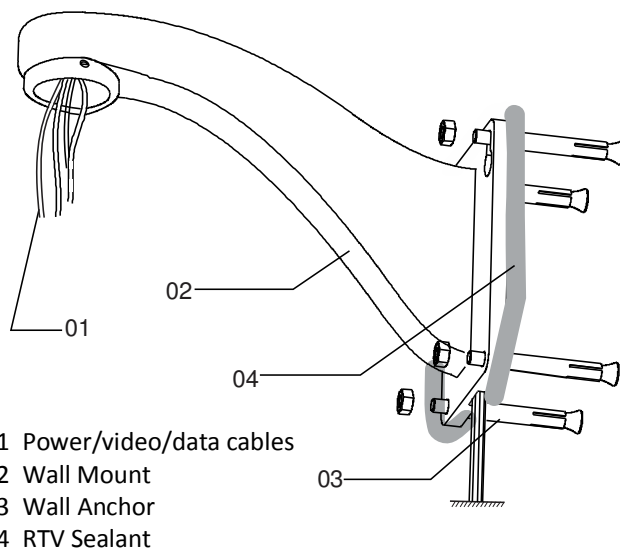


Figure 4 – Wall Mount

Tighten down the nuts until the anchors are secure. Wipe off any excess RTV from the edges of the mount.

Apply Sealant Tape to both ends of the customer-supplied 1.5" NPT pipe. Screw one end of the pipe into the ceiling flange.

Note: the Coupler is notched on one side. The PTZ unit attaches to the notched side. Screw the un-notched side onto the lower end of the pipe.

Feed the power, video and data cables (alarm optional) down through the pendant mount leaving at least 2-inches of video cable and 3.5 inches of the other cables hanging below the mount (see Figure 7).

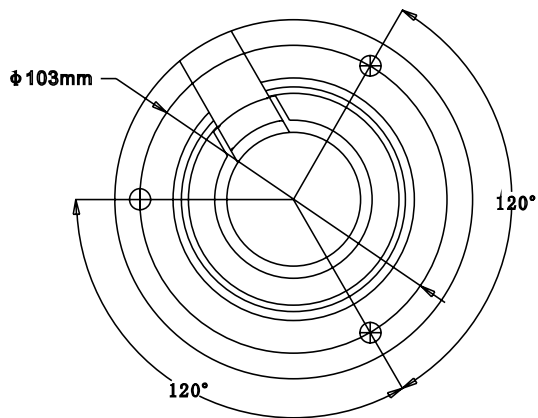


Figure 5 – Pendant Mount Hole Pattern

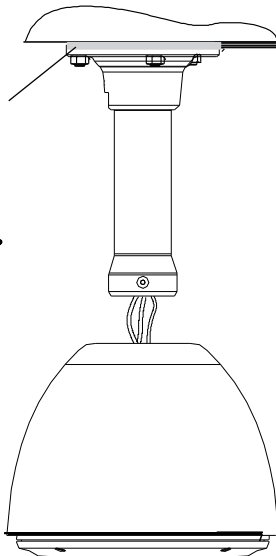


Figure 6 – Apply RTV Sealant

- 01 Power/video/data cables
- 02 Ceiling Flange
- 03 Customer supplied 1.5" NPT pipe shown attached to Ceiling Flange and Adapter
- 04 Wall anchors
- 05 Set screws

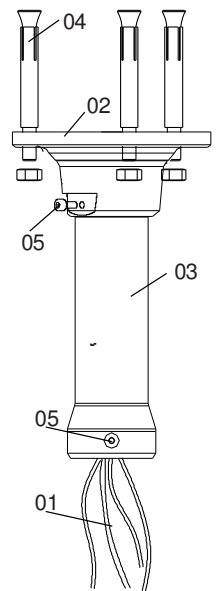


Figure 7 – Pendant Mount

3.2.3. Corner Bracket Installation

Hold up the corner bracket to the desired installation location and use it as a template to mark the center of the drill holes. The hole pattern is shown in Figure 8.

Drill out the eight holes in the mounting surface with a bit large enough to accept an M8 or 1/4" wall anchor. Drill to an approximate depth of 3.0 inches (75mm). Insert the wall anchor (not provided, see Figure 4) into the holes.

Fasten the bracket to the wall. Pass the video, power, and data (alarm optional) cables through the hole in the bracket as shown in Figure 9. Feed these cables through the back of the wall mount and out through the threaded opening. Leave 2-inches of video cable and 3.5 inches of the other cables hanging out of the wall mount.

Apply a generous bead of RTV around the entire edge of the wall mount as shown in Figure 10 as well as the cable hole in the corner bracket as shown in Figure 9. Fasten the wall mount to the corner bracket using four M8 x 30mm screws.

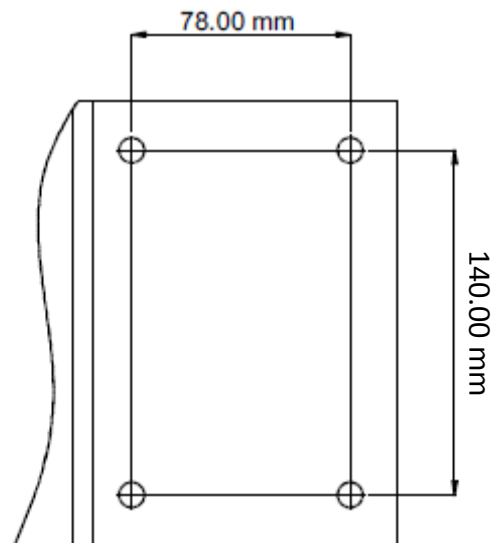


Figure 8 – Corner Bracket (Side Plates) Hole Pattern

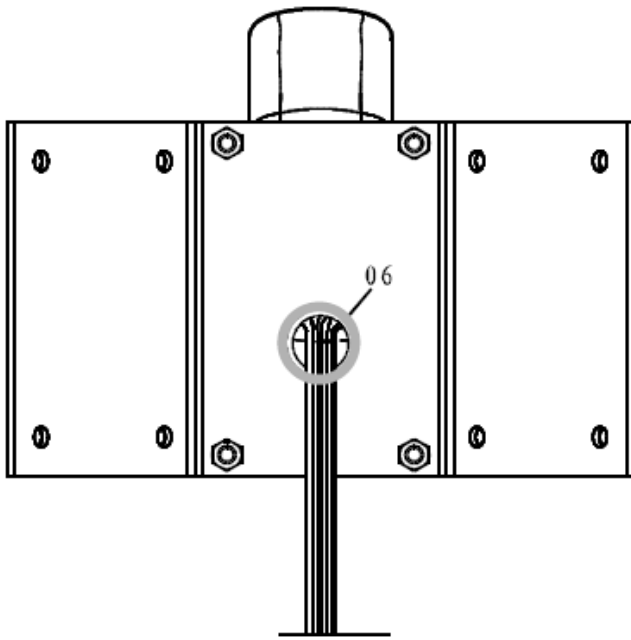
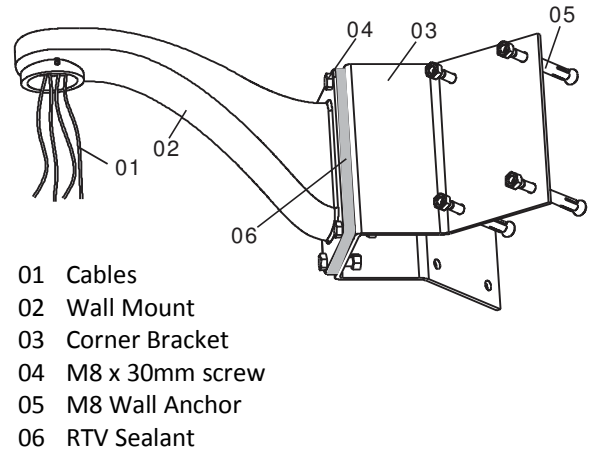


Figure 9 – Rear of Corner Bracket



- 01 Cables
- 02 Wall Mount
- 03 Corner Bracket
- 04 M8 x 30mm screw
- 05 M8 Wall Anchor
- 06 RTV Sealant

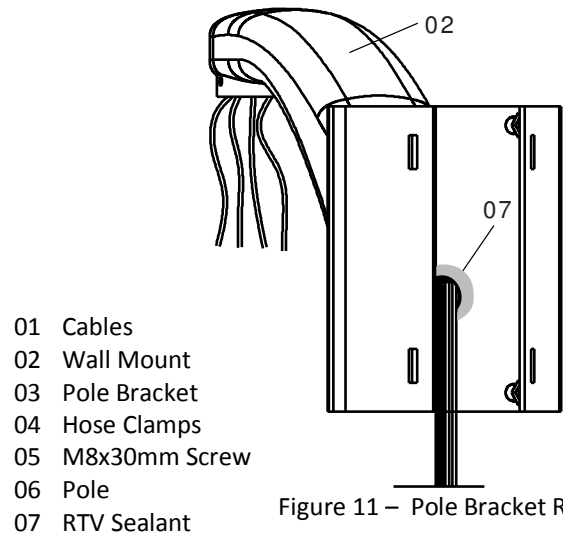
Figure 10 – Corner Bracket and Wall Mount

3.2.4. Pole Bracket Installation

Apply RTV sealant around the edge of the wall mount as shown in Figure 11. Fasten the pole bracket to the wall mount using four M8x30mm screws. Wipe off any excess RTV.

Pass the video, power, and data (alarm optional) cables through the hole in the pole bracket and up through the arm of the wall mount. Leave 2-inches of video cable and 3.5 inches of the other cables hanging out of the wall mount. Apply RTV sealant to the hole in the corner bracket as shown in Figure 11.

Select appropriate sized hose clamps for the installation. Pass the hose clamps (not supplied) through the slots in the pole bracket and around the pole. Tighten the clamps by turning the screw of the worm gear. Repeat for the other set of slots in the pole bracket.



- 01 Cables
- 02 Wall Mount
- 03 Pole Bracket
- 04 Hose Clamps
- 05 M8x30mm Screw
- 06 Pole
- 07 RTV Sealant

Figure 11 – Pole Bracket Rear

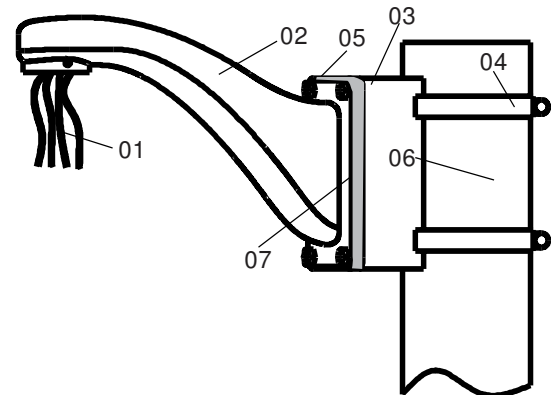


Figure 12 – Pole Bracket Installed

3.3. Wiring and Installing the Dome Cover

The 4-position and 12-position terminal blocks are supplied in the packaging of the PTZ dome. The BNC connector is not supplied. Make the required connections based on the diagram in Figure 13. The connectors themselves are also labeled.

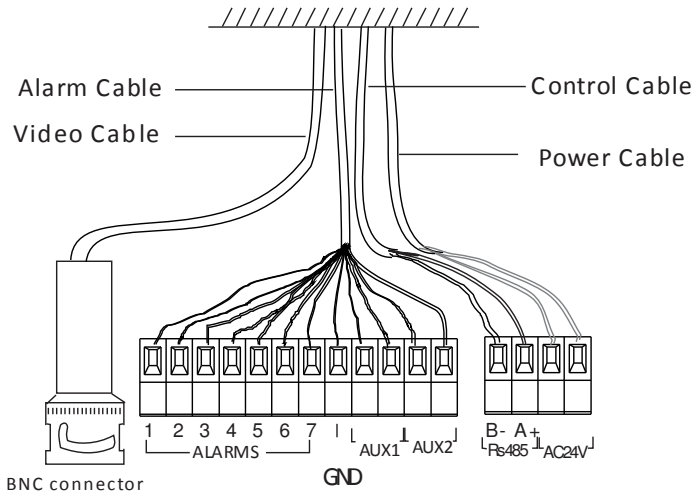


Figure 13 – Video, Data, Alarm (optional) and Power connectors

Remove the Dome Cover from the packaging. Open the access panel by pressing the metal button shown in Figure 14. The access panel flips down. Do not touch the AMP socket when opening the panel.

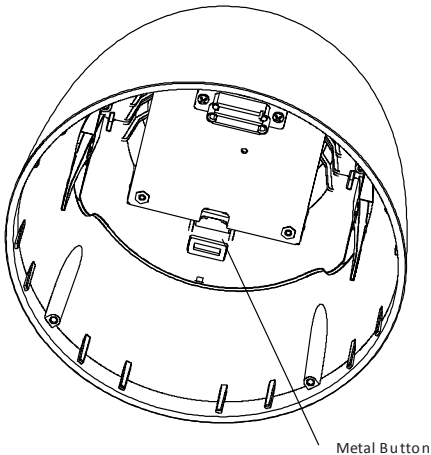


Figure 14 – Dome Cover and Access Panel

Make the power, video, data and alarm (optional) connections inside the Dome Cover. Feed excess wire back up into the mount so that the access panel can close properly. See Figure 16 for connector locations.

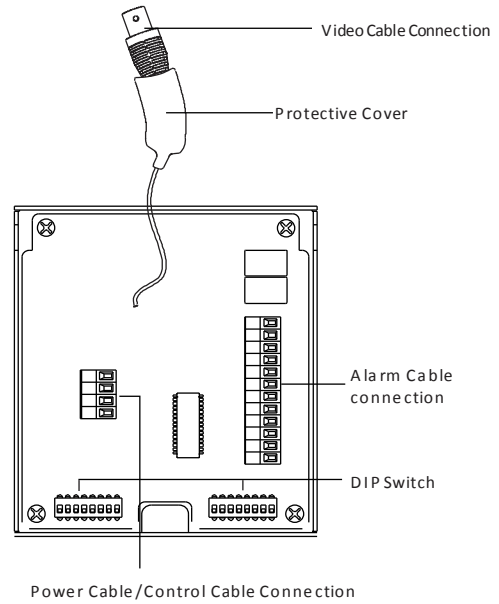


Figure 16 – Control Board

Before closing the access panel, set the dip switches (see Figure 16) to select the desired Camera ID, Protocol, and Baud rate. Refer to the appendix of the Operation Manual for dip switch information.

Close the access cover. Pre-wind the dome cover approximately 5-full turns before screwing the dome cover into the wall mount. This will prevent the wires from being twisted once the dome is in place. Screw the dome cover into the wall mount, and tighten the M4 set screw (from the hardware kit) to lock it in place.

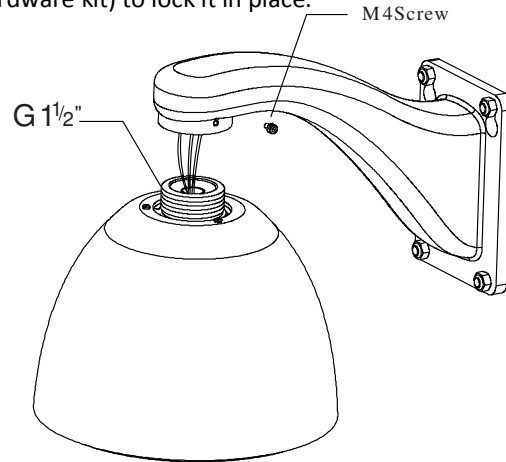


Figure 17 – Attach dome cover to wall mount

Apply power to the unit. Check to see the LED shown in Figure 18 is lit. Disconnect power before proceeding.

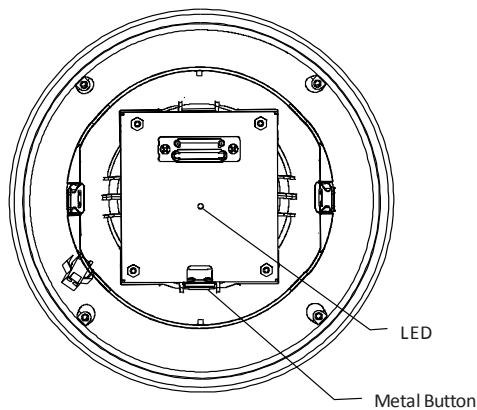


Figure 18 – Apply power and check LED

3.4. Pan/Tilt Module Installation

Remove the pan/tilt module from the packaging and inspect it for damage. If the unit needs to be returned to the factory, replace it properly in its packaging as shown in Figure 19.

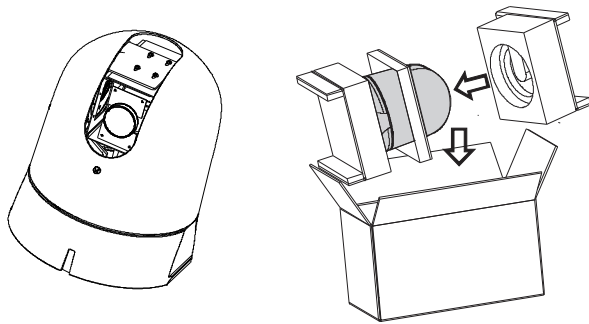


Figure 19 – Pan/Tilt Module and Packaging

The PTZ module fits into the dome housing quickly and easily. Line up the AMP sockets shown in Figure 20. The guide notches will align the module. Carefully press the PTZ module into position. Two snaps should be audible as it locks into place.

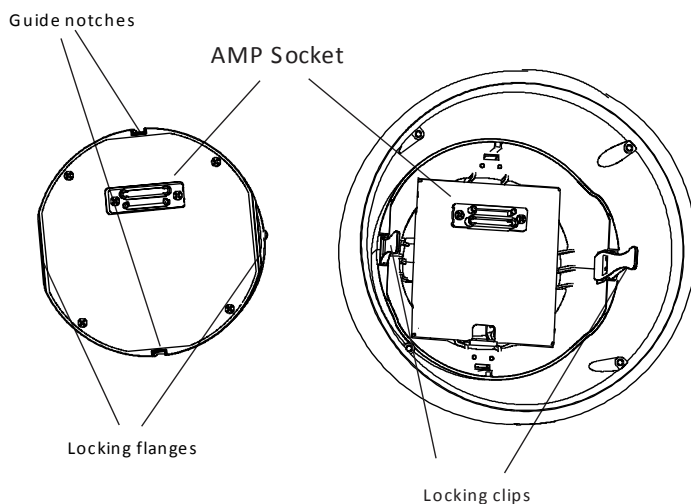


Figure 20 – Connect PTZ module into Dome Housing

Hold the dome bubble up to the mounted PTZ unit. If installing an outdoor unit, connect the heater ring in the dome bubble to the main unit by connecting the heater connectors (see Figure 21).

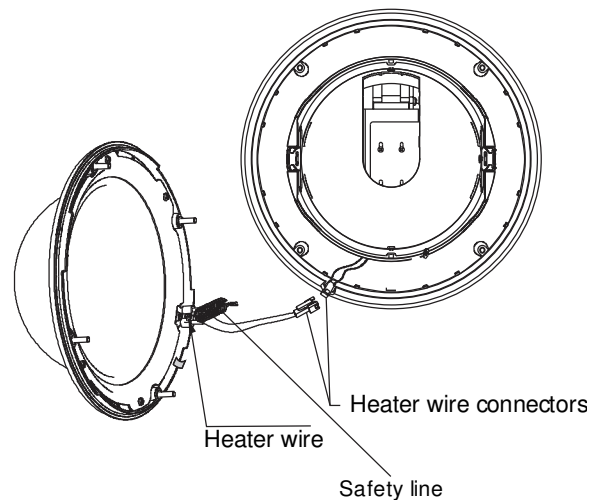


Figure 21 – Heater and Safety Wires

Attach the safety wire from the dome bubble to the main unit using the M3x5mm screw provided in the hardware kit.

Attach the dome bubble to the main unit by securing the four captive screws in the trim ring to finish the installation.

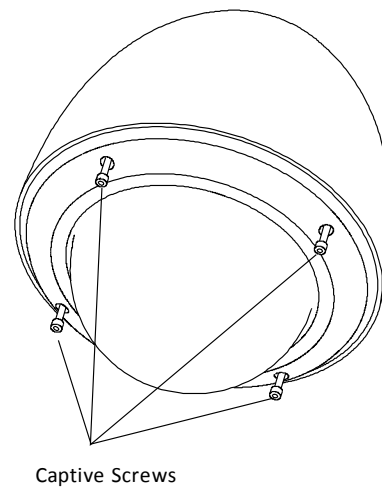


Figure 22 – Attach dome bubble

4. Recess Mount Installation

Indoor recess-mount domes can be mounted in drop ceilings (a.k.a. ceiling tiles, acoustic ceiling tiles, etc.) or sheetrock ceilings. A typical installation is shown in Figure 23. The ceiling must be able to support 4 times the weight of the PTZ.

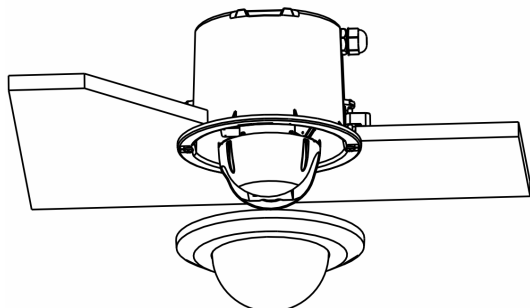


Figure 23 – Recess Mount

Note: an additional support bracket is available (Part Number MT-PTZ2X2) that is installed above the ceiling tile and clips on to the ceiling tile grid. The PTZ then clips to both the support bracket and the ceiling tile. Contact Aigis for more information.

4.1. Ceiling Hole Preparation

Draw a circle on the ceiling for the hole the PTZ will be mounted into. The dimensions of the hole should be 8.86-in (225mm) minimum to 8.94-in (227mm) maximum, as shown in Figure 24. The unit cannot be installed if the hole is in excess of 9.37-in (238mm).

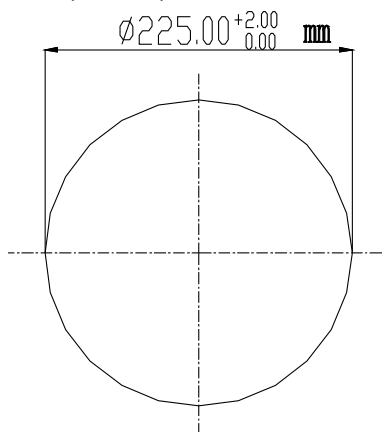


Figure 24 – Ceiling Hole Dimensions

Depending on the type of material, select the appropriate tool to cut out the mounting hole.

Run the power, video, data and alarm (optional) cables to the site. Terminate the wires into the connectors provided in the hardware kit (see Figure 25).

Remove the tightening cap from the bulkhead connector (see Figure 27) on the side of the housing.

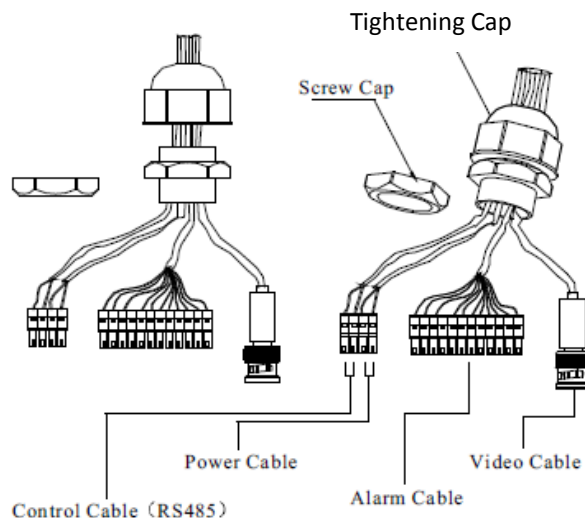


Figure 25 – Video, power, data and alarm (optional) connectors

Feed all necessary wires through the tightening cap (see Figure 25), then through the bulkhead connector and into the recessed housing.

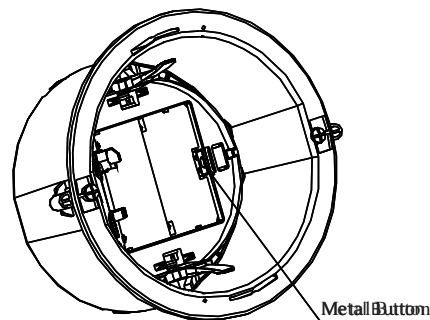


Figure 26 – Recessed housing access panel

Press the metal button shown in Figure 26 to open the access panel in order to make the cable connections.

Connect the external cables to the connectors indicated in Figure 27.

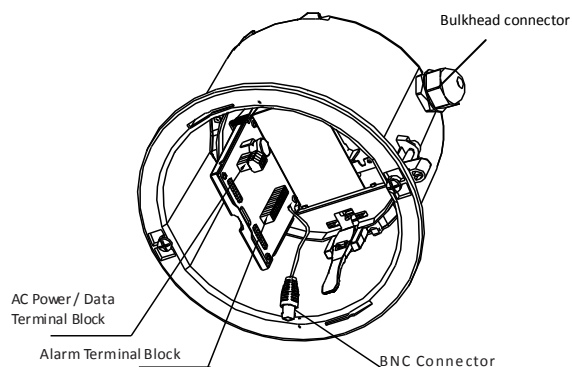


Figure 27 – Cable Connections

Before closing the access panel, set the dip switches (see Figure 16) to select the desired Camera ID, Protocol, and Baud rate. Refer to the appendix of the Operation Manual for dip switch information.

Pull excess wire back through the bulkhead connector so that the access panel can close properly. Tighten down the tightening cap once the wires are in the desired position.

Close the access panel and connect power to the unit. A LED should begin to glow in the center of the access panel (see Figure 28). Disconnect power to the unit before proceeding.

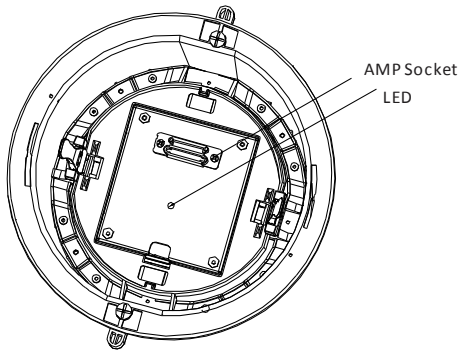


Figure 28 – Check LED

Loosen the two long screws (see Figure 29) that are attached to the plastic ceiling clips. Loosen the screws until the clips are raised off the flange by an amount greater than the ceiling thickness.

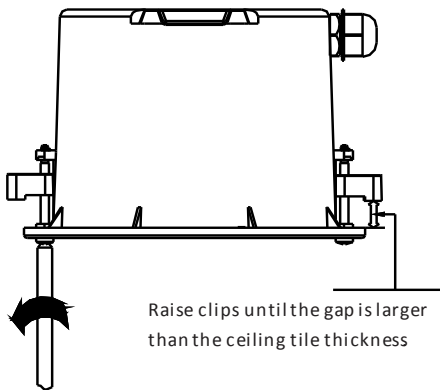


Figure 29 – Raise ceiling clips

Raise the unit up into the hole in the ceiling with the ceiling clips tucked in as shown in Figure 30.

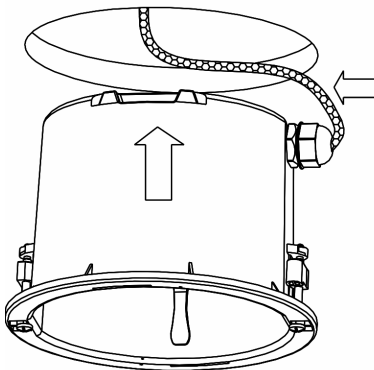
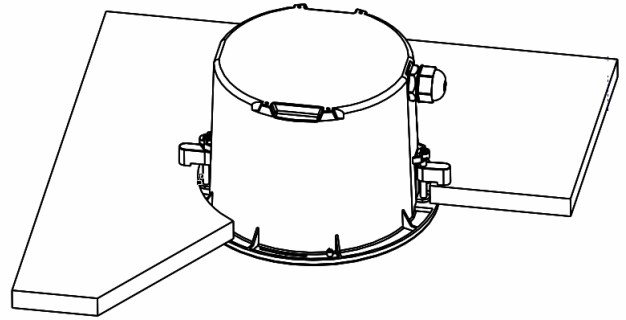


Figure 30 – Raise unit into ceiling

When the housing flange is flush with the ceiling, twist the two long screws (from previous step) 1/4 turn to extend the ceiling clips out to grab onto the top side of the ceiling or ceiling tile (see Figure 31).



If the ceiling is not strong enough to meet the 4x safety factor, support wires can be attached to a support beam and connected to the back of the PTZ housing. Four M3 screw holes are provided in the exterior of the PTZ housing (see Figure 32).

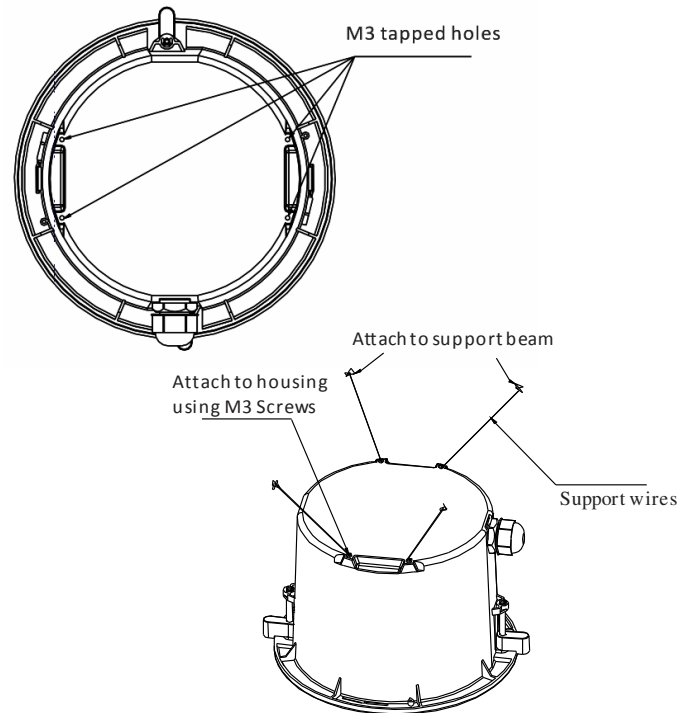


Figure 32 – Support Wire Holes and Attachment Locations

Connect the support wires to a more sturdy section of the ceiling or a support beam above the installation location. Attach the wires to the housing using M3 screws. See Figure 32.

4.2. PTZ Module Installation

Remove the pan/tilt module from the packaging and inspect it for damage. If the unit needs to be returned to the factory, replace it properly in its packaging as shown in Figure 33.

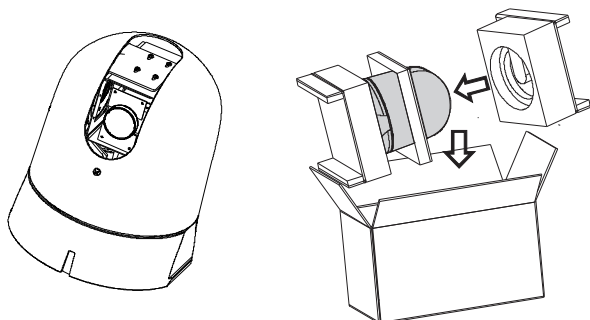


Figure 33 – Support Wire Holes

The PTZ module fits into the dome housing quickly and easily.

4.3. Trim Ring and Dome Bubble Attachment

Attach the tether to one of the two threaded plastic posts in the trim ring using an M3 screw from the hardware kit (see Figure 35).

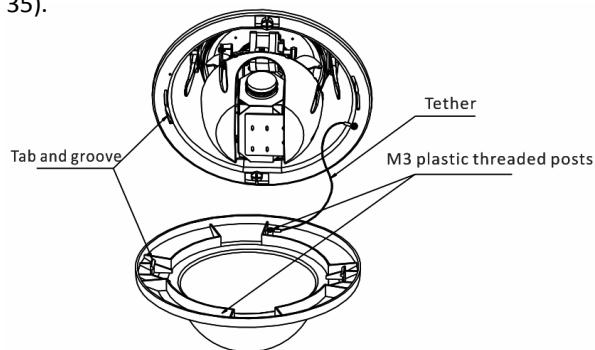


Figure 35 – Dome Bubble Attachment

Align the tabs in the dome bubble with the grooves in the flange of the main unit. Twist the dome bubble so that the tabs engage in the grooves and continue twisting until the dome bubble is secure.



mechtronics

©2010 Aigis Mechtronics

1124 Louise Road, Winston-Salem, NC 27107-5450

Tel: 336.785.7740 Fax: 336.785.7744

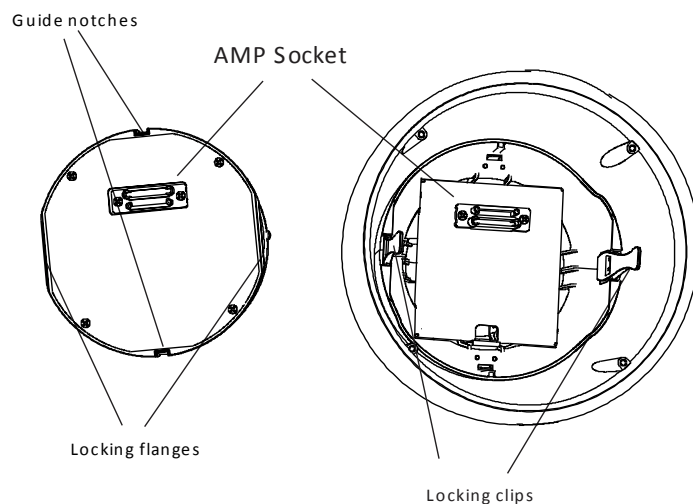


Figure 34 – Connect PTZ module into Dome Housing

Line up the AMP sockets shown in Figure 34. The guide notches will align the module. Carefully press the PTZ module into position. Two snaps should be audible as it locks into place.

The final installation is shown below in Figure 36.

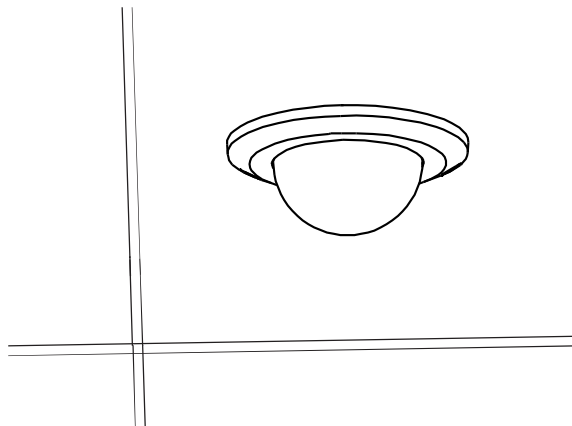


Figure 36 – Finished Installation

100 0254 002 AIG 02/10

Printed in the U.S.A.