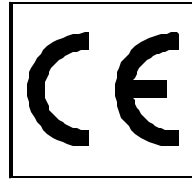


XX035-01-01

SURVEYORTM 2000

FIXED CAMERA DOME



Vicon Industries Inc. does not warrant that the functions contained in this equipment will meet your requirements or that the operation will be entirely error free or perform precisely as described in the documentation. This system has not been designed to be used in life-critical situations and must not be used for this purpose.

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Installation & Operation Manual





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Since Vicon's beginning in 1967, our only business has been the design, engineering, and production of the highest quality video systems and equipment for use in a wide variety of security, safety, control, surveillance, and communication applications.

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If you are not satisfied with a Vicon product or service, I would like to know. Your complete satisfaction is the mission of every Vicon employee.

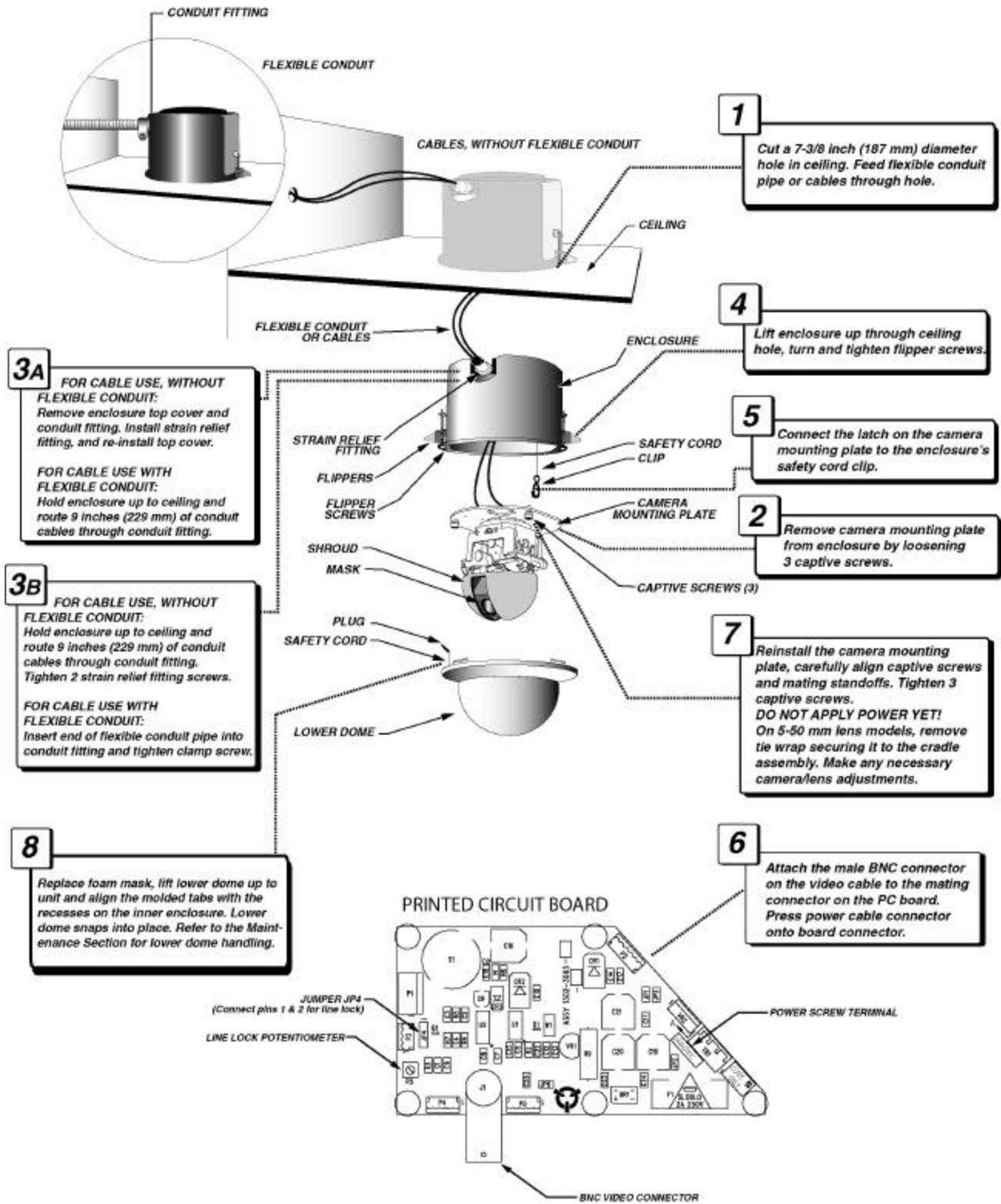
Sincerely,

Kenneth M. Darby
President

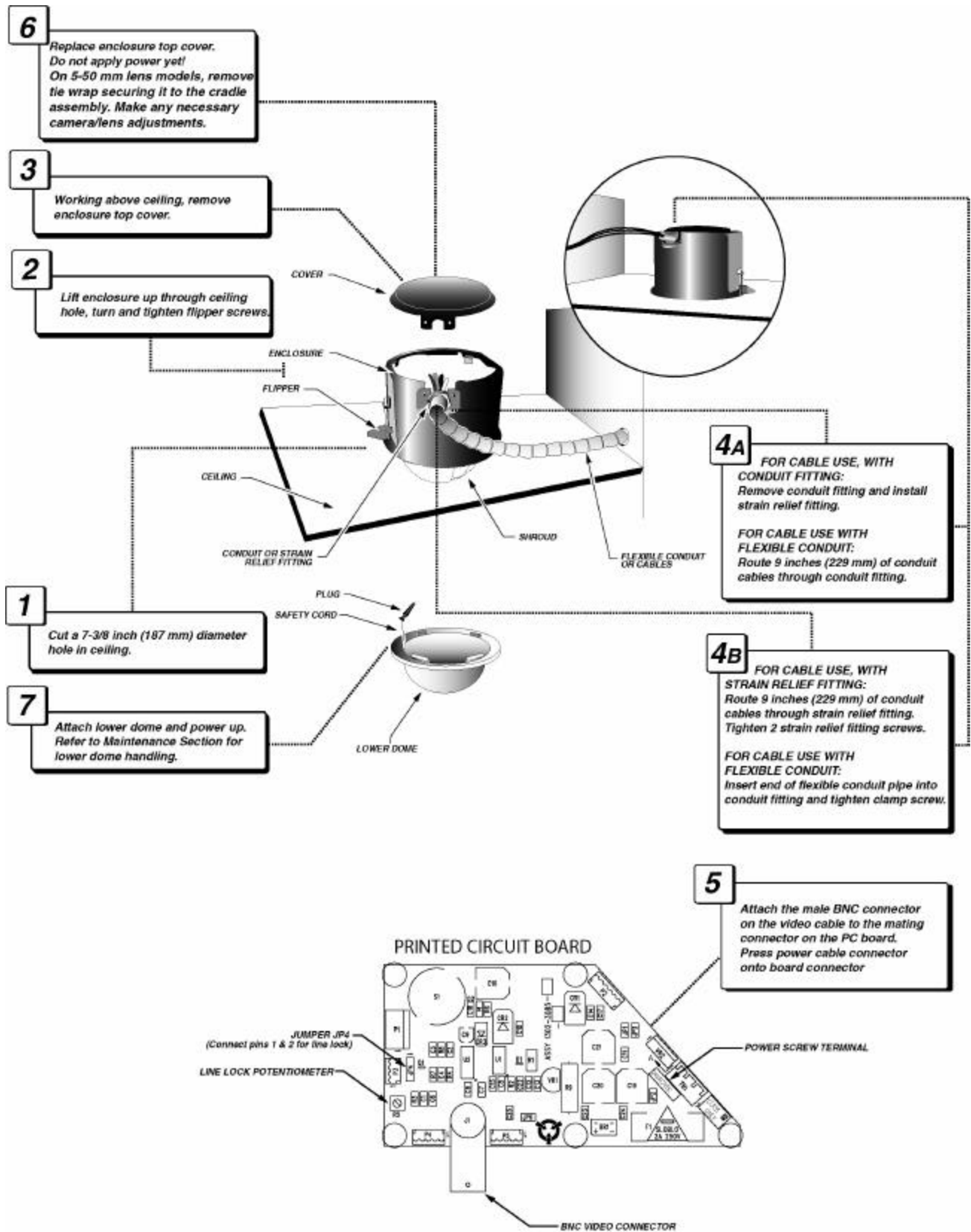
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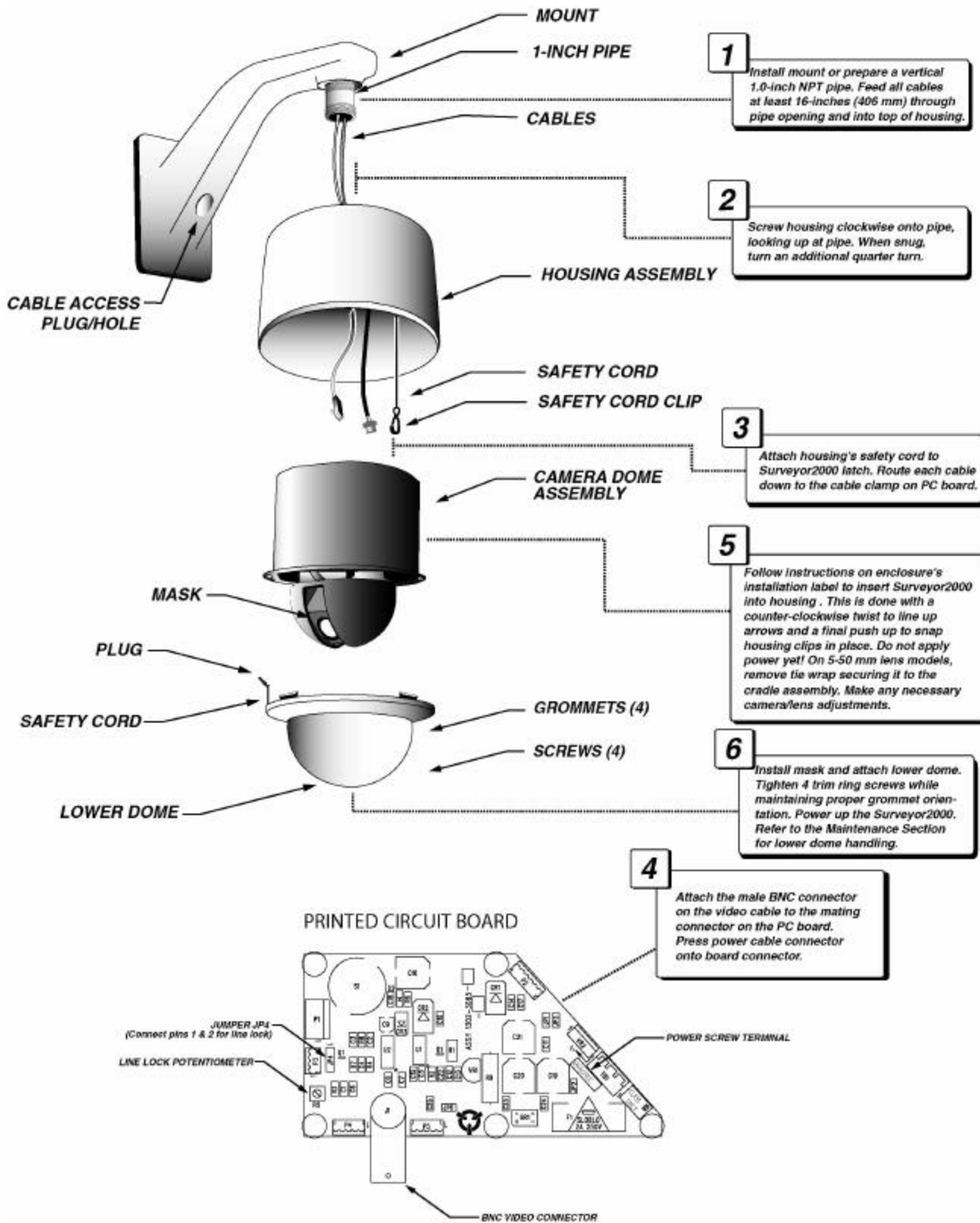
Quick Installation



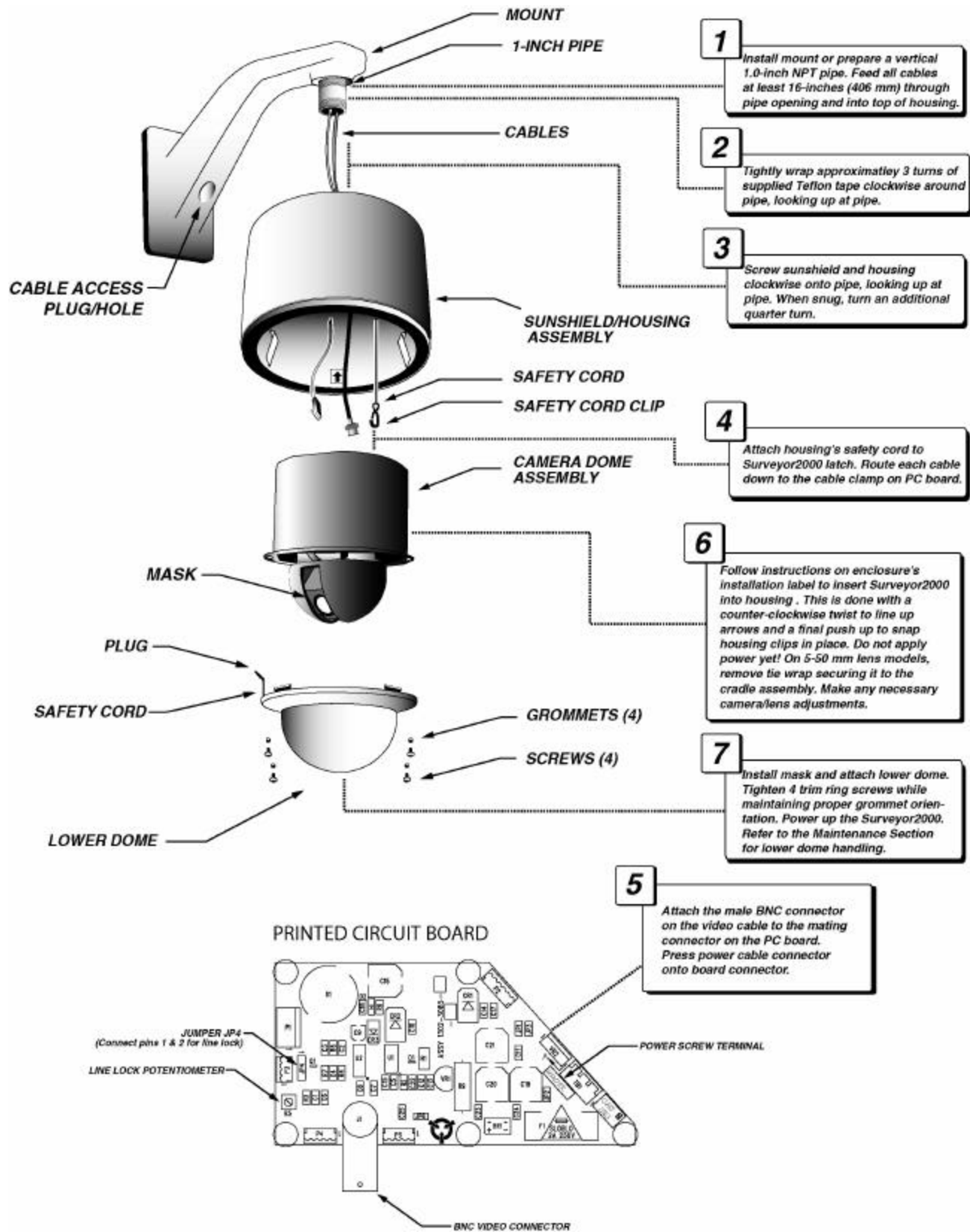
In-Ceiling - No Access to Ceiling



In-Ceiling – Access to Ceiling



Pendant - Indoor



Pendant – Outdoor

Introduction

The information in this manual covers the installation, operation, and maintenance of the Surveyor2000 Series of Fixed Camera Domes. This unit should only be installed by a qualified technician using approved materials in accordance with national, state and local wiring codes. Read this manual through completely before attempting installation.

The Surveyor2000 Series of Fixed Camera Domes offers a compact domed housing incorporating a fixed camera and lens combination. The camera domes are available for indoor in-ceiling and pendant mounting configurations and outdoor pendant mounting configurations. There is a choice of high-resolution color cameras with a 3.5-8 mm or 5-50 mm varifocal lens; outdoor models offer autoiris lenses. A smoked lower dome is included on indoor models; a clear dome is used on outdoor versions. Refer to Table 1 for model numbers and descriptions.

The camera position has a unique 3-axis position adjustment, allowing for adjustment of pan, tilt and rotation about the lens axis (roll), for any angle of view required. The lens iris and focus can be adjusted, as well as selecting a wide or telephoto angle of view. Cameras accept 24 VAC or 24 VDC and also feature line lock capability.

Surveyor2000 Fixed Camera Dome series meets FCC requirements for a Class A device.

Table 1
Models, Product Codes and Descriptions

Model	Product Code	Description
S2000FC-IC358/ S2000FC-IC358C	7770/7770-01	In-ceiling; 1/3-in. high-resolution color camera and 3.5-8 mm varifocal lens; 24 VAC/VDC; smoked lower dome; NTSC/PAL
S2000FC-P358/ S2000FC-P358C	7771/7771-01	Indoor Pendant; 1/3-in. high-resolution color camera and 3.5-8 mm varifocal lens; 24 VAC/VDC; smoked lower dome; NTSC/PAL
S2000FCA-W358/ S2000FCA-W358C	7772/7772-01	Outdoor Pendant; 1/3-in. high-resolution color camera and 3.5-8 mm varifocal autoiris lens; 24 VAC/VDC; clear lower dome; NTSC/PAL
S2000FC-IC550/ S2000FC-IC550C	7773/7773-01	In-ceiling; 1/3-in. high-resolution color camera and 550 mm varifocal lens; 24 VAC/VDC; smoked lower dome; NTSC/PAL
S2000FC-P550/ S2000FC-P550C	7774/7774-01	Indoor Pendant; 1/3-in. high-resolution color camera and 5-50 mm varifocal lens; 24 VAC/VDC; smoked lower dome; NTSC/PAL
S2000FCA-W550/ S2000FCA-W550C	7775/7775-01	Outdoor Pendant; 1/3-in. high-resolution color camera and 550 mm varifocal autoiris lens; 24 VAC/VDC; clear lower dome; NTSC/PAL

Installation

Unpacking and Inspection

All Vicon equipment is tested and inspected before leaving the factory. It is the carrier's responsibility to deliver the equipment in the same condition as it left the factory.

Inspection for Visible Damage

Immediately inspect the cartons upon delivery. Make a note of any visible damage on all copies of the carrier's freight bill. Make sure the carrier's agent (the person making the delivery) signs the note on all copies of the bill. If the agent does not have claim forms, contact the carrier's office.

Inspection for Concealed Damage

As soon as possible after delivery, unpack the unit and inspect it for concealed damage. Do not discard the carton or packing materials. If the unit is damaged, contact the carrier immediately and request forms for filing a damage claim. Make arrangements for a representative of the carrier to inspect the damaged equipment. If the equipment must be returned for repair, follow the Shipping Instructions at the end of this manual.

Surveyor2000 Fixed Dome Components

The Surveyor2000 fixed camera dome units consist of an enclosure, a camera mounting plate, a shroud, a gray mask and a smoked (indoor) or clear (outdoor) lower dome. With the addition of a housing, the Surveyor2000 fixed camera dome can be equipped for in-ceiling or indoor pendant mounting; the addition of a sunshield allows outdoor pendant mounting. The unit is delivered assembled, except for the housing/sunshield and lower dome, which are packed separately. Refer to Figure 1.

Enclosure

The enclosure is a formed metal shell used as the mounting frame for the camera mounting plate which mounts to the three (3) standoffs on the inside of the enclosure. A safety cord and clip are provided to connect the enclosure assembly during installation. In addition, a hole is provided on the lower edge of the enclosure for connection of the lower dome's safety cord and plug. A top cover, a standard 0.5-in. (125 mm) conduit fitting and a pair of flippers are provided for in-ceiling installations. The top cover is attached with three (3) screws that can be loosened for removal. For in-ceiling installations that do not use conduit pipe, a standard 0.5-in. (125 mm) strain relief fitting is provided. The strain relief provides sufficient cable anchoring at the enclosure. The flippers are used to give a convenient and sturdy foundation for the enclosure on the ceiling.

Camera Mounting Plate

The camera mounting plate has the camera/lens combination already installed. The camera/lens position can be manually adjusted.

Shroud and Mask

The shroud is a 5.4 in. (137 mm) diameter textured black plastic shell. It has a slotted opening for the camera. The shroud helps conceal the position of the camera and snaps onto the camera mounting plate. A gray foam mask is provided to fit over the camera/lens assembly to block out the area that is exposed from the slot.

Lower Dome

The dome is an assembly comprised of a 5.9 in. (148 mm) diameter acrylic shell, a color coordinated trim ring and a safety cord. Lower domes for the indoor versions have a smoked (gray tint) finish. Outdoor lower domes are clear and use four (4) screws for additional support. All lower domes are anchored to the enclosure by the safety cord and remain stationary during pan and tilt movement. Refer to the Maintenance section of this manual for instructions on the care and handling of the dome.

Housing

The housing is a molded plastic protective cover for the enclosure. It is only used in pendant configurations. The housing contains two spring clips that snap into the enclosure and a 1.0 in. NPT pipe flange mount. In addition, the housing is equipped with a safety cord and clip, which is used to suspend the enclosure during installation.

Sunshield

The sunshield is used on the outdoor pendant versions and mounts over the housing. It incorporates a rubber O-ring, foam barrier and applied Teflon® tape. It is used for environmental sealing from water, dust and debris. In addition, a thermostatically-controlled heater is provided for temperature control.

⚠ Caution: For any environment subject to moisture, use one of the outdoor pendant models.

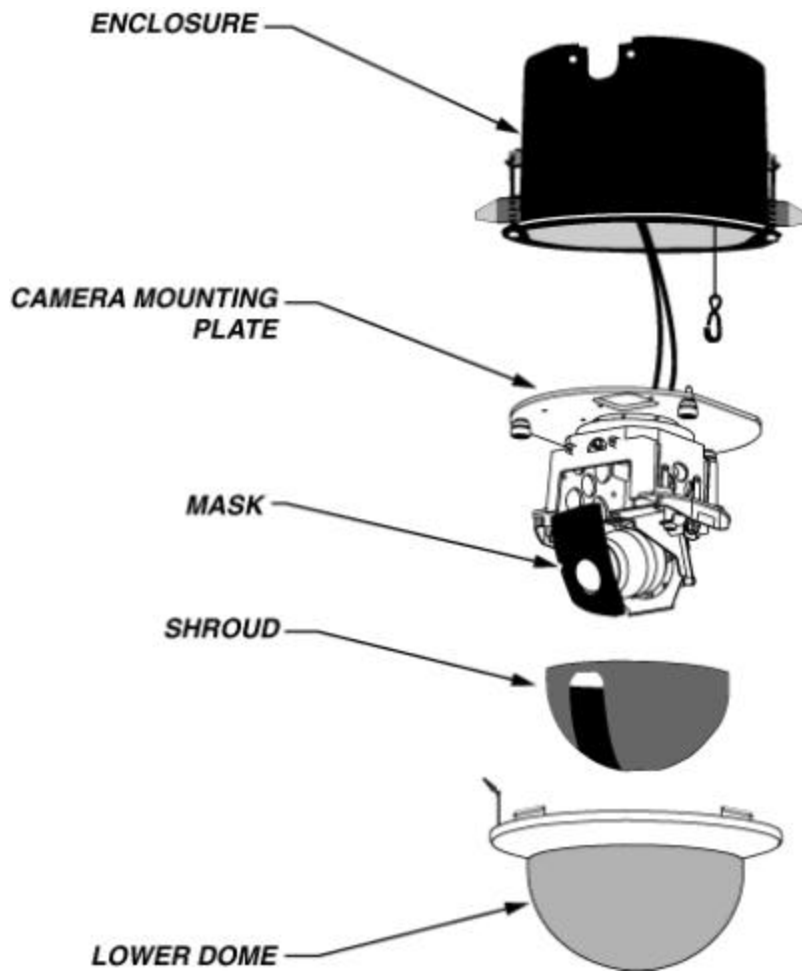


Figure 1
Surveyor2000 Fixed Camera Dome Components

Mounting the Unit

Using the Provided Scribe

A small metal scribe is provided to assist in marking an accurate hole size in a ceiling tile. Use it as follows.

1. Place the ceiling tile on a large flat surface, face up.
2. Measure and make a small mark at position **A** from any corner (11.9 in./302 mm). Refer to Figure 2.
3. Measure and make a small mark at position **B** (8.2 in./208 mm), placing the scribe as perpendicular to the **A**-edge as possible.
4. Place the scribe across **B** and **C**. Rotate the scribe around center **C** for a full turn.
5. Cut out the circle using a sharp tool on the scribed line.

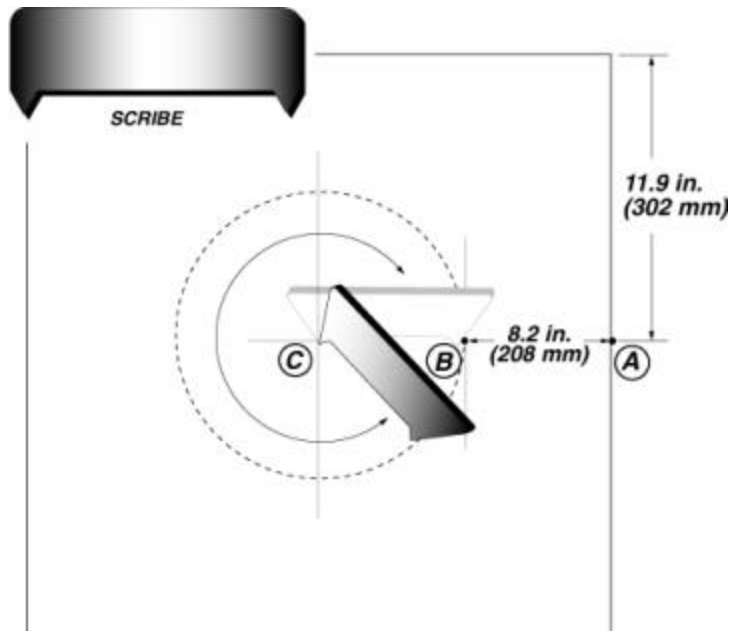


Figure 2
Use of the Scribe

In-Ceiling Mounting

The Surveyor2000 rests on the ceiling material and occupies the space between the lower ceiling and upper building frame. There are two methods of installation. The first method can be used for ceilings with no access to the space above, as in a typical hard material ceiling. The second method is used for a ceiling with access, as in the case of a dropped ceiling (metal grid type). All mounting hardware is provided. Refer to the section on Optional Independent Support for installations requiring additional support (most commonly, a dropped ceiling).

Mounting from Below the Ceiling

Use this method of installation if there is no access to the space above. The ceiling material must provide suitable strength to support the weight of the Surveyor2000 with the two flippers on the enclosure. Be sure the area around the selected location is clear of obstacles (such as steel beams, headers, pipes, electrical wiring, etc.) that would interfere with mounting. Video, sync, and power cables must be routed to the location. Refer to Figure 3 when performing this installation.

1. Cut a 7-3/8 in. (187 mm) hole in the ceiling at the desired location. Remove the tile from a dropped ceiling if necessary. Feed all necessary flexible conduit pipe or cables down through the hole.
2. Remove the camera mounting plate from the enclosure by loosening the three (3) captive screws.
3. If cables are used without the use of flexible conduit:
 - a. Remove the enclosure top cover by loosening the three (3) screws and lifting it off. Then remove the conduit fitting by loosening the nut and sliding it out. Install the supplied strain relief fitting in its place and re-attach the top cover.
 - b. Hold the enclosure near the hole in the ceiling and route approximately 9 in. (229 mm) of cables through the strain relief fitting. Tighten the two (2) strain relief fitting screws to compress the cables. Do not overtighten the screws and crush the cables.

Note: Connectors that do not fit through the strain relief fitting must be cut off and re-terminated after passing the cable through. BNC type connectors do not fit through the fitting and must be terminated later.

3. If cables are channeled through flexible cable:
 - a. Hold the enclosure near the hole in the ceiling and route approximately 9 in. (229 mm) of conduit cables through the conduit fitting.
 - b. Insert the end of the flexible conduit pipe into the conduit fitting and tighten the clamp screw.

Note: Connectors that do not fit through the conduit fitting must be cut off and re-terminated after passing the cable through. BNC type connectors do not fit through the fitting and must be terminated later.

4. Lift the enclosure up and snap it into the ceiling hole. Turn and tighten the flipper screws to obtain a flush fit with the ceiling plane. On 5-50 lens models, remove the tie wrap that secures the lens to the cradle. See Figure 3A.
5. Connect the latch on the camera mounting plate to the enclosure's safety cord clip.

Continue with section on Cable Connections.

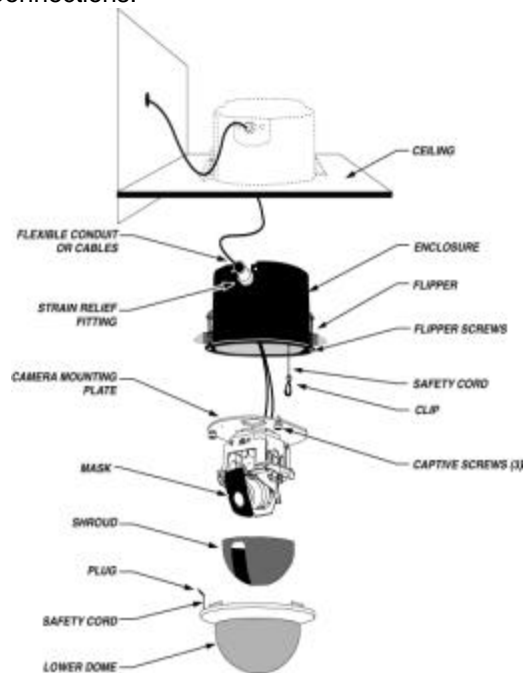


Figure 3
Mounting an In-Ceiling Installation with No Access Above the Ceiling



Figure 3A
Tie Wrap Location

Mounting from Above the Ceiling

Use this method of installation if there is access to the space above. The ceiling material must provide suitable strength to support the weight of the Surveyor2000 with the two flippers on the enclosure. Refer to the section on Optional Independent Support for installations requiring additional support. Be sure the area around the selected location is clear of obstacles (such as steel beams, headers, pipes, electrical wiring, etc.) that would interfere with mounting. Video, sync, and power cables must be routed to the location. Refer to Figure 4 when performing this installation.

1. Cut a 7-3/8 in. (187 mm) hole in the ceiling at the desired location. Remove tile from dropped ceiling if necessary. Feed all necessary flexible conduit pipe or cables down through the hole.
2. Lift the Surveyor2000 up to the ceiling and snap it into the hole. Turn and tighten the flipper screws for a flush fit.
3. Working above the ceiling, remove the enclosure top by loosening the 3 screws and lifting it off.
4. If cables are used without the use of flexible conduit:
 - a. Remove the conduit fitting by loosening the nut and sliding it out. Install the supplied strain relief fitting in its place and re-attach the top cover.
 - b. Route approximately 9 in. (229 mm) of cables through the strain relief fitting. Tighten the two (2) strain relief fitting screws to compress the cables. Do not overtighten the screws and crush the cables.

Note: *Connectors that do not fit through the strain relief fitting must be cut off and re-terminated after passing the cable through. BNC type connectors do not fit through the fitting and must be terminated later.*

4. If cables are channeled through flexible cable:
 - a. Route approximately 9 in. (229 mm) of conduit cables through the conduit fitting.
 - b. Insert the end of the flexible conduit pipe into the conduit fitting and tighten the clamp screw.

Note: *Connectors that do not fit through the conduit fitting must be cut off and re-terminated after passing the cable through. BNC type connectors do not fit through the fitting and must be terminated later.*

5. On 5-50 lens models, remove the tie wrap that secures the lens to the cradle. Refer to Figure 3A.

Continue with the section on Cable Connections.

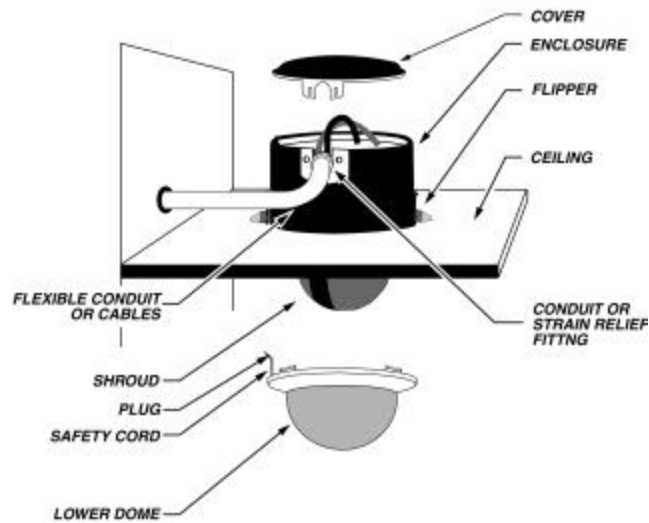


Figure 4
Mounting an In-Ceiling Installation with Access Above the Ceiling

Optional Independent Support

If it is necessary to provide independent support for the Surveyor2000 other than ceiling material, order the optional In-Ceiling Mount Model Kit, model S2000-MKT. It consists of a pre-assembled set of mounting rails and folding ring. Refer to Figure 5A.

1. With the 7-3/8-inch (187 mm) diameter hole cut in the ceiling tile and the tile replaced in the ceiling, push the folded assembly up through the hole and unfold.
2. Position the assembly squarely over the hole and fasten the caddy rail clips to the existing frame. Remove the adjacent tiles to access the clips.
3. Adjust the position of the caddy rail clips along the frame to obtain the best “X” position.
4. Slide the assembly along the caddy rails to obtain the best concentric “Y” position. Tighten the horizontal adjustment screws to secure the position.
5. With the ring concentric with the hole, slide the ring vertically along the support slots to obtain the best flush fit in the ceiling. The ring should be firmly seated against the tile without warping the tile. Refer to Figure 5B.
6. Complete the installation as described in the previous procedure. When using this kit, the flippers squeeze the mounting ring assembly for a snug fit.

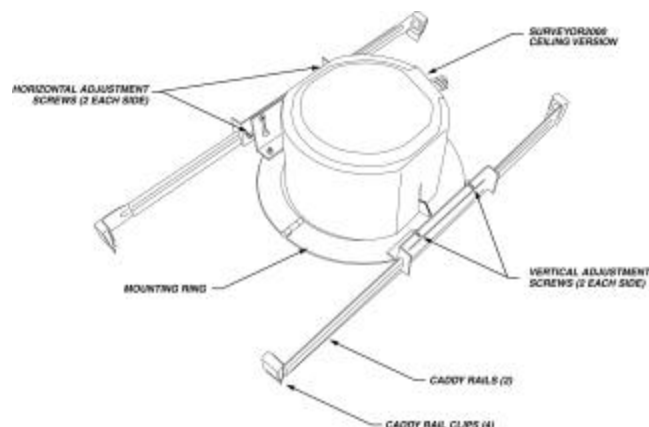


Figure 5A
Installation of Optional In-Ceiling Mounting Kit

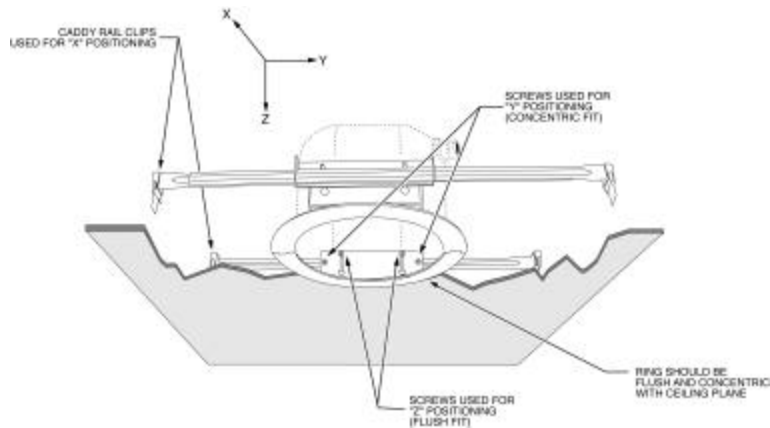


Figure 5B
Installation of Optional In-Ceiling Mounting Kit

Indoor Pendant

The indoor pendant model mounts on a Vicon mount or a 1.0-in. vertical pipe. The pipe is a standard 1.0-in. NPT type and must be oriented vertically so the Surveyor2000 can effectively hang from the pipe. The mount must provide a support of suitable strength for the housing and Surveyor2000 weight. Be sure the area around the selected location is clear of obstacles (such as steel beams, headers, pipes, electrical wiring, etc.) that would interfere with mounting. Video, sync, and power cables must be routed to the location. Refer to Figure 6 when performing this installation.

Note: The standard 1.0-inch pipe referred to in this manual has the actual dimensions of: outside diameter: 1.315 in. (33.4 mm); inside diameter: 1.049 in. (26.6 mm); wall thickness: 0.133 in. (3.38 mm) minimum (ANSI standard grade thickness).

1. Install the mount in accordance with the installation manual included with the mount or prepare the vertical 1.0-in. NPT pipe.
2. Feed all necessary cables through the back of the mount or out the end of the 1.0-in. NPT pipe, approximately 16 in. (406 mm) in length.
3. Lift the housing up to the mount or pipe and feed the cables through its top opening.
4. Place the housing onto the 1.0-in. pipe and screw clockwise, looking up at the housing. When it becomes snug, turn it an additional quarter-turn.
5. Verify that each cable drops from the pipe opening at least 16 in. (406 mm) in length.
6. Lift the Surveyor2000 up to the housing and attach the housing's safety cord to the Surveyor2000's latch. Allow the Surveyor2000 to hang from the housing.
7. Route each cable from the inside top of the housing down to the cable clamp on the enclosure and then comfortably over to its mating connector on the camera PC board. Add 1 in. (25 mm) of extra length to each cable for termination and cut them. The approximate length of each cable should be 13 - 16 in. (330 - 406 mm).
8. On 5-50 lens models, remove the tie wrap that secures the lens to the cradle. Refer to Figure 3A.

Continue with the section on Cable Connections.

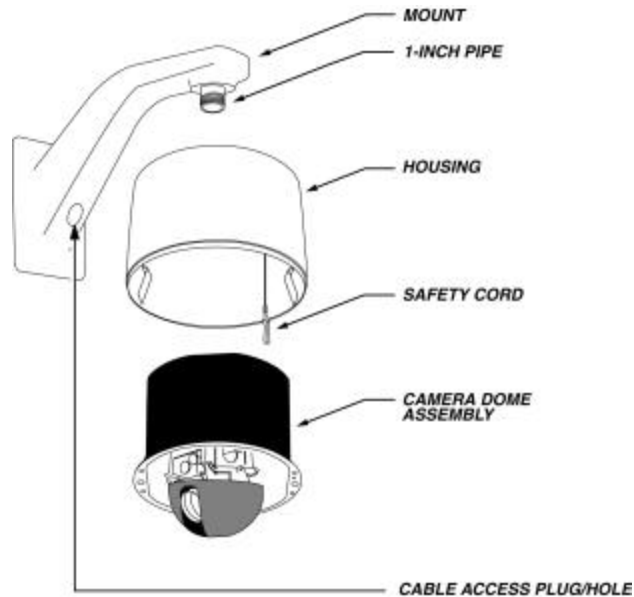


Figure 6
Indoor Pendant Installation

Outdoor Pendant

The outdoor pendant model mounts on a Vicon mount or a 1.0-in. vertical pipe. The outdoor version includes a sunshield, heater and weather protection. The mount must provide a support of suitable strength for the sunshield, housing and Surveyor2000 weight. Be sure the area around the selected location is clear of obstacles (such as steel beams, headers, pipes, electrical wiring, etc.) that would interfere with mounting. Video, sync, and power cables must be routed to the location. Refer to Figure 7 when performing this installation.

Note: The standard 1.0-inch pipe referred to in this manual has the actual dimensions of: outside diameter: 1.315 in. (33.4 mm); inside diameter: 1.049 in. (26.6 mm); wall thickness: 0.133 in. (3.38 mm) minimum (ANSI standard grade thickness).

1. Install the mount in accordance with the installation manual included with the mount or prepare the vertical 1.0-in. NPT pipe.
2. Feed all necessary cables through the back of the mount or out the end of the 1.0-in. NPT pipe, 16 in. (406 mm) in length.
3. Lift the sunshield and housing up to the mount or pipe and feed the cables through its top opening.
4. Tightly wrap approximately three turns of the supplied Teflon tape clockwise around the pipe, looking up at the pipe.

Note: Failure to apply the tape to the threads will result in moisture entering the housing and eventual failure of the Surveyor2000.

5. Place the housing onto the 1.0-in. pipe and screw clockwise, looking up at the housing. When it becomes snug, turn it an additional quarter-turn.
6. Verify that each cable drops from the pipe opening at least 16 in. (406 mm) in length.
7. Lift the Surveyor2000 up to the housing/sunshield and attach the housing's safety cord to the Surveyor2000's latch. Allow the Surveyor2000 to hang from the housing.
8. Route each cable from the inside top of the housing down to the cable clamp on the enclosure and then comfortably over to its mating connector on the camera PC board. Add 1 in. (25 mm) of extra length to each

cable for termination and cut them. The approximate length of each cable should be 13 - 16 in. (330 - 406 mm).

9. On 5-50 lens models, remove the tie wrap that secures the lens to the cradle. Refer to Figure 3A.

Continue with the section on Cable Connections.

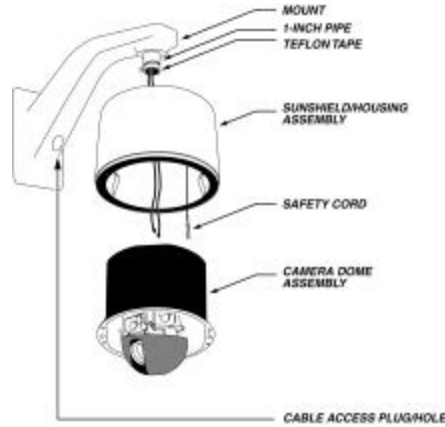


Figure 7
Outdoor Pendant Mount Installation

Cable Connections

Both power and video connections are made to the printed circuit board (PC board) mounted to the camera mounting plate. The PC board provides a board-mounted BNC connector for video and a removable three-position screw terminal connector for camera power. Refer to Figure 8 when performing these connections. Refer to Coaxial Cable Recommendation in the reference section. There is also a provision for adjusting the focus with the auxiliary video output port provided on the camera mounting plate. This adjustment should be performed during installation. Refer to Figure 10.

Coaxial Video Cable

Attach the male BNC connector on the video cable to the mating BNC connector on the PC board.

Camera Power Connections

Note: *Vicon systems and components, like most electronic equipment, require a clean, stable power source. Voltage irregularities such as surges, drops, and interruptions can affect the operation of your equipment and, in severe cases, damage certain components. Vicon strongly recommends the use of line conditioners, voltage regulators, and uninterruptible power supply (UPS) systems.*

⚠ Caution: *Surveyor2000 series cameras are "electrically" non-isolated. This means that the AC power input and the video output share a common ground connection. This common ground can cause the electrical phenomenon of ground looping. "Ground loops" only occur on "multiple camera installations" where a difference of ground potential exists between cameras, causing a base frequency (50 Hz/60 Hz) distortion on the video signal. It affects the video by causing horizontal line distortion, more commonly known as "hum bars".*



To eliminate ground loops on multi-camera installations, Vicon suggests the following in an installation:

Use an electrically-isolated, multiple-channel power supply. This supply type provides a separate output for each camera. These power supplies are available in several voltage and channel configurations.

Use a single-channel AC power supply for each camera. This power supply will provide the correct voltage and electrical isolation for one camera.

Use a 1:1 voltage isolation transformer for each camera. This type of transformer is connected to an existing AC power source and provides an isolated power source for the camera.

Power is connected through a three-position detachable screw terminal connector on the PC board (TB1). Refer to Figure 8. Pin 1 of the connector is identified by a "1" silkscreened on the PC board. Refer to Table 2 for the input power connections.

⚠ Caution: *Be sure to make pin connections correctly. Wrong pin connections will cause damage to the unit.*

1. Find the detachable power cable connector supplied on the PC board.
2. Strip approximately 1 in. (25 mm) of insulation off power cables. Then strip off approximately 0.25 in. (6 mm) of insulation off each individual wire. Attach the camera power cables to the connector according to Table 2. Pin 3 is provided for earth ground purposes, if required.
3. Press the cable connector onto the board connector. The connector is keyed to prevent incorrect installation.

The camera is shipped prepared for 24 VAC/24 VDC.

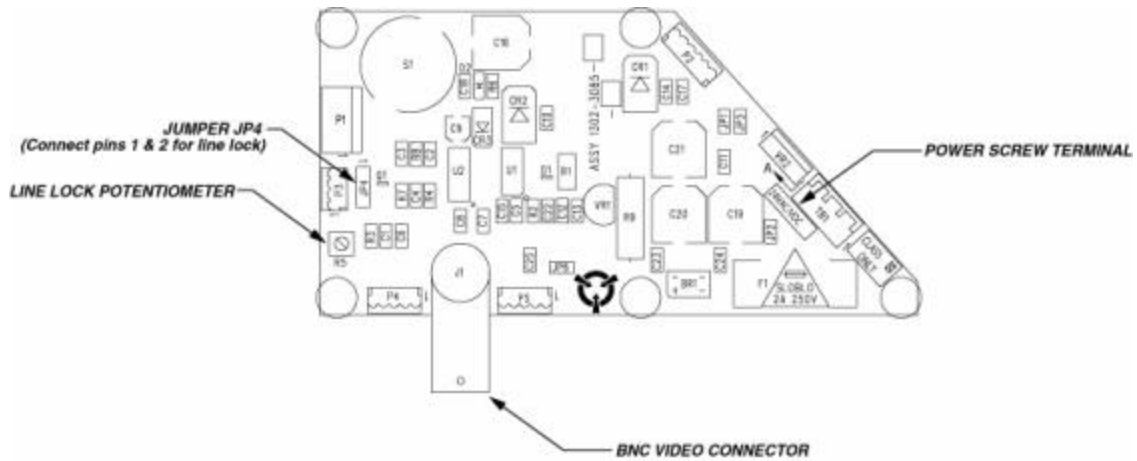


Figure 8
Camera/Lens PC Board

Table 2
Camera Power Connections

Pin Number	Function
1	24 VAC/VDC
2	24 VAC/VDC Return
3	Ground

Camera Synchronization

Camera synchronization is DIP switch selectable, line locked or internal. If there is more than one unit in a system, the cameras have to be synchronized to ensure there is no disruption of video display. Refer to Figure 9 for the location and setting of the switch.

A V-phase potentiometer on the PC board (R5) is supplied to adjust synchronization. Refer to Figure 8. The V-phase pot allows video to power line phase adjustment up to 180°. If more than 180° of adjustment is required, swap the lines attached to the 24 VAC terminal block connector. Be sure that the selector switch is set to position “LL” shown in Figure 9. With a small screwdriver (preferably plastic to avoid the risk of shorting out other internal components), turn the potentiometer on each PC board until the video images on the monitor are steady so there is no rolling or disruption of the display. Note that the performance of the camera’s line lock depends on the quality of the power source. If the camera experiences roll or jitter due to the quality of the power source, then it is best to set the camera to internal “crystal” mode. This is done by setting the selector switch to “INT.” as shown in Figure 9. **Important Note: If line lock is used, make sure a jumper is connected to pins 1 and 2 of JP4. If line lock is not required, no jumpers should be on JP4. Pins 2 and 3 of JP4 should not be used.**

Autoiris Adjustments

On autoiris lenses, iris adjustment may be required if the picture appears dark or grainy or has poor color. There is a potentiometer (VR1, located through the hole in the plate) on the camera board to adjust the autoiris. Use a small jeweler’s screwdriver to make adjustments. Turning the potentiometer opens and closes the iris to regulate light extremes. Turning the potentiometer clockwise opens the iris wider, allowing more light. Autoiris control is DIP switch selectable. Refer to Figure 9 for the location and setting of the switches and potentiometer.

Key: AI – External Autoiris; EE – Internal Autoiris; LL – Line Lock; INT. – Internal Synchronization

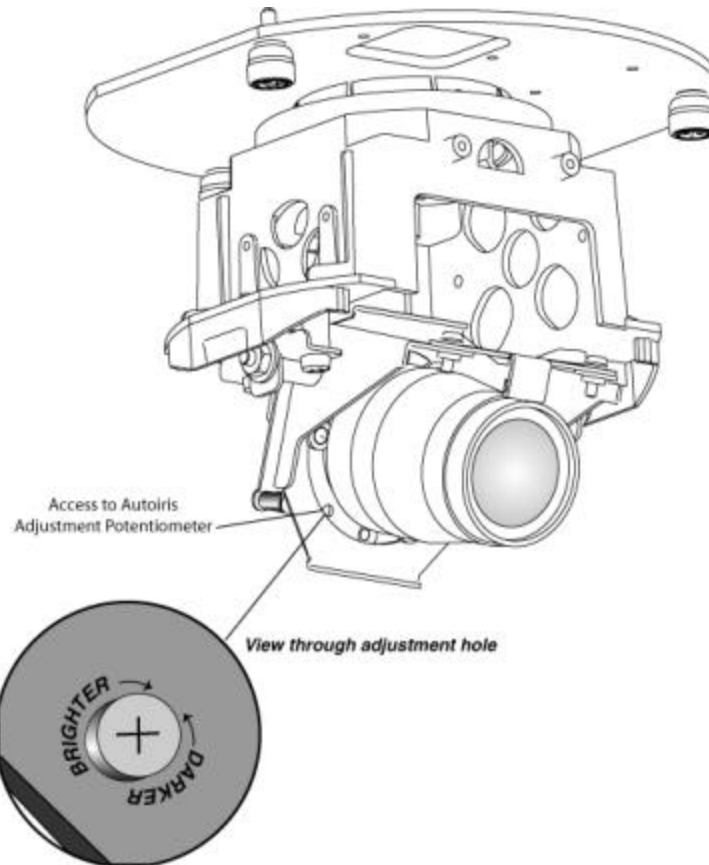
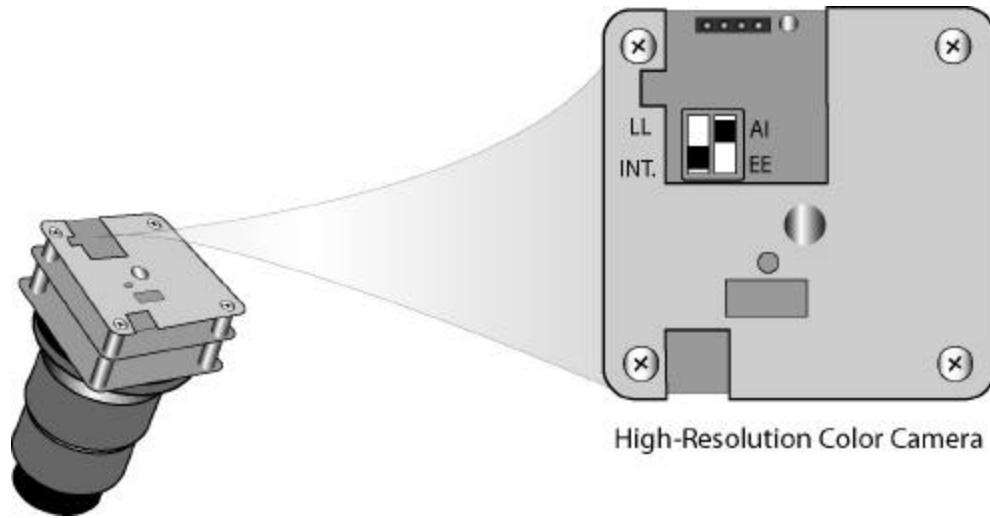


Figure 9
Switch Settings and Autoiris Adjustment

Final Installation

In-Ceiling

After all cabling is complete, reinstall the camera mounting plate if it was removed for no access to the ceiling from above installation. Align the holes in the mounting plate with the standoffs in the enclosure and tighten the three captive screws. The camera and lens can now be adjusted. Refer to Figure 10.

The camera position can be adjusted in three axes, horizontally (pan), vertically (tilt) and rotation about the lens axis (roll). Turn the camera mounting frame to point in the desired direction. The tilt position can also be adjusted. Loosen the two nuts, if necessary, on either side of the camera mounting frame (use an open end 11/32 wrench). Position the camera and retighten nuts. On units with the 3.5 - 8 mm lens, the camera mounting bracket position can be adjusted relative to the closeness to the dome by loosening the lock nuts and changing the vertical position of the camera mounting frame within the slots in the mounting bracket. The lens can be manually adjusted for iris, focus and angle of view. On some installations, the lens functions may be on the bottom of the lens and difficult to read. On the 5 - 50 mm lens, the telephoto/wide adjustment is the front ring, iris (open and close) is the middle ring and focus (near to infinity) is the end ring. On the 3.5 - 8 mm lens, focus (near to infinity) is the front ring, the telephoto/wide adjustment is the middle ring and iris (open and close) is the end ring. Refer to Figure 10. On autoiris lenses, there is no iris adjustment. In some installations, the picture may be "squared up" by rotating the lens about its own axis up to 360° (roll adjustment).

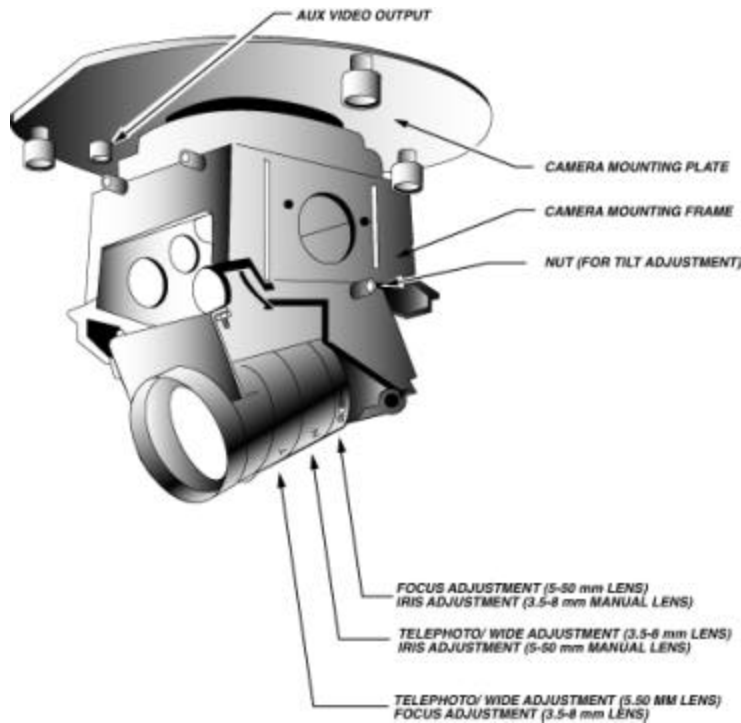


Figure 10
Camera/Lens Adjustments

When the camera and lens adjustments are complete, replace the foam mask over the camera/lens assembly. Lift the lower dome up to the Surveyor2000 and align the molded tabs on the lower dome with the recesses on the inner enclosure. Press the lower dome into the Surveyor2000 and verify that it snaps into place on both sides. The upper edge of the lower dome should be flush with the ceiling plane. Refer to Figure 11.

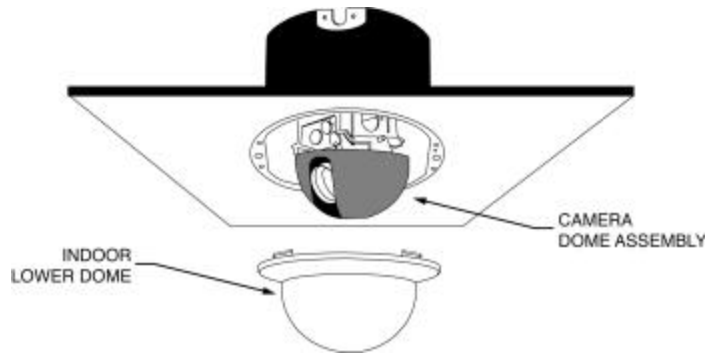


Figure 11
In-Ceiling Mount Final Installation

Indoor Pendant

After all the cabling is complete, push the Surveyor2000 straight up into the housing. Verify that the two (2) slots on the Surveyor2000 snap into the housing clips. Do not use excessive force. In the event that it does not snap easily, remove the Surveyor2000 and check that cabling is not preventing proper installation.

After the Surveyor2000 is in place, the camera/lens can be adjusted. The camera position can be adjusted horizontally and vertically and rotation about the lens axis (roll). Turn the camera mounting frame to point in the desired direction. The tilt position can also be adjusted. Loosen the two nuts, if necessary, on either side of the camera mounting frame (use an open end 11/32 wrench). Position the camera and retighten nuts. On the units with 3.5 - 8 mm lens, the camera mounting bracket position can be adjusted relative to the closeness to the dome by loosening the lock nuts and changing the vertical position of the camera mounting frame within the slots in the mounting bracket. The lens can be manually adjusted for iris, focus and angle of view. On some installations, the lens functions may be on the bottom of the lens and difficult to read. On the 5 - 50 mm lens, the telephoto/wide adjustment is the front ring, iris (open and close) is the middle ring and focus (near to infinity) is the end ring. On the 3.5 - 8 mm lens, focus (near to infinity) is the front ring, the telephoto/wide adjustment is the middle ring and iris (open and close) is the end ring. Refer to Figure 10. On autoiris lenses, there is no iris adjustment.

After the camera/lens is properly adjusted, install the mask over the camera/lens and the shroud; the lower dome can now be installed. Lift the lower dome up to the Surveyor2000 and press the safety cord plug into the hole provided on the inside of the enclosure to anchor the lower dome. Holding the lower dome, align the two (2) molded tabs on the lower dome with the recesses on the inner enclosure. Press the lower dome into the Surveyor2000 and verify that it snaps into place on both sides. Refer to Figure 12.

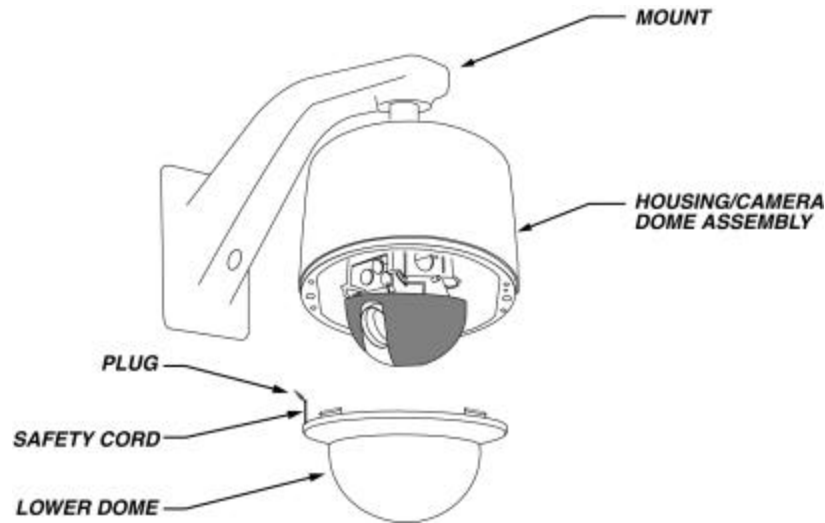


Figure 12
Pendant Mount Dome Installation

Outdoor Pendant

After all the cabling is complete, push the Surveyor2000 straight up into the housing. Verify that the two (2) slots on the Surveyor2000 snap into the housing clips. Do not use excessive force. In the event that it does not snap easily, remove the Surveyor2000 and check that cabling is not preventing proper installation.

After the Surveyor2000 is in place, the camera lens can be adjusted. The camera position can be adjusted horizontally and vertically and rotation about the lens axis (roll). Turn the camera mounting frame to point in the desired direction. The tilt position can also be adjusted. Loosen the two nuts, if necessary, on either side of the camera mounting frame (use an open end 11/32 wrench). Position the camera and retighten nuts. On the units with the 3.5 - 8 mm lens, the camera mounting bracket position can be adjusted relative to the closeness to the dome by loosening the lock nuts and changing the vertical position of the camera mounting frame within the slots in the mounting bracket. The lens can be manually adjusted for iris, focus and angle of view. On some installations, the lens functions may be on the bottom of the lens and difficult to read. On the 5 - 50 mm lens, the telephoto/wide adjustment is the front ring, iris (open and close) is the middle ring and focus (near to infinity) is the end ring. On the 3.5 - 8 mm lens, focus (near to infinity) is the front ring, the telephoto/wide adjustment is the middle ring and iris (open and close) is the end ring. Refer to Figure 10. On autoiris lenses, there is no iris adjustment.

After the camera/lens is properly adjusted, install the mask over the camera/lens and the shroud; the lower dome can now be installed. Lift the lower dome up to the Surveyor2000 and press the safety cord plug into the hole provided on the inside of the enclosure to anchor the lower dome. Holding the lower dome, align the two (2) molded tabs on the lower dome with the recesses on the inner enclosure. Press the lower dome into the Surveyor2000 and verify that it snaps into place on both sides. Tighten the four (4) trim ring screws to hold the lower dome in place. Verify proper orientation of the grommet. Refer to Figure 12.

Disassembly

The Surveyor2000 Fixed Camera Dome can be easily disassembled by removing the camera dome from the housing (pendant models) or the camera mounting plate from the enclosure (in-ceiling versions). A safety cord is always available to safely hang the camera mounting bracket or the camera dome assembly while assembling or disassembling. Refer to Figure 13.

In-Ceiling Installation

1. Gently pull down on the lower dome's outside edge, with two hands, until all molded tabs snap out of place.
2. Loosen the three (3) captive screws from the camera mounting plate and lower it from the ceiling. It will hang from the safety cord.
3. If it is necessary to completely remove the plate, disconnect the safety cord clip and all cables.

Pendant Installation

1. On outdoor version only, loosen the four (4) trim ring screws from the outdoor lower dome.
2. Gently pull down on the lower dome's outside edge, with two hands, until all molded tabs snap out of place.
3. Grasp the housing (sunshield/housing on outdoor model) at the base with both hands near the housing clips. Squeeze the housing clips outward until the Surveyor2000 is released.
4. Allow the Surveyor2000 to gently drop down until it is supported by the safety cord.
5. If it is necessary to completely remove the Surveyor2000, remove all cable connections and disconnect the clip on the end of the safety cord from the latch on the top of the enclosure.

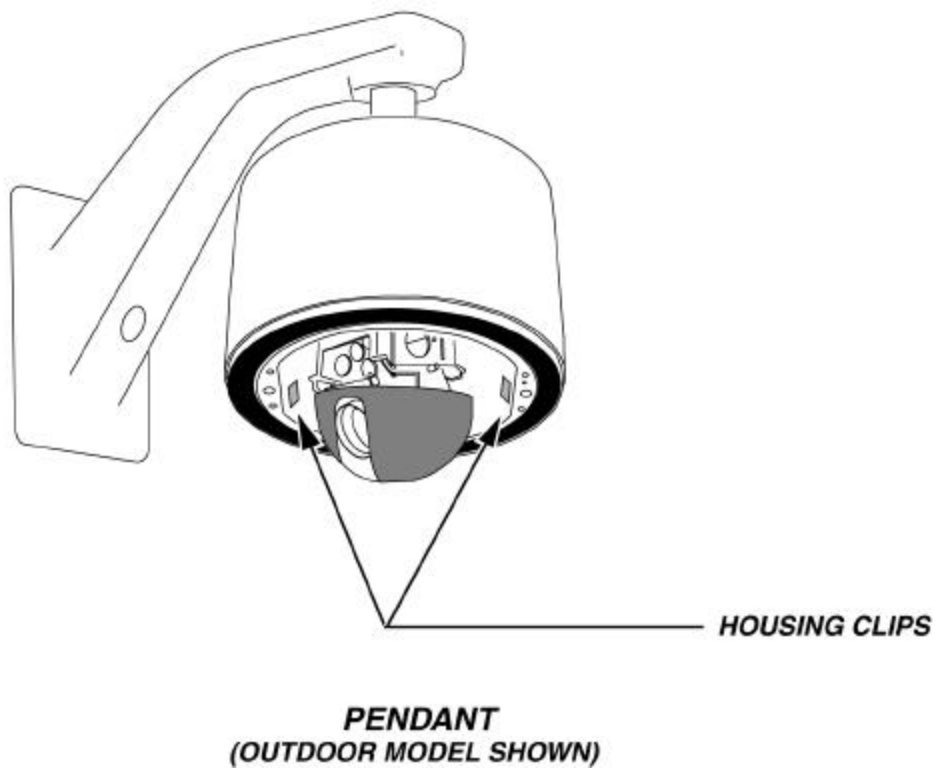
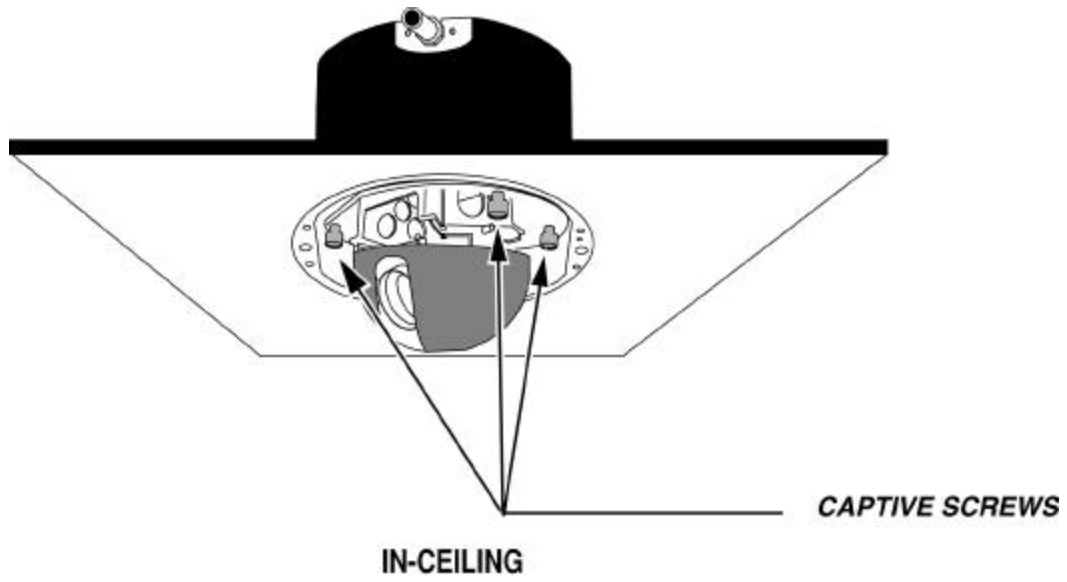


Figure 13
Disassembly

Operation

When power is applied to the camera, the Surveyor2000 fixed dome views the selected scene.

Maintenance

The Surveyor2000 Fixed Camera Dome requires no scheduled maintenance except for the occasional cleaning of the lower dome.

Care and Cleaning of Lower Dome

1. Always handle the lower dome by the flange and avoid touching the inside surface.
2. If dust or other contaminants accumulate in the dome's interior, they should be removed with clean dry air pressure (compressed air cans).
3. If spots, streaks or stains appear on the interior or exterior, they can be removed with a solution isopropyl alcohol and water using a microwave-safe (aluminum free) paper towel. Dry with clean, dry pressurized air.
4. Scratches or surface blemishes on the exterior or interior may be removed with a nonabrasive wax using a soft nonabrasive cleaning cloth. Either liquid or spray cleaner/wax suitable for fine furniture is acceptable.

▲ Caution: *Excessive rubbing of the dome's surface can cause permanent scratches that may render the dome unusable.*

5. Clean all surfaces with any soft nonabrasive cleaning cloth and cleaning agent suitable for acrylic plastic.

▲ Caution: *For warranty protection, implement this instruction exactly as stated.*

Fuse Replacement

There is a fuse located in the Surveyor2000. When necessary, replace it with a fuse of the same value, 0.5 A, 250 V, 5x20 mm slo blo for indoor version and 1.6 A, 250 V, 5x20 mm slo blo for outdoor version.

Shipping Instructions

Use the following procedure when returning a unit to the factory:

1. Call or write Vicon for a Return Authorization (R.A.) at one of the locations listed below. Record the name of the Vicon employee who issued the R.A.

Vicon Industries Inc.
89 Arkay Drive
Hauppauge, NY 11788
Phone: 631-952-CCTV (2288); Toll-Free: 1-800-645-9116; Fax: 631-951-CCTV (2288)

For service or returns from countries in Europe, contact:

Vicon Industries Ltd
Brunel Way
Fareham, PO15 5TX
United Kingdom
Phone: +44 (0) 1489 566300; Fax: +44 (0) 1489 566322

2. Attach a sheet of paper to the unit with the following information:
 - a. Name and address of the company returning the unit
 - b. Name of the Vicon employee who issued the R.A.
 - c. R. A. number
 - d. Brief description of the installation
 - e. Complete description of the problem and circumstances under which it occurs
 - f. Unit's original date of purchase, if still under warranty
3. Pack the unit carefully. Use the original shipping carton or its equivalent for maximum protection.
4. Mark the R.A. number on the outside of the carton on the shipping label.

Reference

Coaxial cables used to route video signals to and from the unit must meet the video recommendations in this section.

⚠ Caution: Careful selection of the proper cable is essential to obtain the best performance from this equipment. Vicor assumes no responsibility for poor performance when cables other than those recommended are installed. In all cases, coaxial cable impedance should be 75 ohms.

Materials

Use only cable with a pure copper center conductor. Do not use cable with either a copper-plated steel or an aluminum center conductor because these do not transfer signals effectively in the frequency range used in CCTV networks. A center conductor with low DC resistance is required for effective CCTV operation. Solid-core bare copper conductor is best suited to video applications, except where flexing occurs. If the coaxial cable will be subjected to flexing during normal use, select a cable with a stranded center conductor. The preferred dielectric material is cellular (foam) polyethylene. It has better electrical characteristics than solid polyethylene, but is more vulnerable to moisture. Therefore, use only solid polyethylene dielectric cable with a heavy exterior insulation in applications subject to moisture. The shield must be copper braid providing 95% or better coverage.

Cable Types

The most commonly used cable types are RG-59/U and RG-11/U. Each is actually a family of cables with widely varying electrical characteristics, some of which are not suitable for CCTV applications. Choose a cable type by referring to the characteristics and maximum distances listed below. The maximum distance for best picture refers to the distance between the camera and the unit. The characteristics of the cables in this table should be used as a guideline when cables other than Belden are used. Materials and construction must follow the guidelines above. Note that "BC" refers to bare copper and "TC" refers to tinned copper.

Recommended Coaxial Cable Types

Cable Type	Belden Type No.	Alpha Type No.	West Penn Type No.	Type Center Conductor	Type Shield and % Coverage	DC Resistance ohms per 1000 feet (km)
RG-11/U	8213	9847	811,4811	14 Solid BC	BC braid (95%)	2.6 (8.5)
RG-6/U	9248	9804C	806,4806	18 Solid BC	Foil + 61% TC braid (100%)	7.5 (24.6)
RG-59/U	8281	9803	815	20 Solid BC	2 TC braids (96%)	9.9 (32.5)
RG-59/U	9259	----	816	22 Stranded BC	BC braid (95%)	15.0 (49)
RG-59/U	9659	----	----	22 Stranded BC	BC braid (95%)	15.0 (49)

Picture Quality vs Cable Length

Picture Quality	Maximum Cable Run* ft (m)		
	RG-59/U	RG-6/U	RG-11/U
Usable picture	1100 (350)	1500 (450)	2400 (750)
Clean picture	820 (250)	1000 (300)	1600 (500)
Best picture	400 (120)	530 (160)	820 (250)

* For longer cable runs, refer to the Product Specifications for Video Amplifiers.

Technical Information

ELECTRICAL

Input Voltage: 24 VAC/VDC.

Power Consumption: Indoor: 7 W.
Outdoor: 32 W.

Heat Equivalent: Indoor: 0.4 btu/min (0.1 kg-cal/min).
Outdoor: 1.8 btu/min (0.46 kg-cal/min).
Note: These figures represent the conversion of 100% of the electrical energy to heat. Actual percentage of heat generated will be less and will vary from product to product. These figures are provided as an aid in determining the extent of cooling required for an installation.

Connectors: Power: 3-pin removable screw terminal (TB1).
Video: BNC.

Fuse: Indoor: 0.5 A, 250 V, 5x20 mm slo blo.
Outdoor: 1.6 A, 250 V, 5x20 mm slo blo.

Radio Frequency Emission Rating: FCC Class A.

CAMERA/LENS

Specifications: Refer to Table 3.

OPERATIONAL

Tilt and Horizontal Adjustment: 3 axis adjustment, pan (360°) tilt (95°) and roll (lens may be rotated on its axis 360°).

MECHANICAL

Application: Indoor and outdoor models.

Mounting: In-ceiling and pendant models.

Dimensions:

In-Ceiling
Height: 8.8 in. (223 mm).
Total Diameter: 7.1 in. (180 mm).
Dome Diameter: 5.9 in. (150 mm).

Indoor Pendant
Height: 9.4 in. (239 mm).
Total Diameter: 8.0 in. (203 mm).
Dome Diameter: 5.9 in. (150 mm).

Outdoor Pendant
Height: 9.3 in. (236 mm).
Total Diameter: 9.0 in. (228 mm).
Dome Diameter: 5.9 in. (150 mm).

Weight: Approximately 2.5 lb (1.1 kg).

Construction: Plastic, aluminum and steel.

Finish: Painted black enclosure, smoked (gray tint) (indoor) or clear (outdoor) lower dome.

ENVIRONMENTAL

Operating Temperature

Range: Indoor: 35 to 122° F (2 to 50° C).
Outdoor: -40 to 122° F (-40 to 50° C).

Operating Humidity: Indoor: Up to 90% relative, noncondensing.
Outdoor: Up to 100% relative, noncondensing.

Storage Temperature

Range: -40 to 150° F (-40 to 65° C).

Storage Humidity: Up to 90% relative, noncondensing.

Wind Load: Outdoor: heavy rain or snow driven by winds up to 80 mph.

**Table 3
Camera Specifications**

Model	Image Device	Color / Mono	Resolution (TV lines)	Sensitivity fc (lux)	Synchronization	Electronic Iris (sec)	Signal-to-Noise Ratio
S2000FC-IC358/ S2000FC-IC358C	1/3" CCD, 2:1 interlace, NTSC/PAL	Color	460	0.019 (0.2)*	Internal/Line lock DIP switch selectable	1/60 – 1/100,000	>48 dB (AGC off)
S2000FC-P358/ S2000FC-P358C	1/3" CCD, 2:1 interlace, NTSC/PAL	Color	460	0.019 (0.2)*	Internal/Line lock DIP switch selectable	1/60 – 1/100,000	>48 dB (AGC off)
S2000FCA-W358/ S2000FCA-W358C	1/3" CCD, 2:1 interlace, NTSC/PAL	Color	460	0.019 (0.2)*	Internal/Line lock DIP switch selectable	1/60 – 1/100,000	>48 dB (AGC off)
S2000FC-IC550/ S2000FC-IC550C	1/3" CCD, 2:1 interlace, NTSC/PAL	Color	460	0.019 (0.2)*	Internal/Line lock DIP switch selectable	1/60 – 1/100,000	>48 dB (AGC off)
S2000FC-P550/ S2000FC-P550C	1/3" CCD, 2:1 interlace, NTSC/PAL	Color	460	0.019 (0.2)*	Internal/Line lock DIP switch selectable	1/60 – 1/100,000	>48 dB (AGC off)
S2000FCA-W550/ S2000FCA-W550C	1/3" CCD, 2:1 interlace, NTSC/PAL	Color	460	0.019 (0.2)*	Internal/Line lock DIP switch selectable	1/60 – 1/100,000	>48 dB (AGC off)

*At 25 IRE, f/1.2.

Lens Specifications

Model	Focal Length (mm)	Field- of- View	
		Horizontal	Vertical
S2000FC-IC358/ S2000FC-IC358C	3.5-8 varifocal with manual iris	77.6° 35.4°	57.6°- 26.6°
S2000FC-P358/ S2000FC-P358C	3.5-8 varifocal with manual iris	77.6° 35.4	57.6°- 26.6°
S2000FCA -W358/ S2000FCA -W358C	3.5-8 varifocal with manual iris	77.6° 35.4	57.6°- 26.6°
S2000FC-IC550/ S2000FC-IC550C	5-50 varifocal with manual iris	51.8°- 5.6°	-
S2000FC-P550/ S2000FC-P550C	5-50 varifocal with manual iris	51.8°- 5.6°	-
S2000FCA -W550/ S2000FCA -W550C	5-50 varifocal with manual iris	51.8°- 5.6°	-

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