



INSTRUCTION MANUAL

**VSE-2300 &
VSE-2400 SERIES**

Cylindrical Environmental Camera Housings



About this manual

Before installing and using this unit, please read this manual carefully. Be sure to keep it available for later reference.

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.

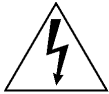

An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



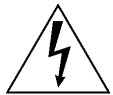
8. Ventilation - Openings in the enclosure, if any, are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. This unit should not be placed in a built-in installation unless proper ventilation is provided 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. 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.
Alternately, 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.
11. 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.

12. 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.
13. Overloading - Do not overload outlets and extension cords as this can result in a risk of fire or electric shock.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.

SAFETY PRECAUTIONS

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

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

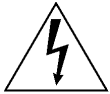



The lightning flash with an arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



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.

SECURITE

	ATTENTION RISQUE D'ÉLECTROCUTION. NE PAS OUVRIR	
<p>DANGER: POUR ÉVITER TOUT RISQUE D'ÉLECTROCUTION, NE PAS OUVRIR LE BOÎTIER. IL N'Y A PAS DE PIÈCES REMPLAÇABLES À L'INTÉRIEUR. POUR TOUTE RÉVISION, S'ADRESSER À UN TECHNICIEN SPÉCIALISÉ.</p>		

En raison de limitation de place, cette étiquette peut être placée sur le dessous de l'appareil.



L'éclair fléché dans un triangle équilatéral, avertit l'utilisateur de la présence d'une "tension dangereuse" non isolée à l'intérieur de l'appareil et d'une valeur suffisante pour constituer un risque d'électrocution.



Le point d'exclamation contenu dans un triangle équilatéral, avertit l'utilisateur de la présence, dans la documentation qui accompagne l'appareil, de consignes d'utilisation et de maintenance importantes.

SICHERHEITSVORKEHRUNGEN

	VORSICHT STROMSCHLAGEFAHR! BITTE NICHT ÖFFNEN!	
<p>VORSICHT: UM EINEN ELEKTRISCHEN SCHLAG ZU VERMEIDEN, ABDECKUNG NICHT ENTFERNEN. WARTUNGEN ALLER ART QUALIFIZIERTEM PERSONAL ÜBERLASSEN.</p>		

Aus Platzgründen kann diese Warnung auf der Unterseite des Gerätes angebracht sein.

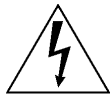



Das Blitzsymbol im gleichseitigen Dreieck soll den Benutzer auf nicht isolierte "Hochspannung" im Gehäuse aufmerksam machen, die eventuell stark genug ist, um einen elektrischen Schlag zu verursachen.



Das Ausrufezeichen im gleichseitigen Dreieck soll den Benutzer auf wichtige Bedienungs- und Wartungsanleitungen in der dem Gerät beigelegten Literatur aufmerksam machen.

PRECAUCIONES DE SEGURIDAD

	PRECAUCION RIESGO DE CHOQUE ELECTRICO. ¡NO ABRIR!	
<p>PRECAUCION: PARA REDUCIR EL RIESGO DE CHOQUE ELÉCTRICO, FAVOR NO ABRIR LA CUBIERTA. ESTE EQUIPO NO CONSTA DE PIEZAS O PARTES QUE REQUIEREN SERVICIO O MANTENIMIENTO. PARA REPARACIONES FAVOR REFERIRSE A UN TÉCNICO CALIFICADO.</p>		

Debido a limitaciones de espacio, esta etiqueta puede aparecer en la parte inferior de la unidad.



El símbolo representado por un relámpago con punta de flecha dentro de un triángulo equilátero, se muestra con el objetivo de alertar al usuario que existen "voltajes peligrosos" sin aislamiento, dentro de la cubierta de la unidad. Dichos voltajes pueden ser de tal magnitud que constituyen un riesgo de choque eléctrico a personas.



El símbolo de exclamación dentro de un triángulo equilátero, se muestra con el objetivo de alertar al usuario de que instrucciones de operación y mantenimiento importantes acompañan al equipo.

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I UNPACKING

Unpack carefully. This is mechanical equipment and should be handled with care.

Check for the following:

- Housing (with correct model number).
- Hardware Kit - VSE-2300 Series Models:
 - 1 1/4-20 x 3/8-in Button Head Screw.
 - 2 1/4-20 x 1/2-in Button Head Screw.
 - 2 1/4-in Spring Washers.
 - 1 5/16-in Flat Washer.
 - 2 Fittings, 3/8-in NPT.
 - 2 Rubber Plug, 1/2-in NPT.
 - 1 Nut, 3/8-in NPT.
 - 2 Fittings, 1/2-in NPT.
 - 2 Nut, 1/2-in NPT.
 - 1 Spacer Block.
- Hardware Kit - VSE-2400 Series Models:
 - 1 1/4-20 x 3/8-in Button Head Screw.
 - 3 1/4-20 x 1/2-in Button Head Screw.
 - 1 1/4-20 x 5/8-in Button Head Screw.
 - 1 1/4-20 x 3/4-in Button Head Screw.
 - 1 1/4-20 x 7/8-in Button Head Screw.
 - 2 1/4-in Spring Washers.
 - 1 5/16-in Flat Washer.
 - 2 Fittings, 3/8-in NPT.
 - 2 Rubber Plug, 1/2-in NPT.
 - 1 Rubber Plug, 3/8-in NPT.
 - 1 Nut, 3/8-in NPT.
 - 2 Fittings, 1/2-in NPT.
 - 2 Nut, 1/2-in NPT.
 - 4 Spacer, 0.4 mm.
 - 4 Spacer, 3.2 mm.

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, contact Sanyo.

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 Sanyo Technical Support 1-(888)-66SANYO.

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

Cylindrical Environmental Camera Housings

Model Number: VSE-2300 and VSE-2400 Series

Highlights:

- For 1/4-inch, 1/3-inch, and 1/2-inch CCD Cameras
- Available in Multiple Sizes
- Aluminum and Advanced Polymer Construction
- Easy Installation & Full Camera Accessibility
- Feed-through Wiring Option through the Mounting Base
- Liquid Tight Fittings on Rear of Housing
- Multiple Mounting Configurations Available
- Available with Preinstalled Heater or a Preinstalled Heater & Blower
- Heater/Blower Combination Minimizes fogging and Extends Temperature Limits
- NEMA 4 and IP65 Weatherproofing Standards

ELECTRICAL SPECIFICATIONS

Model Number	Preinstalled Heater or Heater/Blower ¹	Voltage/Power (V/W)
VSE-2300	---	
VSE-2300H	Heater	24/23
VSE-2300HB	Heater/Blower	24/25
VSE-2400	---	
VSE-2400H	Heater	24/23
VSE-2400HB	Heater/Blower	24/25

1. The heaters and blowers for all models operate 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.

MECHANICAL SPECIFICATIONS

Model Number	Maximum Camera and Lens	Weight
VSE-2300	2.68 W x 2.1 H x 10.5 L in (68 x 54 x 267 mm)	~4 lbs. (1.8 kg)
VSE-2300H	2.68 W x 2.1 H x 10.5 L in (68 x 54 x 267 mm)	~4 lbs. (1.8 kg)
VSE-2300HB	2.68 W x 2.1 H x 8.5 L in (68 x 54 x 216 mm)	~4 lbs. (1.8 kg)
VSE-2400	2.8 W x 2.8 H x 11 L in (71 x 71 x 279 mm)	~5 lbs. (2.3 kg)
VSE-2400H	2.8 W x 2.8 H x 11 L in (71 x 71 x 279 mm)	~5 lbs. (2.3 kg)
VSE-2400HB	2.8 W x 2.8 H x 9 L in (71 x 71 x 229 mm)	~5 lbs. (2.3 kg)

Cable Entry:

VSE-2300 Series housings have two liquid tight rear fittings that accept cable diameters from 0.17 in to 0.47 in (4.3 mm to 11.9 mm). Two bottom feed-through liquid tight fittings accept cable diameters from 0.18 in to 0.31 in (4.6 mm to 7.9 mm).

VSE-2400 Series housings have three liquid tight rear fittings, two of which accept cable diameters from 0.17 in to 0.47 in (4.3 mm to 11.9 mm) and one that accepts cable diameters from 0.18 in to 0.31 in (4.6 mm to 7.9 mm). Two bottom feed-through liquid tight fittings accept cable diameters from 0.18 in to 0.31 in (4.6 mm to 7.9 mm).

Window: 0.12 in (3 mm) thick UV-stabilized polycarbonate.

Housing Mounting: Four (4) available 1/4-20 tapped holes. Only one set of two is required for mounting.

Camera Mounting: Removable camera bracket. Mounted with two screws.

Construction: Aluminum cover, aluminum base, aluminum mounting foot, polycarbonate faceplate, glass reinforced polycarbonate end caps, neoprene gasket, ethylene propylene seal, and all stainless steel hardware.

Finish: Gray

ENVIRONMENTAL & SAFETY SPECIFICATIONS:

Temperature: At external temperature of -40 °F to 122 °F (-40 °C to 50 °C) maintains internal temperatures between -4 °F to 131 °F (-20 °C and 55 °C) with heater/blower.

Salt Atmosphere: MIL-STD-810E, Method 509, Procedure 1.

Enclosure Protection: IP65, Designed to meet NEMA 4.

Safety: UL, cUL, CE.

5 ACCESSORIES:

SUNSHIELDS:

Provides protection from the direct rays of sun and promotes cooling to reduce internal housing temperatures. Strongly recommended for housing to be used outdoors.

VSE-SS2300: For VSE-2300 Series housings.

VSE-SS2400: For VSE-2400 Series housings.

MOUNTS:

MTS-2000 Mount Wall Mount: Feed-through mount attached to the foot of housing for VSE-2300 & VSE-2400 Series housings.

MTS-2030 J-mount: Feed-through J-mount for VSE-2300 & VSE-2400 Series housings allows housing to be mounted from ceiling.

MTS-2040 Pole Mount Adapter: For use with MTS-2000 Wall Mount.

MTS-2050 Pedestal Mount: 8-inch feed-through mount for the VSE-2300 & VSE-2400 Series housings.

Tamperproof Kit: Contains tamper resistant screws and bit key to tamperproof up to five housings. Call factory.

6 INSTALLATION

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

6.1 TOOLS REQUIRED

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

6.2 CABLE REQUIREMENTS

VIDEO TRANSMISSION (COAXIAL)

Cable Type:	RG-59/U for runs < 300 m (1000 ft). RG-11/U for runs < 600 m (2000 ft).
Cable Size:	Outside diameter between 4.6 mm (0.181-in)–7.9 mm (0.312-in).
Cable Shape:	Round.
Shield:	≥ 93% Braided copper shield.
Center Conductor:	Stranded copper center.
DC Resistance:	≤ 15 Ohms/1000 (RG-59/U). ≤ 6 Ohms/1000 (RG-11/U).
Cable Impedance:	75 Ohm.
Agency Rating:	UL.
Environmental:	Outdoor rated.
Temperature Rating:	≥ 80 °C.
Sources:	Belden 9259. Belden 9238.

INPUT POWER CORD - NORTH AMERICAN

Cable Type:	SJTOW-A rated.
Cable Size:	Outside diameter between 4.3 mm (0.170 in)–11.9 mm (0.470 in).
Cable Shape:	Round.
Conductors:	3 conductor version and 2 conductor version.
Agency Rating:	UL/C.S.A., UL VW-1.
Environmental:	Outdoor rated.
Temperature Rating:	105 °C.
Voltage Rating:	300 V.
Sources:	Belden 19506. Belden 19509. Northwire 573939.

LENS CONTROL CABLE

Cable Type:	Jacketed multiconductor cable.
Cable Size:	Outside diameter between 4.3 mm (0.170 in)–11.9 mm (0.470 in).
Cable Shape:	Round.
Shield:	Overall shielding.
Conductors:	Stranded 20 to 16 AWG wire.
No. of Conductors:	4 and 8.
Conductor Insulation:	Color coded.
Sources:	Belden 9552. Belden 9554.

6.3 Housing Mounting

1. Use the two 1/4-20 x 0.50-inch screws and 1/4-inch spring washers provided in the hardware kit to mount the housing to a mount or a pan/tilt. The spring washers must be used for the screws to thread properly.
2. The outermost set of 1/4-20 threaded holes are for mounting to feed-through mounts and the innermost 1/4-20 holes are for mounting to all other mounts and pan/tilts.

6.4 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 1**.

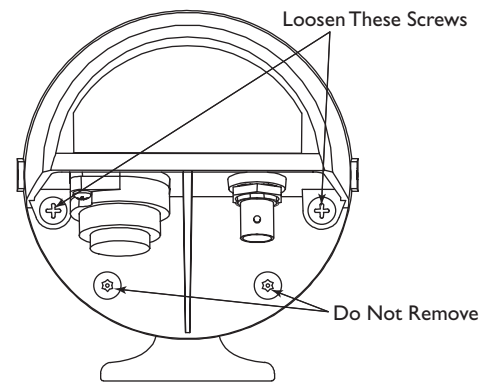


Figure 1: Loosening Captive Screws

2. 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 2**.

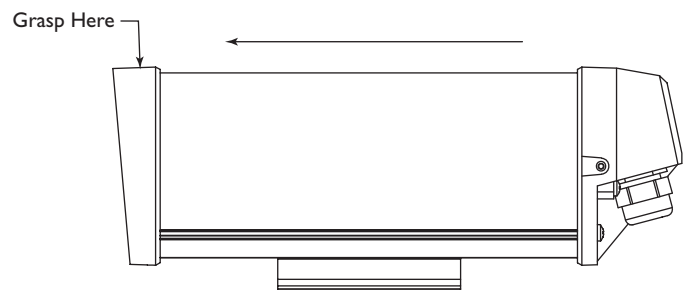


Figure 2: Removing the Cover

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

6.5 Camera/Lens Installation

1. Loosen the two screws holding the camera bracket to the base. It is not necessary to remove them completely. See **Figure 3**.

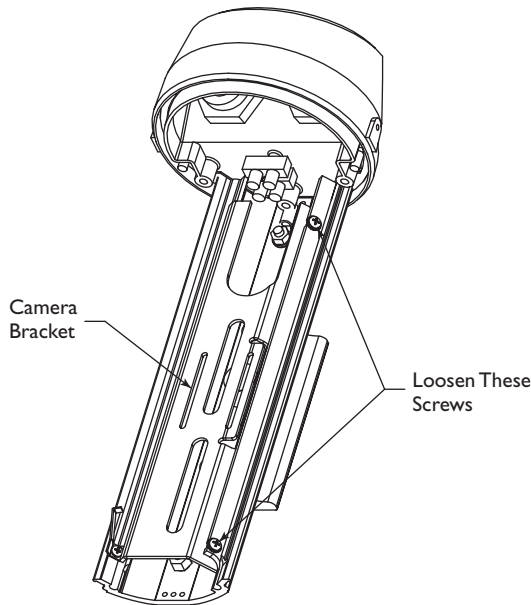


Figure 3: Removing the Camera Bracket

2. Remove the camera bracket from the base. If you are using the feed-through feature, refer to **Section 6.8.3** at this time.

Mounting fixed lens cameras in VSE-2300 and VSE-2400 Series Housings.

1. Attach the lens to the camera.
2. Use the 1/4-20 x 3/8-inch screw to mount the camera to the camera bracket. The lens should extend approximately 6 mm (0.25-inch) from the front of the camera bracket. See **Figure 4**.

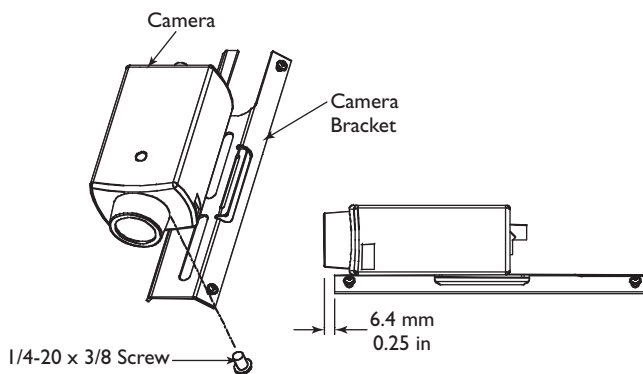


Figure 4: Attaching the Camera

VSE-2400 Series:

3. Attach the lens to the camera.
4. Use the various 1/4-20 screws and spacers provided to mount the camera and the lens to the camera bracket.

6.6 Camera/Lens Wiring



WARNING: Only use the cables specified under "INSTALLATION, Cable Requirements" for wiring of all cameras and lenses.

6.6.1 Fittings

1. 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.

6.6.2 Conduit

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

1. 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.

6.6.3 Feed-through Wiring

These housings have the capability of having the cabling feed through the foot of the housing. This requires the use of feed-through mounts like the MTS-2000, or MTS-2030 J-mount.

1. Prior to mounting the camera. Remove the two dome plugs located inside the housing. See **Figure 7**.

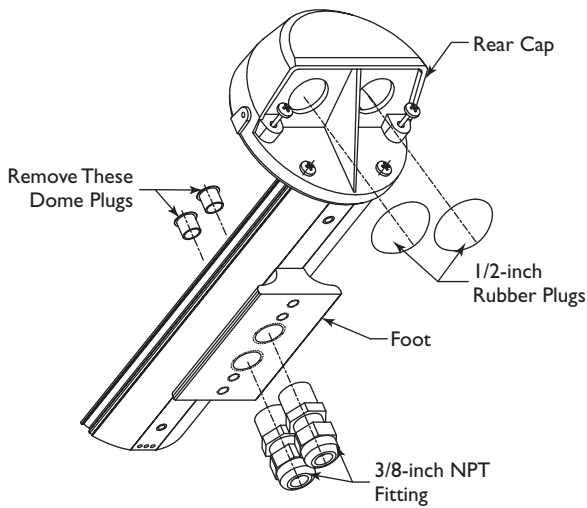


Figure 7: Feed-through Wiring

2. Screw the two 3/8-inch NPT fittings into the foot of the housing.
3. 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.
4. Attach the foot to the top bracket of the mount.
5. Cover the holes in the rear cap with the rubber plugs provided. Push in until flush and then release.

6.6.4 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 cameras, use the chart below for selecting the proper wire size.

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

Wire Size		Housing meters	Distance feet
mm ²	AWG		
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. Install one of the large 1/2-inch NPT fittings into one of the holes in the rear cap. The terminal block side is preferable. If you are using the feed-through option, ignore this step.
2. Route the power cable through the fitting in the rear cap or one of the feed-through fittings in the foot.

3. The terminal block provided on /x0 units accepts wire ranging from 20 to 14 AWG or 1.5 mm². The terminal block provided on /x1 units accepts wire ranging from 18 to 12 AWG or 2.5 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.
4. A screw/terminal lug is provided for securing a safety ground. To attach the safety grounding wire (green 115 volt, green/yellow 230 volt), first unscrew the terminal lug and strip and crimp the grounding wire into the lug. Attach the terminal lug to the bracket using the M4 x 10 screw provided. See **Figure 8**.

Figure 8: Power Connections - Nonfan Units

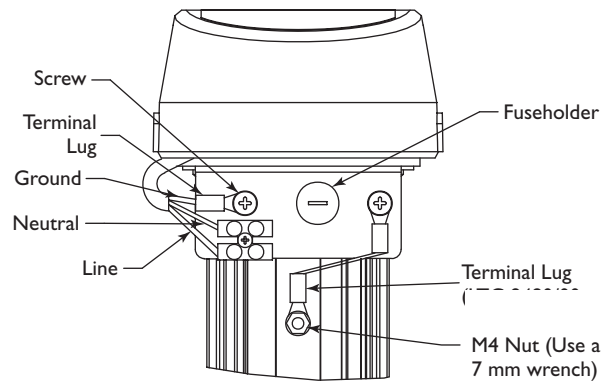
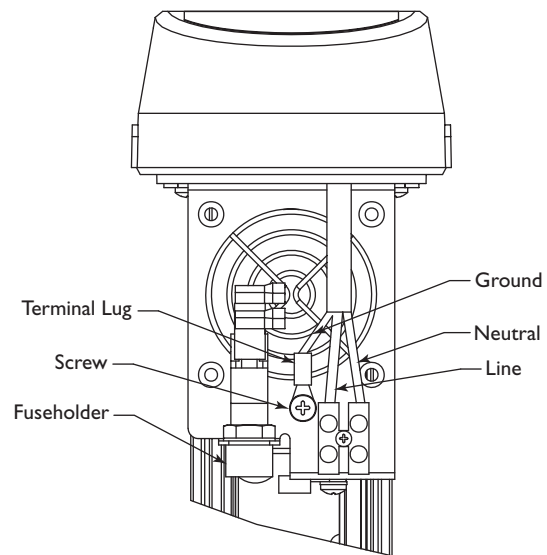


Figure 9: Power Connections - Fan Units



5. 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.

6. Connect the supply power wires to the left side or the top side of the terminal block provided. 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.
7. Cut the camera power cord, leaving enough cable to allow connection to the terminal block. 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. Connect these wires to the left side or the top side of the terminal block.
8. On heater and heater/blower units, make sure the heater and fan wires stay connected to the terminal block.

6.7 Video Coax Connection

WARNING: Only use the cables specified under "INSTALLATION, Cable Requirements" for wiring of the video coax connection.



1. For VSE-2300 versions, install a 1/2-inch NPT fitting into the remaining hole in the rear cap. For VSE-2400 versions, install a 3/8-inch NPT fitting through the center small hole of the rear cap.
2. Route the video coax cable through one of the fittings installed in step 1 or one of the feed-through fittings in the base.
3. Attach BNC connector to the coax and connect it to the camera. 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 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.

6.8 Lens Wiring



WARNING: Only use the cables specified under "INSTALLATION, Cable Requirements" for wiring of the lens.

1. Install the last 1/2-inch NPT fitting into the remaining hole in the rear cap. Zoom lenses can only be installed into VSE-2400 housings.
2. **If installing a zoom lens**, insert the lens control cable through the last fitting at the rear of the housing. Attach the lens wiring to the lens mating connector and connect it to the lens. If mating connector is not available, connect directly to the lens cable. 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 result in water damage to all electronic parts.

NOTE: See specification on lens cord for correct plug connection.



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.

3. **If using a pan/tilt with a feed-through cable**, insert the camera/lens function cable in through the left fitting at the rear of the cradle. Wire the functions as described above or as needed.



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

6.9 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.

6.10 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 10.**

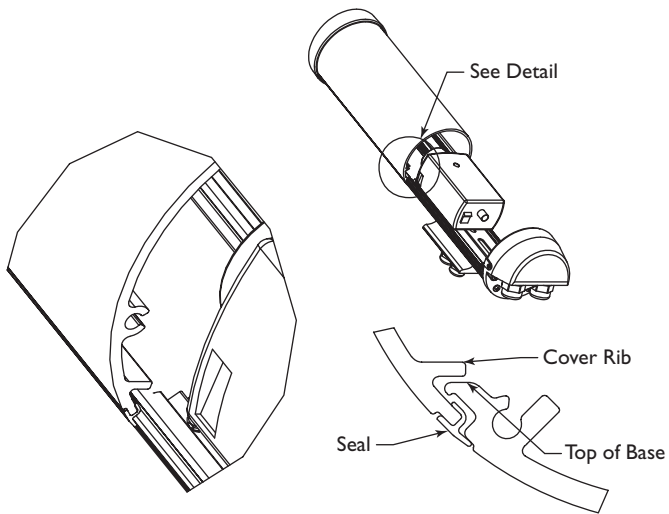


Figure 10: Reinstalling the Cover

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.

6.11 Fuse Replacement

1. To replace a fuse, take a flat blade screwdriver and twist the top of the fuseholder counterclockwise about a quarter of a turn. The fuse is spring loaded so it will eject.
2. Replace the fuse with a fuse that has the same current rating. The fuse is a 5x20 mm slow blow cartridge type fuse. Littelfuse Series 218 are recommended.

**SANYO INDUSTRIAL VIDEO
HOUSINGS OR INTEGRATED CAMERA/LENS/HOUSING PACKAGES**

OBLIGATIONS

In order to obtain warranty service, the product must be delivered to and picked up from an Authorized Sanyo Service Center at the user's expense, unless specifically stated otherwise in this warranty. The names and addresses of Authorized Sanyo Service Centers may be obtained by calling the toll- free number listed below.

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