AutoDome Pendant Arm Mount

VGA-A-PA0 | VGA-A-PA1 | VGA-A-PA2

BOSCH

en Installation Guide

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1 Important Safety Instructions

Read, follow, and retain all of the following safety instructions. Heed all warnings on the unit and in the operating instructions before operation.

1.1 Safety precautions

Danger!

High risk: This symbol indicates an imminently hazardous situation such as “Dangerous Voltage” inside the product.

If not avoided, this will result in an electrical shock, serious bodily injury, or death.

Warning!

Medium risk: Indicates a potentially hazardous situation.

If not avoided, this could result in minor or moderate bodily injury.

Caution!

Low risk: Indicates a potentially hazardous situation.

If not avoided, this could result in property damage or risk of damage to the unit.

Notice!

This symbol indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

1.2 Important safety instructions

Read, follow, and retain for future reference all of the following safety instructions. Heed all warnings on the unit and in the operating instructions before operating the unit.

1. **Cleaning -** Unplug the unit from the outlet before cleaning. Follow any instructions provided with the unit. Generally, using a dry cloth for cleaning is sufficient but a moist, fluff-free cloth or leather shammy may also be used. Do not use liquid cleaners or aerosol cleaners.
2. **Water -** Do not use this unit near water, for example near a bathtub, washbowl, sink, laundry basket, in a damp or wet basement, near a swimming pool, in an outdoor installation, or in any area classified as a wet location. To reduce the risk of fire or electrical shock, do not expose this unit to rain or moisture.
3. **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 electrical shock. Never spill liquid of any kind on the unit. Do not place objects filled with liquids, such as vases or cups, on the unit.
4. **Power cord and plug protection -** Protect the plug and power cord from foot traffic, being pinched by items placed upon or against them at electrical outlets, and its exit from the unit. For units intended to operate with 230 VAC, 50 Hz, the input and output power cord must comply with the latest versions of *IEC Publication 227* or *IEC Publication 245*.
5. **Power disconnect -** Units have power supplied to the unit whenever the power cord is inserted into the power source. The power cord plug is the main power disconnect device for switching off the voltage for all units.

6. **Power sources -** Operate the unit only from the type of power source indicated on the label. Before proceeding, be sure to disconnect the power from the cable to be installed into the unit.
   - For battery powered units, refer to the operating instructions.
   - For external power supplied units, use only the recommended or approved power supplies.
   - For limited power source units, this power source must comply with *EN60950*. Substitutions may damage the unit or cause fire or shock.
   - For 24 VAC units, voltage applied to the unit's power input should not exceed ±10%, or 28 VAC. User-supplied wiring must comply with local electrical codes (Class 2 power levels). Do not ground the supply at the terminals or at the unit's power supply terminals.
   - If unsure of the type of power supply to use, contact your dealer or local power company.
7. **Servicing -** Do not attempt to service this unit yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
8. **Damage requiring service -** Unplug the unit from the main AC power source and refer servicing to qualified service personnel when any damage to the equipment has occurred, such as:
   - the power supply cord or plug is damaged;
   - exposure to moisture, water, and/or inclement weather (rain, snow, etc.);
   - liquid has been spilled in or on the equipment;
   - an object has fallen into the unit;
   - unit has been dropped or the unit cabinet is damaged;
   - unit exhibits a distinct change in performance;
   - unit does not operate normally when the user correctly follows the operating instructions.
9. **Replacement parts -** Be sure the service technician uses replacement parts specified by the manufacturer, or that have the same characteristics as the original parts. Unauthorized substitutions may cause fire, electrical shock, or other hazards.
10. **Safety check -** Safety checks should be performed upon completion of service or repairs to the unit to ensure proper operating condition.
11. **Installation -** Install in accordance with the manufacturer's instructions and in accordance with applicable local codes.
12. **Attachments, changes or modifications -** Only use attachments/accessories specified by the manufacturer. Any change or modification of the equipment, not expressly approved by Bosch, could void the warranty or, in the case of an authorization agreement, authority to operate the equipment.

1.3 Important Notices

U.S.A. models only - *Section 810* of the *National Electrical Code, ANSI/NFPA No.70*, provides information regarding 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.

Disposal - Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per *European Directive 2002/96/EC*

Environmental statement - Bosch has a strong commitment towards the environment. This unit has been designed to respect the environment as much as possible.

Power lines: An outdoor system should not be located in the vicinity of overhead power lines, electrical lights, or power circuits, or where it may contact such power lines or circuits. When installing an outdoor system, extreme care should be taken to keep from touching power lines or circuits, as this contact may be fatal. U.S.A. models only - refer to the National Electrical Code *Article 820* regarding installation of CATV systems.

SELV - All the input/output ports are Safety Extra Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.

Because the ISDN circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the Telephone Network Voltage (TNV) circuits.

System ground/Safety ground

System (video) ground is indicated by the symbol ⏚.

Safety (power) ground is indicated by the symbol ⏚.

The system ground is only used to comply with safety standards or installation practices in certain countries. Bosch does **not** recommend connecting system ground to safety ground unless it is explicitly required. However, if the system ground and safety ground are connected and grounding loops are causing interference in the video signal, use an isolation transformer (available separately from Bosch).

Caution!

Connecting System ground to Safety ground may result in ground loops that can disrupt the CCTV system.

1.4 UL certification

Disclaimer

Underwriter Laboratories Inc. (“UL”) has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's *Standard(s) for Safety for Closed Circuit Television Equipment, UL 2044*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

Disclaimer

Underwriter Laboratories Inc. (“UL”) has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's *Standard(s) for Safety for Information Technology Equipment, UL 60950-1*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING-RELATED FUNCTIONS OF THIS PRODUCT.

1.5 Bosch notices

Video loss

Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.

Copyright

Trademarks

All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

Note:

This manual has been compiled with great care and the information it contains has been thoroughly verified. The text was complete and correct at the time of printing. The ongoing development of the products may mean that the content of the user guide can change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness or discrepancies between the user guide and the product described.

More information

For more information please contact the nearest Bosch Security Systems location or visit www.boschsecurity.com

2 Installing the Pendant Arm Wall, Corner, and Mast (Pole) Mounts

2.1 Unpacking

This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, notify the shipper immediately.
Verify that all the parts listed in the Parts List below are included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative.
The original packing carton is the safest container in which to transport the unit and must be used if returning the unit for service. Save it for possible future use.

2.1.1 Parts List

The following table lists the parts included with this mounting package.

	Part Numbers
Pendant Arm with one of the Power Supply Boxes:	
– Power Box without transformer (24 VAC)	VG4-A-PA0
– Power Box with 120 VAC transformer	VG4-A-PA1
– Power Box with 230 VAC transformer	VG4-A-PA2

2.1.2 Optional Mounting Accessories

The following table lists the optional parts you may need for attaching a Pendant Arm to a Wall, Corner, or Mast.

Mounting Options	Part Numbers
Corner Mount Plate	VG4-A-9542
Mast Mount Plate	VG4-A-9541
Trim Skirt for Power Supply Box	VG4-A-TSKIRT
Fiber Optic Ethernet Media Converter Kit (for IP-enabled AutoDomes)	VG4-SFPSCKT
Fiber Optic Analog Multimode Fiber Optic Kit (for analog AutoDomes)	VGA-FIBER-AN

2.1.3 Description

This chapter details how to install an AutoDome Pendant Arm with power supply box to a wall, a corner, or to a mast (pole). Any variations to the installation procedures are noted.

Note: You may need to purchase additional mounting accessories for corner and mast mount applications. Refer to *Optional Mounting Accessories, page 9*.

2.1.4 Tools Required

- 5 mm Allen wrench (supplied)
- Small, straight-blade screwdriver - 2.5 mm (0.1 in.)
- No. 2 Phillips screwdriver
- Socket wrench and 9/16-in. socket
- Banding tool (Bosch P/N TC9311PM3T) - if installing a mast (pole) mount
- 3/4 in. (20-mm) NPS right angle conduit connector - if installing a mast (pole) mount with a VG4-ARM-WPLATE

2.2 Pre-installation Checklist

- Determine the location and distance for the Power Supply Box based on its voltage and current consumption.
  You may choose to route the main power supply through an intermediate VG4 power supply box (VG4-PSU1 or VG4-PSU2) before connecting the power to the pendant arm power supply box (VG4-PA0). Refer to *Cable and Wire Standards, page 28*, for wiring information and distances.
- Use only UL listed liquid tight strain reliefs for conduits to the Power Supply Box to ensure that water cannot enter the box. You must use water tight conduits and fittings to meet NEMA 4 standards.

Warning!
Power and I/O cabling must be routed separately inside different permanently earthed metal conduits.

- Route all rough wiring including: power, control, video coax, alarms I/O, relay I/O, and fiber optic cabling. Refer to *Cable and Wire Standards, page 28*, for video and control protocol methods.
- **Analog AutoDome**: If you plan to use the RS232 or RS485 protocol to control the AutoDome, refer to *Controlling the AutoDome via the RS232 Protocol, page 32*, for instructions on configuring the AutoDome to accept these protocols

Warning!
Install external interconnecting cables in accordance to NEC, ANSI/NFPA70 (for US application) and Canadian Electrical Code, Part I, CSA C22.1 (for CAN application) and in accordance to local country codes for all other countries.
Branch circuit protection incorporating a 20 A, 2-pole Listed Circuit Breaker or Branch Rated Fuses are required as part of the building installation. A readily accessible 2-pole disconnect device with a contact separation of at least 3 mm must be incorporated.

- Choose the appropriate AutoDome model (indoor or outdoor) for the environment in which it will be used.
- Purchase the appropriate mounting hardware to use, depending on the location of the AutoDome, either wall mount, corner mount, or mast (pole) mount.

Caution!
Select a rigid mounting location to prevent excessive vibration to the AutoDome camera.

2.3 Mount Power Supply Box

Before mounting the Power Supply Box decide if you should wire the box through the holes in the bottom or back of the box. If wiring the box through the back, move the two (2) seal plugs to the bottom through the holes before mounting.

Notice!
Use 3/4-inch (20-mm) NPS fittings for the holes on the bottom and back of the box. Use 1/2-inch (15-mm) NPS fittings for the side holes.

Figure 2.1: Power Supply Wall, Mast (Pole), and Corner Mounts

1. Use the wall mount template supplied in the packaging box to locate the four (4) mounting holes for the Power Supply Box.
2. Drill four (4) holes for the mounting anchors. If installing outdoors, apply a weatherproof sealant around each hole at the mounting surface.

Warning!
A stud diameter of 6.4 mm (1/4 inch) to 8 mm (5/16 inch) able to withstand a 120 kg (265 lb) pull-out force is recommended. The mounting material must be able to withstand this pull out force. For example, 19-mm (3/4-inch) minimum for plywood.

1. Place the Power Supply Box into the optional Trim Skirt.
2. Secure the Power Supply Box to the mounting surface.
3.
   - For a Wall installation: Use four (4) corrosion-resistant, stainless steel studs (not supplied). Then proceed to Step 5 below.
   - For a Corner installation: Secure the Corner Plate to the wall corner using four (4) studs (not included). Then proceed to Step 5 below.
   - For a Mast or a pole installation: The metal straps included with the Mast mount accommodate a pole with a diameter of 100–380 mm (4–15 in.). You must use a banding tool (sold separately) for a mast or pole installation. Follow the instructions provided with the banding tool to securely mount the Mast Plate to the pole. Contact your Bosch Sales Representative to order Banding Tool P/N TC9311PM3T.
4. Secure the Power Supply Box to the Corner Plate or Mast Plate using the four (4) 3/8 x 1-3/4-inch bolts and split lock washers (supplied).
5. Attach 3/4-inch (20-mm) NPS watertight pipe fittings (not supplied) to the bottom or back holes of the Power Supply Box through which you will run the power, video, and control data wires.

2.4 Route Wires and Attach Connectors

Power wires must be routed to the left (front) side of the Power Supply Box through a separate conduit. All video, control, and alarm wires must be routed through a second conduit to the right side of the box.

If you plan to route the power through an intermediate power supply box, refer to *Route Power through Intermediate Power Supply Box, page 16*.

Warning!
External interconnecting cables are to be installed in accordance to NEC, ANSI/NFPA70 (for US application) and Canadian Electrical Code, Part I, CSA C22.1 (for CAN application) and in accordance to local country codes for all other countries.
Branch circuit protection incorporating a 20 A, 2-pole Listed Circuit Breaker or Branch Rated Fuses are required as part of the building installation. A readily accessible 2-pole disconnect device with a contact separation of at least 3 mm must be incorporated.

Caution!
A VG5 600 Series AutoDome installation using coaxial cable to transmit video, either through a direct coaxial connection or through a fiber optic module, **requires** that you use the coaxial cable with ferrite shipped with the AutoDome pendant. The cable only connects to the AutoDome video output one way. Refer to *Coaxial Cable Connections, page 12*, for more information.

2.4.1 Coaxial Cable Connections

If you are using coaxial cable to connect a VG5 600 Series AutoDome to a head-end system, you must use the coaxial cable with ferrite included in the AutoDome packaging. The following illustration shows the components of this cable:

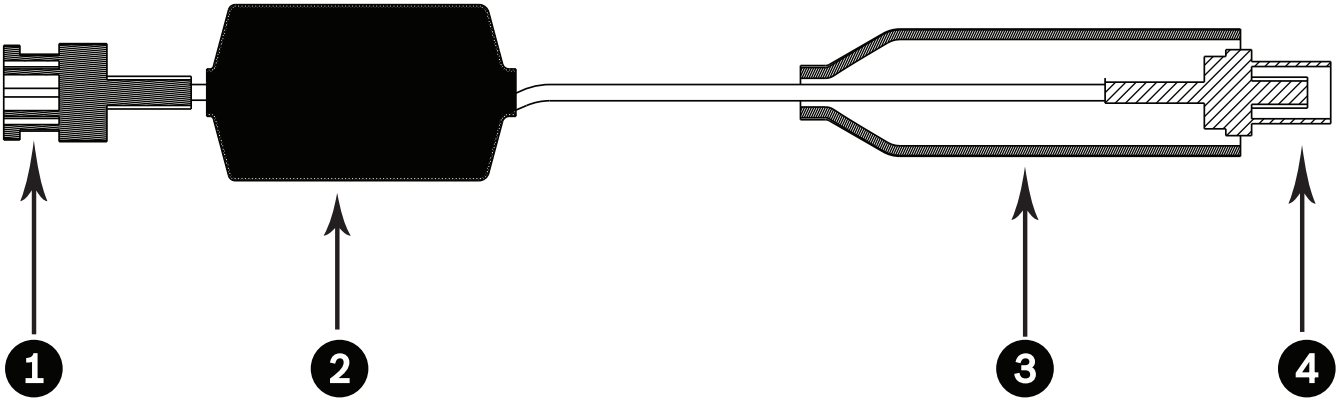


Figure 2.2: Coaxial cable with ferrite

1	BNC Plug (male connector)
2	Ferrite
3	Plastic cover
4	BNC Jack (female connector)

Notice!
A VG5 600 Series AutoDome Pendant Arm (Wall, Corner, or Pole) or In-ceiling installation using coaxial cable to transmit video **requires** that you use the coaxial cable with ferrite shipped with the AutoDome. Roof Parapet and Pipe installations **do not** require the use of the ferrite cable.

You must connect the incoming coax cable (from the head-end) to the BNC jack (item 4 above) on the ferrite cable and connect the BNC plug (item 1) of the ferrite cable to the BNC connector from the AutoDome pendant arm.

2.4.2 Make the Connections

The following illustration depicts the incoming wiring an AutoDome. Note that the image shows a BNC connector, used for analog AutoDomes. An IP AutoDome uses an RJ45 connection.

Figure 2.3: Pendant Arm Power Supply Box

1. Route all video, control, and alarm wires through the conduit fitting on the right side of the power box. Refer to *Cable and Wire Standards, page 28*, for wire specifications and distances.
2. **VG4-A-PA1 and VG4-A-PA2**: Route the high voltage 115/230 VAC lines through the conduit fitting on the left side of the box. The Power Supply Box with a transformer comes with a barrier that separates the high voltage side on the left, from the low voltage 24 VAC side on the right.
3. Cut and trim all wires with sufficient slack to reach their connector terminals in the box, but not so long as to be pinched by or to obstruct closing the Pendant Arm. Refer to *, page 13*, above, for the connector locations.
4. Attach the supplied 3-pin Power Plug to the incoming power wires. Refer to connector P101 in *, page 14*, for wire connections.
5. Attach the supplied 6-pin Control Data I/O Plug to the incoming control wires. Refer to connector P106 in *, page 14*, for wire connections. This step is not required with Fiber Optic models, since control passes through the fiber optic cable.

Notice!

Analog AutoDome: If “daisy chaining” a series of AutoDomes, a terminating resistor is required in the last dome of the series. The Bosch Power Supply Box is supplied with a 100 Ω terminating resistor located between the Biphase terminals C- and C+ (pins 1 and 2) of the P106 control connector. Remove the resistor from all but the last AutoDome power box. The maximum number of AutoDomes that can be daisy chained is four (4). If using the RS485 protocol for control, the terminating resistor must be moved from the Biphase C+ and C- (pins 1 and 2) terminals to the RXD- and TXD+ terminals (pins 4 and 5) of the P106 control connector of the last AutoDome power box.

- **Analog AutoDome**: Attach a BNC connector to the incoming video coax cable. If using UTP for video attach an RJ45 plug to the incoming UTP cable. If installing a Fiber Optic model, attach an ST fiber plug to the optic fiber cable. Refer to *Cable and Wire Standards, page 28*, for the different methods of transmitting video and control protocols, and wire specifications.
  Note: Do not connect the RJ45 connector unless using UTP video.
- **600 Series AutoDome**: If using a coax cable with a pendant arm or in-ceiling mount, connect the incoming coax cable to the BNC jack (female connector enclosed by the plastic cover) on the coax cable with ferrite. Slide the plastic cover over the connection. Refer to *Coaxial Cable Connections, page 12*.

- **Analog AutoDome**: Attach a BNC connector to the incoming video coax cable. If using UTP for video attach an RJ45 plug to the incoming UTP cable. If installing a Fiber Optic model, attach an ST fiber plug to the optic fiber cable. Refer to *Cable and Wire Standards, page 28*, for the different methods of transmitting video and control protocols, and wire specifications.
  Note: Do not connect the RJ45 connector unless using UTP video.
- **IP AutoDome**: Attach an RJ45 plug to the incoming Ethernet cable. Refer to *Cable and Wire Standards, page 28*, for the different methods of transmitting video and control protocols, and wire specifications.
- If you are connecting alarm inputs and outputs, attach the supplied 4- and 6-pin Alarm Connectors with flying lead wires to the appropriate incoming alarm wires.

Figure 2.4: Alarm and relay connectors

1	4-pin Alarm Connector (P102)	2	6-pin Alarm In Connector (P103)	3	7-pin Relay Connector (P104)
Pin	Description	Pin	Description	Pin	Description
1	Alarm Out 1	1	Alarm In 3	1	Normally Open
2	Alarm Out 2	2	Alarm In 4	2	COM
3	Alarm Out 3‡	3	Alarm In 5	3	Normally Closed
4	Alarm Ground	4	Alarm In 6	4	Earth Ground
	5	Alarm In 7	5	Analog Alarm 1	
6	Alarm Ground	6	Analog Alarm 2		
	7	Ground			

- If you are connecting supervised alarms and relays, attach the supplied 7-pin Relay Connector to the appropriate incoming wires. Refer to , *page 14*, above, for the wire connections. Refer to *Alarms and Relay Connections, page 39* for more details about wiring alarms and relays.

2.4.3 Power Supply Box Connections

The following figure is a detailed illustration of the Pendant Arm Power Supply Box, which includes the fuse specifications.

Figure 2.5: Pendant arm power supply box

1	Ground Screw	6	In/Out; 1/2 in. (15 mm) NPS Fitting
2	From Harness	7	P101 Connector; Power In
3	In/Out; 1/2 in. (15 mm) NPS Fitting	8	P106 Connector; Control In/Out
4	Video	9	P105 Connector; Control to Dome
4a	UTP/ Ethernet (Ethernet for VG5 700 Series only)	10	Power In; 3/4 in. (20 mm) NPS Fitting
5	24 VAC to Dome	11	Control Data and Video In/Out; 3/4 in. (20 mm) NPS Fitting

Warning!
Fuse replacement by qualified service personnel only. Replace with same type fuse.

Fuse Specifications			
Volts	**XF101 Mains**	**XF102 Camera**	**XF103 Heater**
24 V	T 5.0 A	T 2.0 A	T 3.15 A
115 V	T 1.6 A	T 2.0 A	T 3.15 A
230 V	T 0.8A	T 2.0 A	T 3.15 A

The following table lists the Power Supply Box connectors:

No.	**Connector**	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**	**Pin 5**	**Pin 6**
	Ground	Grounding Screw					
P101	115/230 VAC or 24 VAC Power In	Line	NC	Neutral			
P105[1]	Control to Dome (Arm Harness)	C- (Biphase)	C+ (Biphase)	Earth Ground	RXD (+) (RS-232/485)	TXD (-) (RS-232/485)	Signal Ground
P106[1]	Control In/Out	C- (Biphase)	C+ (Biphase)	Earth Ground	RXD (+) (RS-232/485)	TXD (-) (RS-232/485)	Signal Ground
P107	24 VAC Power (Arm Harness)	Dome 24 VAC	Dome 24 VAC	Earth Ground	Heater (24 VAC)	Heater (24 VAC)	
1. Applicable to VG5 600 and 100 Series AutoDomes only.							

Table 2.1: Power Supply Box Connections

2.5 Route Power through Intermediate Power Supply Box

You may route the main power supply through a VG4-PSU1 (120 V transformer) or through a VG4-PSU2 (230 V transformer) Power Supply Box before connecting the power to a VG4-PA0 (24 V, no transformer) Power Supply Box. The main issue with this configuration is that the 5-pin power out connector from the VG4-PSU1 or VG4-PSU2 does not match to the 3-pin power input of the VG4-PA0 power supply. The illustration below depicts:

– A VG4-PSU1/VG4-PSU2 Power Supply Box.
– The main power supply connected to the P101 connector and to the grounding screw.
– The 24 VAC power out wire connected to the P107 heater power connectors.

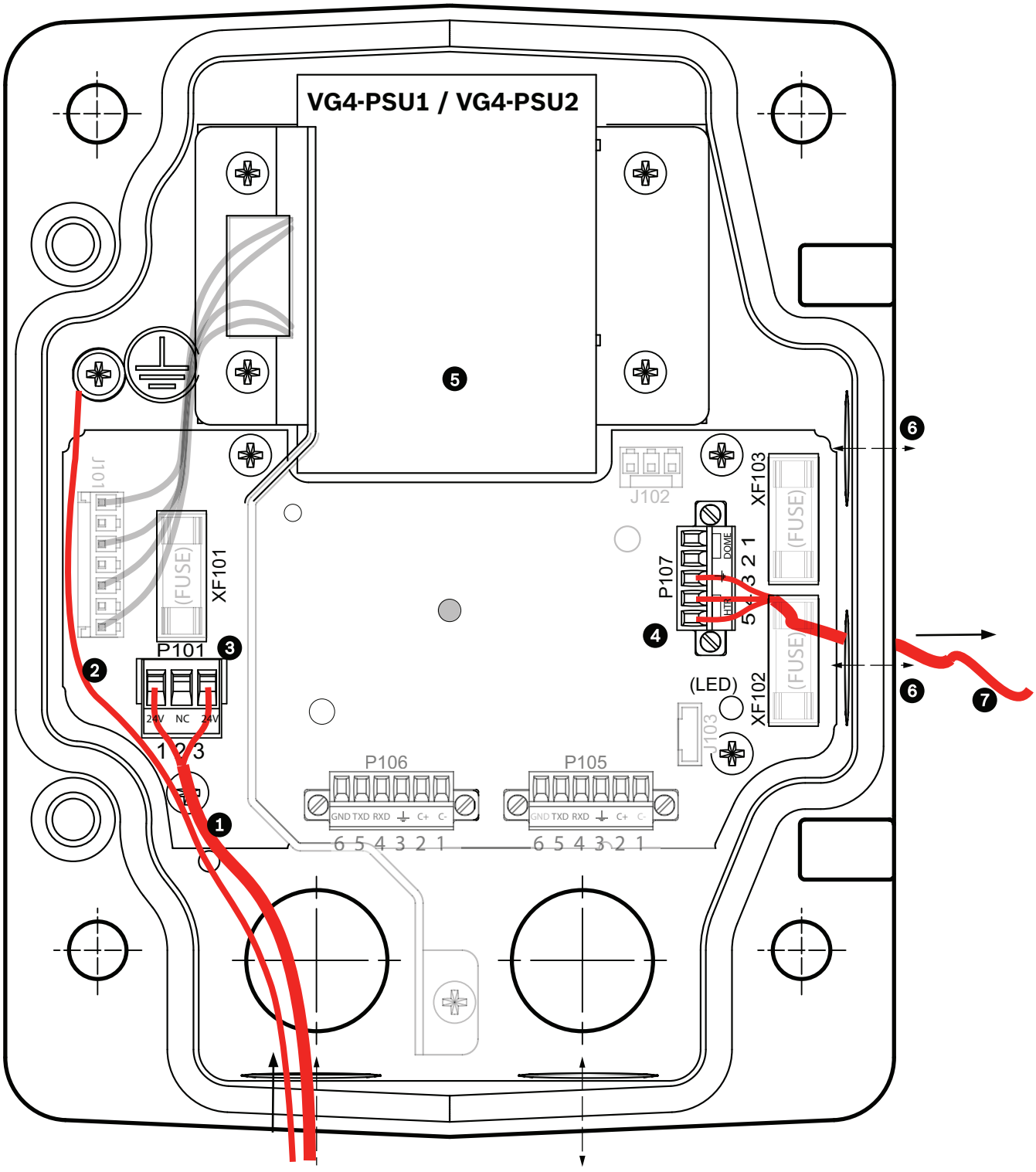


Figure 2.6: VG4-PSU1/VG4-PSU2 Power Supply Box

1	120/230 VAC Power In	5	Transformer

2	Ground Wire	6	In/Out Conduit (1/2 in. [15 mm] NPS Fitting
3	P101 Connector	7	24 VAC Power Out to VG4-PA0
4	P107 Connector		

To properly wire the incoming high voltage and the outgoing low voltage lines, refer to this table:

No.	Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
	Ground	Grounding Screw					
P101	115/230 VAC Power In	Line	NC	Neutral			
P107	24 VAC Power Out			Earth Ground	Heater (24 VAC)	Heater (24 VAC)	

Table 2.2: VG4-PSU1/VG4-PSU2 Power Supply Box Connections

1. Route the high voltage 115/230 VAC lines through the conduit fitting on the left side of the box. The Power Supply Box with a transformer comes with a barrier that separates the high voltage side on the left, from the low voltage 24 VAC side on the right.
2. Cut and trim the high voltage 115/230 VAC power and ground wires with sufficient slack to reach their connector terminal in the box, but not so long as to be pinched by or to obstruct closing the cover door.
3. Attach the supplied 3-pin power plug to the incoming high voltage power wires in the box. Refer to connector P101 in , *page 16* and to the image below for an illustration of these connections:

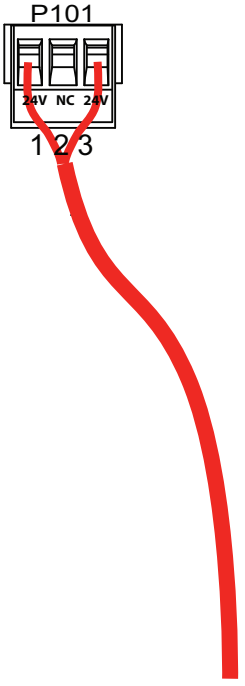


Figure 2.7: Incoming 115/230 VAC power supply

1. Attach the ground wire to the grounding screw.
2. Connect three wires to the P107 Power Out connector to route the 24 VAC power supply to the VG4-PA0 Power Supply Box.

– Connect the first wire to pin 5 (HN: Heater Neutral) connector.
– Connect the second wire to pin 4 (HL: Heater Line) connector.
– Connect the third wire to pin 3 (Earth Ground) connector.
Refer to connector P107 in , *page 16* and to the image below for an illustration of these connections:

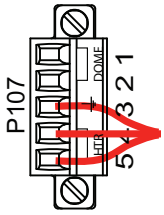


Figure 2.8: Outgoing 24 VAC power supply

Warning!
Ensure that you connect the outgoing power supply wires to the P107 heater connectors (HN and HL). The heater power (XF103) fuse can handle a higher amperage (3.15 A) than the camera power (XF102) fuse (2.0 A).

1. Route the 24 VAC outgoing power supply wires into the VG4-PA0 power supply box through the conduit fitting on the left side of the box.
2. Cut and trim the 24 VAC power and ground wires with sufficient slack to reach their connector terminal in the box, but not so long as to be pinched by or to obstruct closing the cover door.
3. Attach the supplied 3-pin power plug to the incoming 24 VAC power wires in the box, as illustrated below.

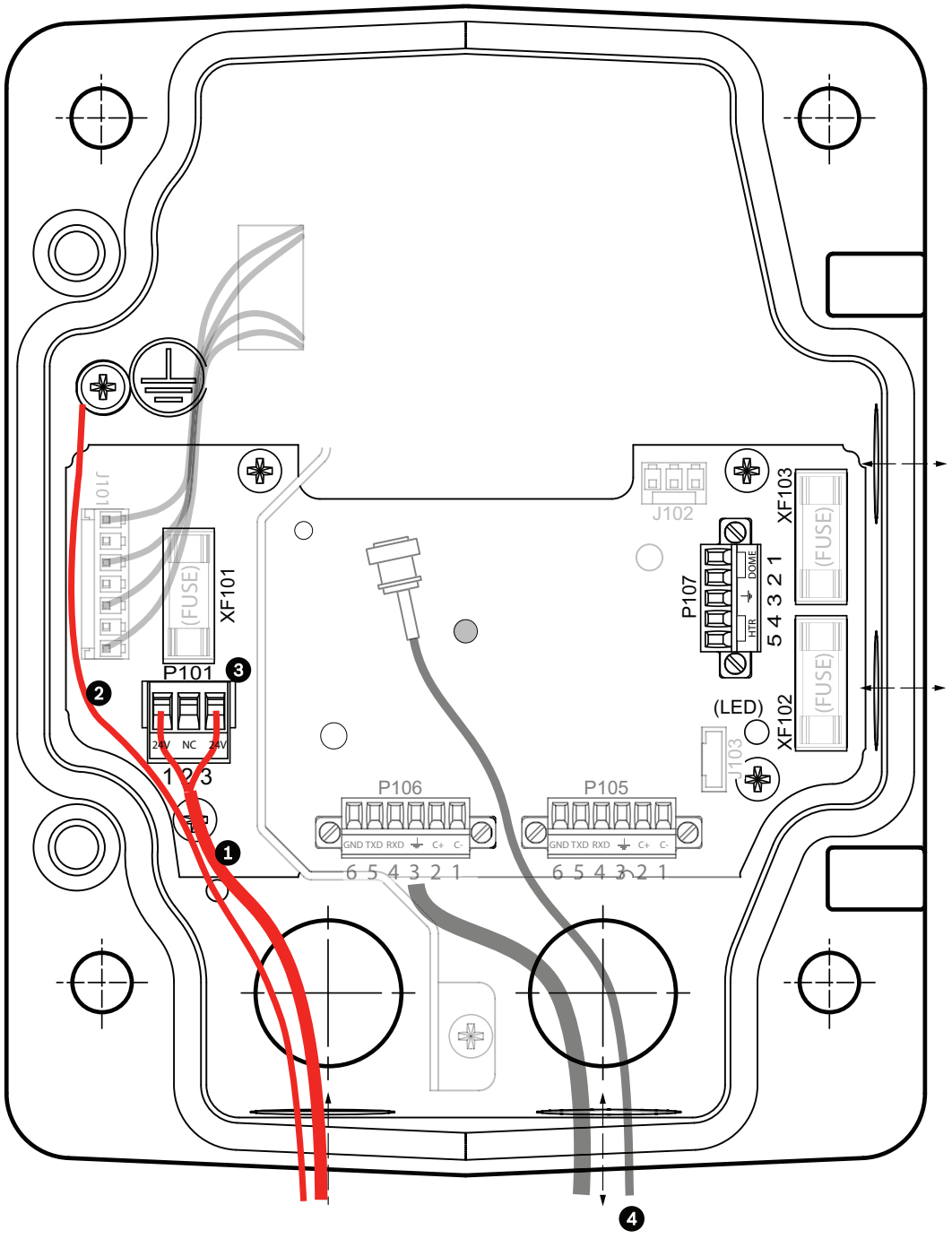


Figure 2.9: VG4-PA0 Power Supply Box

1	Incoming 24 VAC Power Supply Wires (from VG4-PSU1/VG4-PSU2 power supply box)
2	Ground Wire
3	P101 Connector
4	Control Data and Video In/Out Wires

- Follow the instructions in *Attach Pendant Arm to Power Supply Box, page 21*, to continue the installation.

2.6 Attach Pendant Arm to Power Supply Box

The bottom hinge pin of the Pendant Arm is provided with a Hinge Pin Stop to hold the hinge open while attaching the arm to the Power Supply Box.

- Compress the bottom hinge pin by pushing the pin lever downward and rotating it behind the Hinge Pin Stop.

Figure 2.10: Pendant Arm to Power Box Hinge Alignment

- Open the top hinge by pushing its pin lever up and holding it.

Notice!
Both Hinge Pins must be fully compressed to open (unlock) the hinges of the Pendant Arm and before proceeding to the next step.

1. While continuing to hold the top hinge pin open and align the top and bottom hinges of the Pendant Arm to their mating points on the Power Supply Box. See , *page 21*, above, for an illustration.
2. Once you have the hinges aligned, release the top hinge pin to engage its mating hinge on the power box. Then release the bottom hinge pin from the Hinge Pin Stop to lock the Pendant Arm to the Power Supply Box.

Warning!
Serious injury or death can occur if the hinge pins of the Pendant Arm are not fully engaged (locked) to the Power Supply Box. Exercise caution before releasing the Pendant Arm.

2.7 Make Connections in Power Supply Box

Refer to , *page 16* to locate the various connectors in the power supply box and make the following connections detailed below.
The following illustrations depict the connections for an analog AutoDome, a VG5 600 Series AutoDome (showing the coaxial cable with ferrite connection), and an IP AutoDome.

Figure 2.11: Analog AutoDome: Pendant Arm connections to Power Supply Box

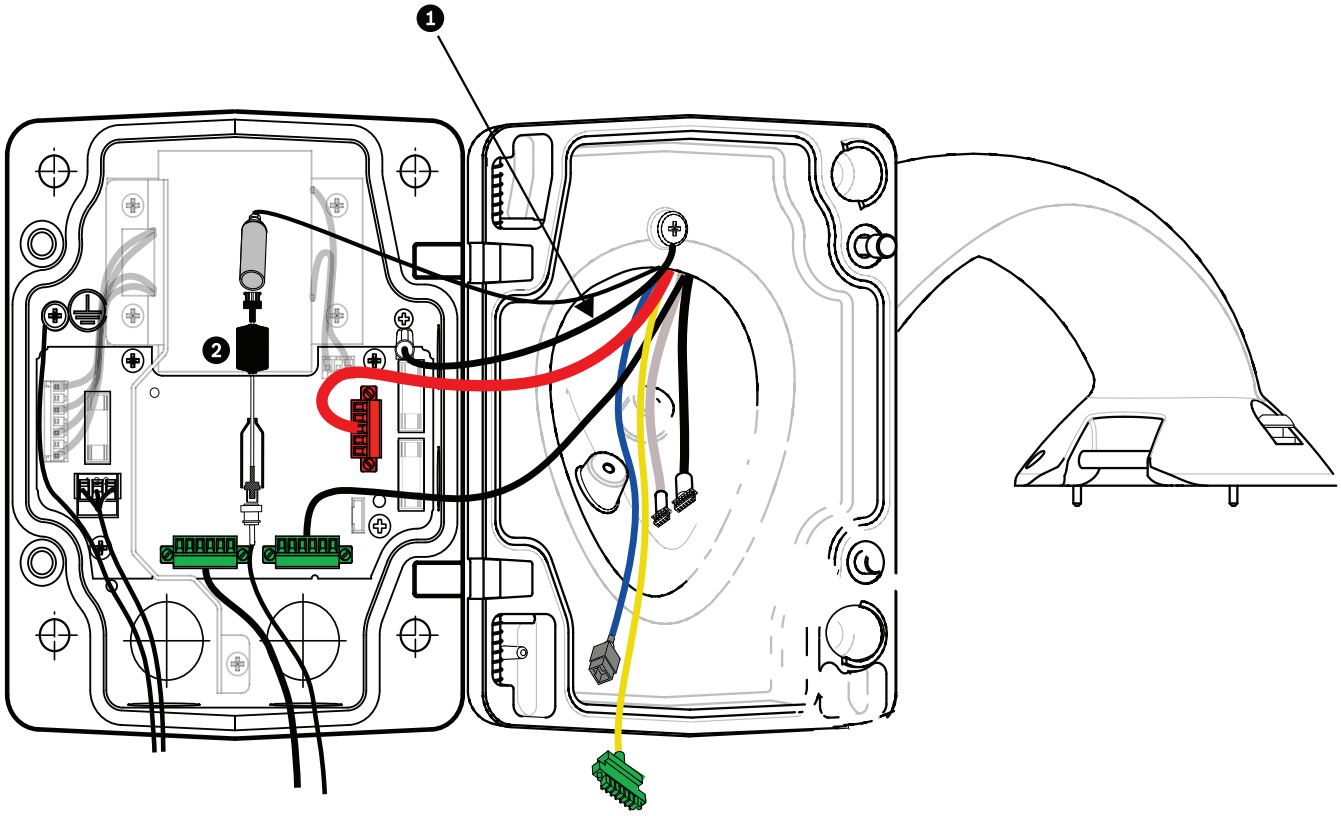


Figure 2.12: 600 Series AutoDome: Pendant Arm connections to Power Supply Box

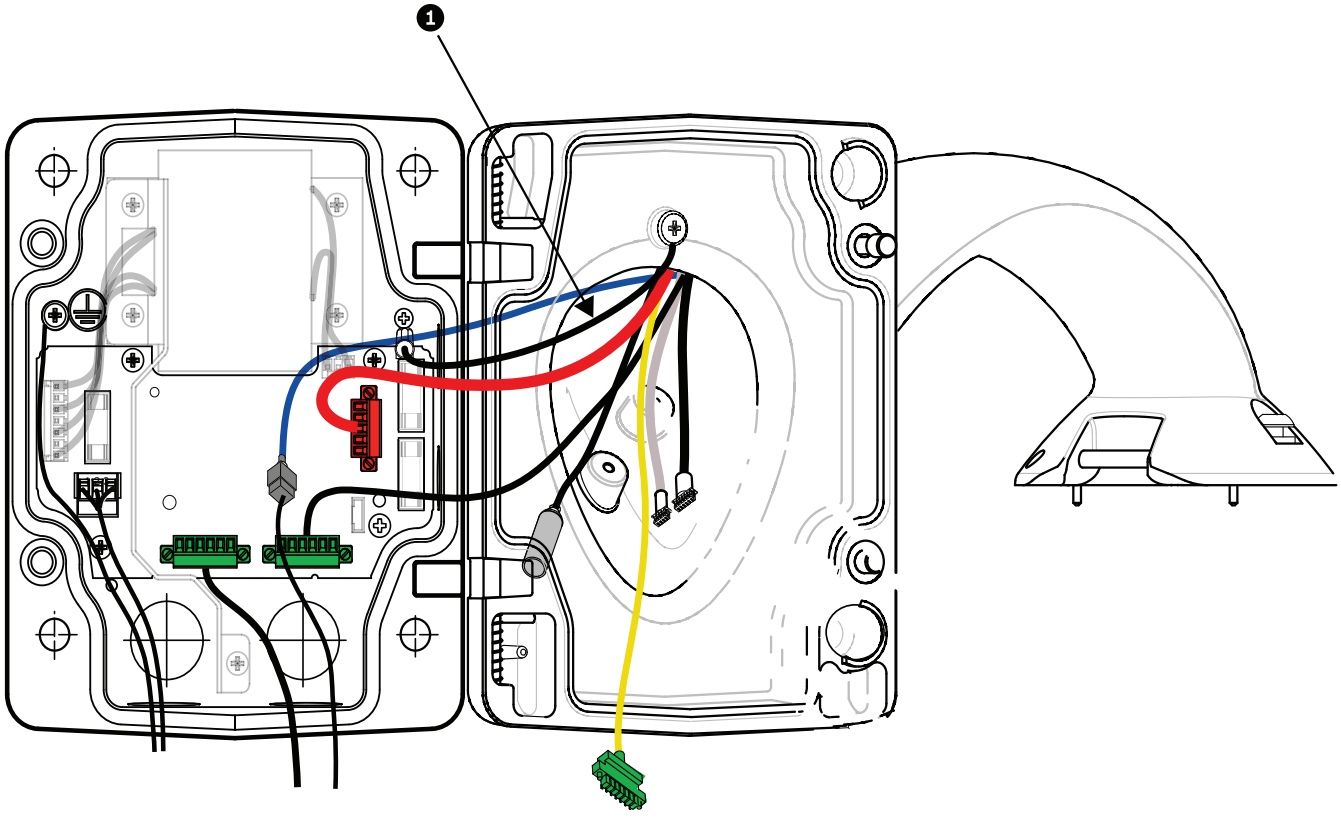
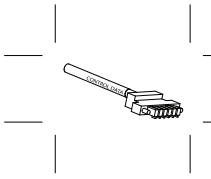


Figure 2.13: IP AutoDome: Pendant Arm connections to Power Supply Box

1. Attach the earth ground wire (item 1 in the illustration above) to the grounding screw on the left side of the power box.

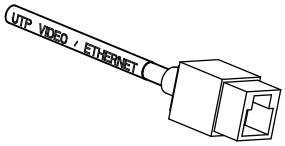
2. Connect the 6-pin Control In/Out Plug, installed previously, to its mating connector P106 in the power box. If this product is a Fiber Optic model this step is not required, since all control data is sent through the fiber cable.
3. Connect the 6-pin Control to Dome Plug from the Pendant Connector Harness to its matting connector P105 in the power box. (For Fiber Optic model connect to the P106 connector.)



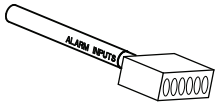
Control Data

Coax Video

24 VAC Power

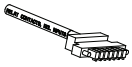


UTP Video/Ethernet
(Ethernet for VG5 700 Series only)

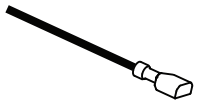


Alarm Inputs

Alarm Outputs



Relays



Grounding Strap

Warning!
Do not connect the RJ45 connector unless using UTP video or Ethernet.

- Connect the 5-pin, 24 VAC to Dome Plug from the Pendant Connector Harness to its corresponding color mating connector P107 on the right side of the box.
- **Analog AutoDome**: Connect the BNC plug to the BNC connector from the Pendant Connector Harness and slide its plastic cover over the connection.
- **600 Series AutoDome**: Connect the BNC plug (male connector) of the coax cable with ferrite (refer to *, page 21*, item 2) to the BNC jack connector from the Pendant Connector Harness and slide its plastic cover over the connection. *Coaxial Cable Connections, page 12*.

1. To connect alarm inputs and relay outputs, connect the 4-pin Alarms Out, the 6-pin Alarms In and the 7-pin Relay connectors from the Pendant Connector Harness to their mating connectors, installed previously, to the incoming alarm wires.
2. Connect the 3-pin Power In Plug, installed previously, to its matting connector P101 on the left side of the box.

- **Analog AutoDome**: If using UTP for video, connect the incoming RJ45 video connector, installed previously, to its mating connector from the Pendant Connector Harness. Refer to *Cable and Wire Standards, page 28* for connections and specifications.
- **IP AutoDome:** Connect the incoming RJ45 video connector, installed previously, to its mating connector from the Pendant Connector Harness. Refer to *Cable and Wire Standards, page 28* for connections and specifications.

1. Attach the grounding strap of the Pendant Arm to the Power Supply Box.
2. After making the harness connections to the Power Supply Box, rotate the Pendant Arm to close and seal the Power Supply Box and tighten the two (2) captive screws to 10-12 N-m (90-105 in.-lbs).

3. Refer to *Attach Pendant to Arm and Tighten, page 25*, to continue the VG5 AutoDome Installation procedure.

Notice!
After all wiring is complete, close the cover door and tighten the two (2) captive screws on the cover door to 10-12 N-m (90-105 in.-lbs) to ensure the Power Supply Box is watertight.

2.8 Attach Pendant to Arm and Tighten

Notice!
Before attaching the AutoDome Pendant, visually inspect the dome and arm connectors for any blocked pin holes or bent pins. Refer to the *VG5 Series AutoDome Installation Manual* before connecting the pendant to the arm.

- Tilt the bottom of the dome toward the pendant arm base and place the mounting hook, located on top of the dome housing, over the recessed hinge pin of the arm.

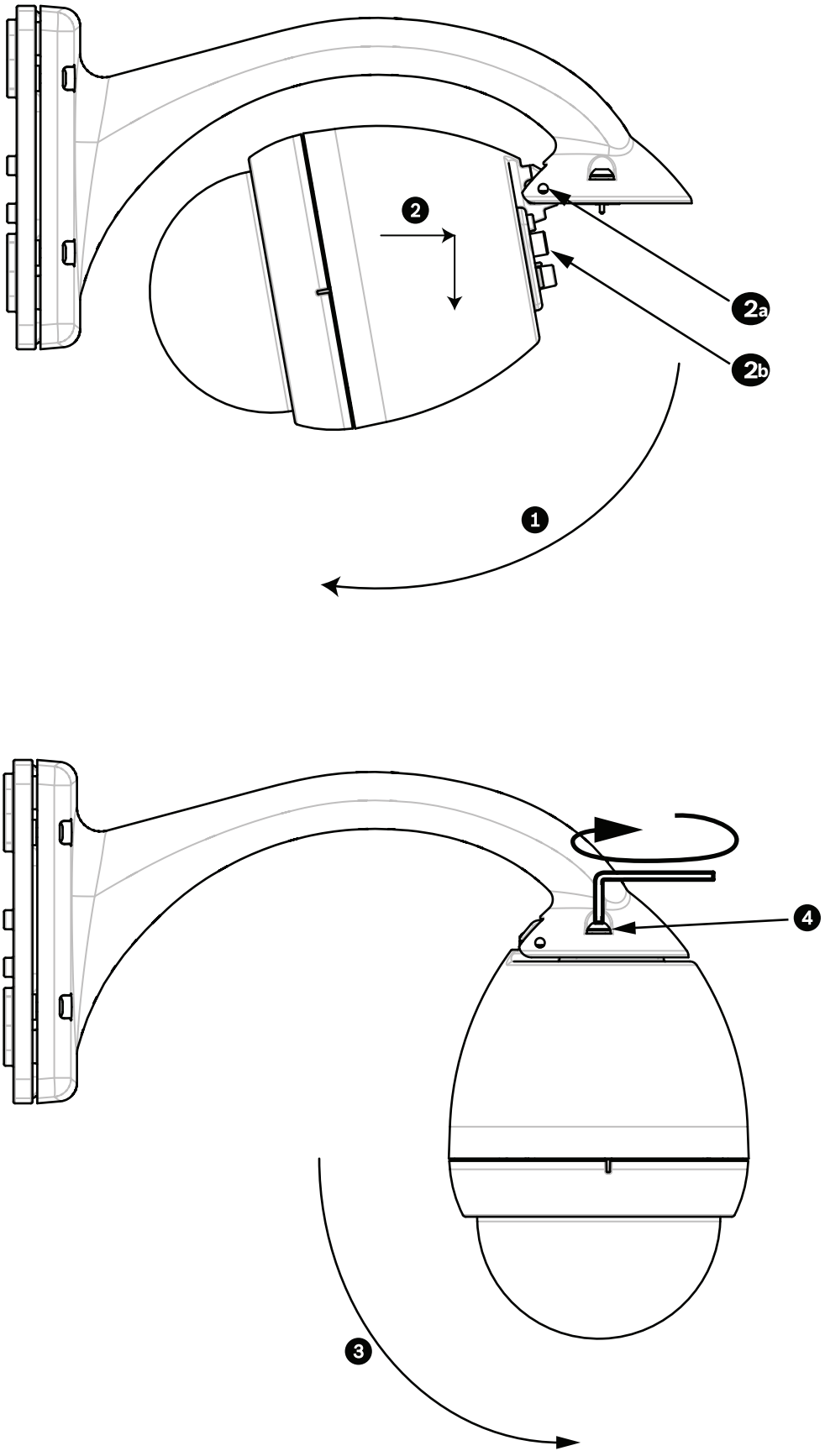


Figure 2.14: Attach Pendant to Arm

1	Tilt up.
2	Hook and drop.
2a	Recessed Hinge Pin
2b	Dome Connector
3	Rotate down to engage dome connector.
4	Tighten the two (2) mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs).

1. Drop the dome housing down slightly to engage the dome housing hook on the Pendant Arm hinge pin, allowing the dome to rotate around the pin.
2. Rotate the dome housing down to a vertical position and gently push upward to engage the connector on top of the dome housing.

Caution!
If you feel any resistance when rotating the dome housing or when engaging the connector, stop immediately and start over.

- Hold the Pendant housing in position while tightening the two (2) 5-mm Allen head mounting screws on top of the housing to **10-12 N-m (90-105 in.-lbs)**.

Caution!
You must tighten the two mounting screws to a minimum torque of 10-12 N-m (90-105 in.-lbs) to ensure a proper seal between the arm and the housing.

3 Cable and Wire Standards

Caution!
Installation should only be performed by qualified service personnel in accordance with the National Electrical Code or applicable local codes.

Caution!
All wires for installation applications must be routed through a grounded conduit.

3.1 Power

115/230 VAC	
Copper Wire	To comply with local codes.

3.2 Wire Distance Guide for Pendant

24 V to AutoDome				
	VA / Watts	**14 AWG (2.5 mm)**	**16 AWG (1.5 mm)**	**18 AWG (1.0 mm)**
AutoDome 100, Indoor	14 / 7.5	248 m (813 ft)	156 m (512 ft)	98 m (322 ft)
AutoDome 100, Outdoor	47 / 43.5	74 m (242 ft)	46 m (152 ft)	29 m (96 ft)
AutoDome 600, Indoor	27 / 15	129 m (422 ft)	81 m (265 ft)	51 m (167 ft)
AutoDome 600, Outdoor[1]	55 / 51	63 m (207 ft)	40 m (130 ft)	25 m (82 ft)
AutoDome 700, Indoor	35 / 19	99 m (325 ft)	62 m (205 ft)	39 m (129 ft)
AutoDome 700, Outdoor[2]	60 / 55	58 m (190 ft)	36 m (119 ft)	23 m (75 ft)

1. Standard heater module. Add Add 16 W if using VG4-SHTR-XT kit.
2. Standard heater module. The VG4-SHTR-XT kit is not applicable to VG5 700 Series AutoDomes.

3.3 Video and Control Cables

3.3.1 Using Coaxial Cable to Transmit Video and Control

Caution!
^00600
600 Series AutoDome: If you are using coaxial cable to transmit video and data between the AutoDome and the head-end, you must use the coax cable with ferrite included in the AutoDome packaging. You must connect the incoming coax cable (from the head-end) to the jack (female end) on the ferrite cable and connect the plug end (male connector) of the ferrite cable to the AutoDome's coax connector.

Coaxial cable terminated with BNC connectors is the most common method for transmitting composite video. Bilinx control data can also be sent over the same cable.
Bilinx is a Bosch 2-way communication protocol that allows remote control, configuration, and updates over a video coax cable. Bilinx is available on all VG5 100 and 600 Series AutoDomes. VG5 Series AutoDomes feature cable compensation or “Pre-Comp,” which extends the range of video from the head end.

Cable Compensation	**Maximum Distances**		
	Video Only		**Bilinx Control**
Cable Type	Pre-comp OFF	Pre-comp ON	Pre-comp ON or OFF
RG-59/U	300 m (1000 ft)	600 m (2000 ft)	300 m (1000 ft)
RG-6/U	450 m (1500 ft)	900 m (3000 ft)	450 m (1500 ft)
RG-11/U	600 m (2000 ft)	1200 m (4000 ft)	600 m (2000 ft)
Size	O.D. between 4.6 mm (0.181 in.) and 7.9 mm (0.312 in.)		
Shield	Copper braid: 95%		
Central Conductor	Standard copper center		
Terminal Connector	BNC		

Warning!
Cable compensation (Pre-Comp) does not extend the range of Bilinx control. Pre-Comp is not available with VG5 700 Series AutoDomes.

3.3.2 Using UTP to Transmit Video and Control

Unshielded twisted pair (UTP) cable terminated with RJ45 male connectors are used to transmit composite video using pins 1(+) and 2(-). Typically, a Coax to UTP cable converter is required at the head-end of the system.
Bilinx control data can also be sent over the same two video wires (1 & 2). Bilinx is a Bosch 2-way communication protocol that allows remote control, configuration and updates over a passive UTP cable.
VG5 Series AutoDomes feature cable compensation or “Pre-Comp,” which extends the normal range of control from the head end.

Warning!
Do not connect the RJ45 connector unless using UTP video.

Cable Compensation		
	Maximum Distance	
Cable Type	Pre-comp OFF	Pre-comp ON
CAT5 UTP	229 m (750 ft)	450 m (1500 ft)
Terminal Connector	RJ45	
Requirement	Coax to UTP Converter	

The following figure illustrates the connections necessary to transmit video and control over a UTP cable.

3.3.3 Using Ethernet to Transmit Video and Control

Caution!
Ethernet connections must be made to non-exposed (indoor) networks only.

The AutoDome VG5 700 series connects to a 10 Base-T/100 Base-TX network either directly or via a switch. Both video and control are transmitted over a standard TCP/IP network using the built-in Web server.

Cable Type	CAT-5E or CAT 6 Ethernet
Maximum Distance	100 m (328 ft)
Bandwidth	10 Base-T/100 Base-TX
Terminal Connector	RJ45, Female

Warning!
Do not connect a coaxial cable while the RJ45 Ethernet cable is connected.

3.3.4 Using Multi-mode Fiber Optic to Transmit Video and Control

Fiber Optic kits, available for AutoDome 100 and 600 Series cameras, transmit both video and Biphase control over an analog singlemode or multimode fiber.

Multimode	
Fiber Type	50/125 µm, 62.5/125 µm, low loss multimode glass fiber
Maximum Distance	4 km (2.5 miles)
Minimum Bandwidth	20 MHz (Video - 850 nm / Control - 1300 nm)
Requirement	Bosch LTC 4629 Fiber Receiver at controller end of system
Terminal Connector	ST

Singlemode	
Fiber Type	9/125 µm, low loss single glass fiber
Maximum Distance	69 km (43 miles)
Minimum Bandwidth	20 MHz (Video - 1310 nm /Control - 1550 nm)
Requirement	Single mode fiber receiver at controller end of system
Terminal Connector	ST

3.3.5 Using a Fiber Optic Ethernet Media Converter to Transmit Video and Control

The fiber optic media converter kit, available for AutoDome 700 Series cameras, is designed to transmit 10/100 Mbps Ethernet signals over fiber optic cable using 10/100 Mbps Small Form-factor Pluggable (SFP) modules. The SFP modules are available as multi-mode fiber (MMF) or single-mode fiber (SMF) models with a single SC connector or dual-fiber with an LC connector. Refer to the *VG4-SFPSCKT Fiber Optic Media Converter Installation Guide*.

Ethernet Media Converter	
Data Interface	Ethernet
Data Rate	10/100 Mbps IEEE 802.3 Compliant Full Duplex or Half Duplex Electrical Port Full Duplex Optical Port
Fiber Type, MMF	50/125 µm MMF. For 50/125 µm fiber, subtract 4 dB from the specified optical budget value. Must meet or exceed fiber standard ITU-T G.651.
Fiber Type, SMF	8–10/125 µm SMF. Must meet or exceed fiber standard ITU-T G. 652.
Maximum Distance	60 km (37.3 miles)
Requirement	Media converter receiver (CNFE2MC/IN) at controller end of system
Terminal Connection	Duplex LC or Single SC

3.4 Control-only Cables

3.4.1 Controlling the AutoDome via Biphase

(Shielded 2-wire, half-duplex, multi-drop, 5000 ft. cable limit)
Biphase is the standard Bosch protocol used to send Pan/Tilt/Zoom control over 2-wire shielded twisted pair (STP) terminated with a 100 Ω terminal resistor.
The AutoDome has a 100 Ω termination resistor between the Biphase C+ and C- terminals.

Caution!
The Biphase shield must be connected to the head end only.

Cable Type	**STP - Shielded Twisted Pair**
Distance	1524 m (5000 ft) Belden 8760 recommended
Transmission Rate	31.25 KHz
Gage	1.02 mm (18 AWG)
Termination	100 Ω
Terminal Connector	Screw terminals
Voltage	4 Vp-p

The figure below illustrates the connections necessary for Biphase operation.

Figure 3.1: Connections for Biphase Operation

1	C- (Biphase)	7	AutoDome Data In/Out
2	C+ (Biphase)	8	Head End Biphase
3	Earth Ground	9	P105/P106 Connector
4	RxD	10	C- (Biphase)
5	TxD	11	C+ (Biphase)
6	Signal Ground	12	Shield

In a daisy chain configuration, where multiple domes are connected in series, the 100 Ω resistor must be removed from all but the last dome. You can daisy chain a maximum of four (4) AutoDomes.

Figure 3.2: Connections for a Daisy Chain Configuration

1	C- (Biphase)	9	Dome 3
2	C+ (Biphase)	10	Dome 2
3	Earth Ground	11	Dome 1
4	RxD	12	Head End Biphase
5	TxD	13	C- (Biphase)
6	Signal Ground	14	C + (Biphase)
7	Last Dome Data In/Out	15	Shield
8	P105/P106 Connector		

3.4.2 Controlling the AutoDome via the RS232 Protocol

(3-wire, full-duplex, single-ended, 50 ft. cable limit)

RS232 is a common, single-ended communication protocol used for control. Data transmission via 3-wires (TDX, RXD, common) is from one transmitter to one receiver at relatively slow baud rates (up to 57.6 Kbaud) and short distances up to 50 ft. This control option is applicable to the VG5 600 Series AutoDome only.

Notice!

After making the wire connections for RS232 operation, reposition the slide switch located on the CPU Module to the camera head inward and away from the LEDs.

Wire Type	**3-wire (TXD, RXD, common)**
Distance	15 m (50 ft)
Maximum Baud Rate	57.6 Kb

Wire Type	3-wire (TXD, RXD, common)
Voltage	± 15 V
Termination	100 Ω
Slide Switch	Away from LEDs (factory default)

Figure 3.3: Connections for RS232 Operation

1	C- (Biphase)	7	AutoDome Data In/Out
2	C+ (Biphase)	8	P105/P106 Connector
3	Earth Ground	9	Head End RS232
4	RxD	10	TxD
5	TxD	11	RxD
6	Signal Ground	12	Ground

Figure 3.4: Position of CPU Switch for RS232 Operation (camera module not shown for clarity)

1	Switch Location
2	LEDs
3	RS232
4	CPU Module

Note: To access the CPU switch you must remove the bubble from the pendant housing.

3.4.3 Controlling the AutoDome via the RS485 Protocol

2-wire (shielded), half-duplex, differential, multi-drop (32 nodes), 4000 ft cable limit)
RS485 is capable of controlling a true multi-drop network and is specified for up to 32 drivers and 32 receivers on a single 2-wire bus. The AutoDome uses the 2-wire mode, although RS485 can be connected in a 2- or 4-wire mode. This control option is applicable to the VG5 600 Series AutoDome only.

Notice!
The wire shield must be tied to signal at both ends, if 2-wire twisted pair is used. After connecting the wires for RS485 operation, make sure the slide switch on the main board to the camera head is positioned toward the LEDs (default).

Caution!
Bosch recommends that multiple RS485 connections be arranged as a connected series of point-to-point (multi-dropped) nodes, as a line or as a bus. It is **not** recommended to arrange RS485 connections as a star, ring, or as a multiple-connected network. Star and ring topologies may cause signal reflections or excessively low or high termination impedance.

Wire Type	2-wire shielded twisted pair
Distance	1219 m (4000 ft)
Maximum Baud Rate	57.6 kb
Gage	0.511 mm (24 AWG)
Wire Impedance	120 W
Slide Switch	Toward LEDs (factory default)

The following figure illustrates the connections for RS485 connections.

Figure 3.5: Connections for RS485 Operations

1	C- (Biphase)	7	AutoDome Data In/Out
2	C+ (Biphase)	8	P105/P106 Connector
3	Earth Ground	9	Head End RS485
4	RxD	10	Data +
5	TxD	11	Data -
6	Signal Ground	12	Ground

Figure 3.6: Position of CPU Switch for RS485 Operation (camera module not shown for clarity)

1	Switch Location
2	LEDs
3	RS485
4	CPU Module

Note: To access the CPU switch you must remove the bubble from the pendant housing.

3.5 Fiber Optic Module with an RS232/RS422 Controller

An AutoDome with a fiber optic module is prewired to operate with Biphase signals only. This section describes the procedures necessary to control a VG5 series AutoDome fitted with a fiber optic kit using an RS232 controller or a Pelco® RS422 controller.
To control a VG5 Series Autodome from an RS232 or from a Pelco RS422 controller you must run control wires from the controller to an LTC 4629 head-end fiber optic module.
This control option is applicable to the VG5 600 Series AutoDome only.

3.5.1 Connecting to an LTC 4629 Head End Data/Video Transceiver

1. Connect the RS232 cable (TxD from the controller) to the RS232 RxD port (pin 1) of the LTC 4629.
2. Connect the ground wire of the controller to Pin 2 on the LTC 4629.

3.5.2 Configuring the VG5 AutoDome

1. Disconnect the power to the VG4 power supply unit; then open the unit.

2. Remove the green Serial Communications wire from the P106 connector.
3. Remove the 100 Ω resistor across the C+ and C- pins.
4. Cut the five wires from the green Serial Communications wire mating connector. Ensure that the insulation covers each wire to avoid wires from touching.
5. Cut back the insulation on the blue (ground) wire and on the green (RxD) wire enough to be able to connect these wires back into the P106 connector.
6. Connect the blue (ground) wire to the C- pin on the P106 connector.
7. Connect the green (RxD) wire to the C+ pin on the P106 connector.

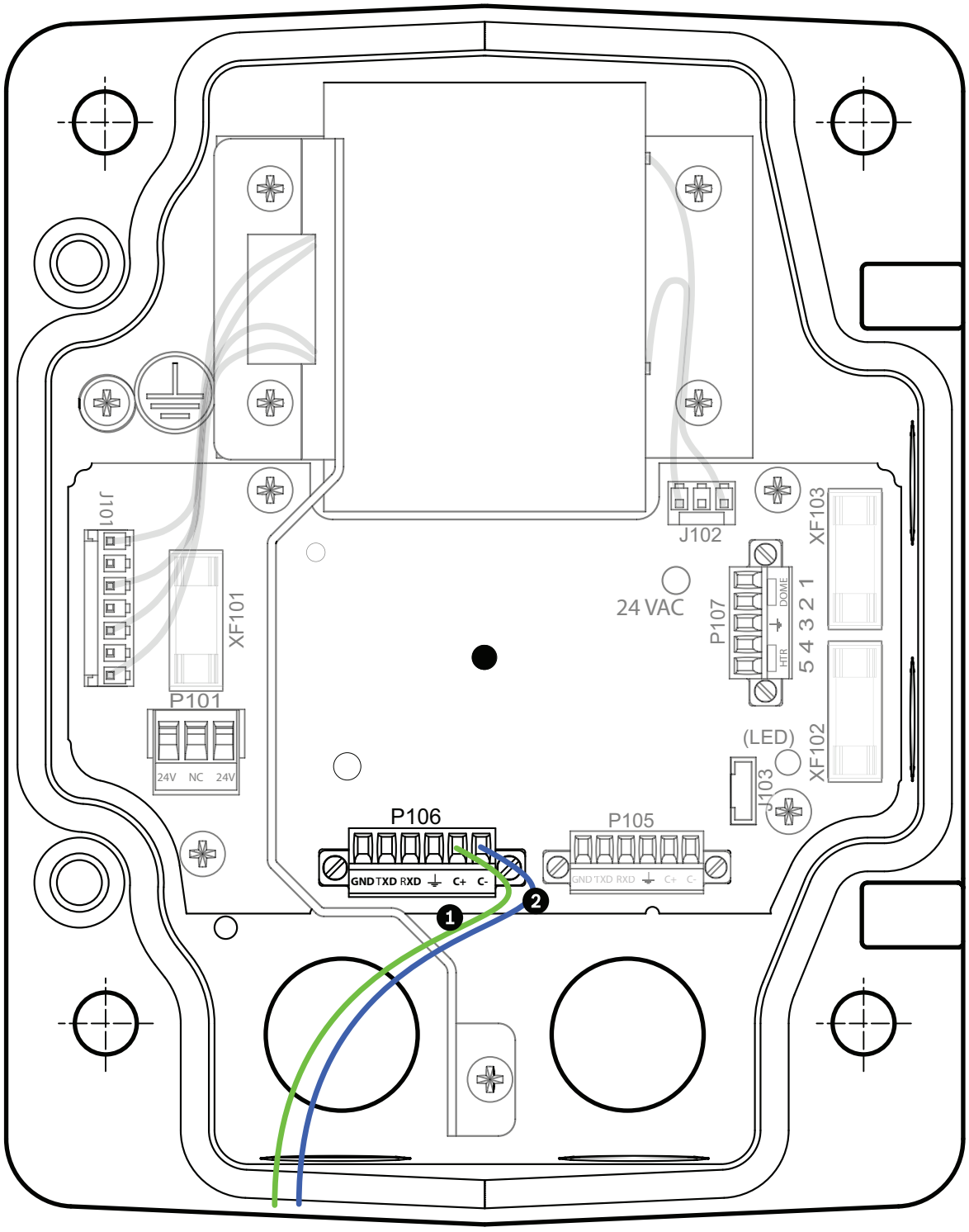


Figure 3.7: Detail of P106 Connections

1	Green RxD wire connected to C+
2	Blue Ground wire connected to C-

1. Connect the fiber optic cable from the AutoDome to the LTC 4629.
2. Close the door to the power supply unit.
3. Ensure that the VG5 AutoDome is set to receive RS232 commands.
   – Remove the bubble from the VG5 AutoDome housing.
   – Locate the protocol switch on the CPU board.
   – Ensure that the protocol switch is in the left position for RS232 operation.

Figure 3.8: Position of CPU Switch for RS232 Operation

1	Switch Location
2	LEDs
3	Move Switch to the left for RS232 Operation
4	CPU Module

1. Return the bubble to the AutoDome housing.
2. Return power to the power supply box.

3.6 Audio Cables

The VG5 700 Series AutoDome is capable of receiving line input audio signals and transmitting it over a network. The audio signal is transmitted one-way and in sync with the video signals.

Audio Line Input Specifications

Max. Input Voltage	**5.5 Vpp**
Impedance	9K Ω
Sample Rate	8 K Hz, 16 Bit, mono
Shield	Bare copper braid: 95% coverage
Internal gain level adjustment is available	

Wire Specifications

Wire Type	**Coax³ (recommended)**
Distance	10 m (33 ft)
Gage	22 AWG to Biphase connector (P105/P106)
Shield	Bare copper braid: 95% coverage
Center conductor	Stranded bare copper

Notice!
Separate the audio cables from the AC power lines to avoid noise.

Audio Connections

1. Remove the 100 Ω termination resistor from the Biphase terminals.
2. Connect the audio line level source to the Biphase C+ input terminal.
3. Connect the audio signal ground to the Biphase C- input terminal.
   The following figure illustrates the connections for audio over an IP network.

Figure 3.9: Connections for audio over an Ethernet network

1	C- (Biphase)	7	AutoDome Data In/Out
2	C+ (Biphase)	8	P105/P106 Connector
3	Earth Ground	9	Audio Out
4	RxD		
5	TxD		
6	Signal Ground		

Notice!
Refer to the *VG5 700 Series AutoDome User Manual* for configuring and using audio over an IP Ethernet network.

4 Alarms and Relay Connections

4.1 Alarm Inputs

The AutoDome provides seven alarm inputs. Each input can be activated by dry contact devices such as pressure pads, passive infrared detectors, door contacts, and similar devices. The table below summarizes the size and distance wires.

Wire Size		Maximum Distance	
AWG	mm	feet	meters
22	0.644	500	152.4
18	1.024	800	243.8

Table 4.1: Alarm wire guide

You wire alarms either Normally Open (N.O.) or Normally Closed (N.C.), and must program the alarm inputs N.O. (the default) or N.C. through the AutoDome main menu.
The AutoDome incorporates two (2) types of alarms: Non-supervised and Supervised. In addition to transmitting an alarm condition, a supervised alarm also transmits a tamper condition. Depending on how the alarm is configured, a short or a break in the alarm's circuit can trigger the tamper signal.

4.2 Configuring Supervised Alarms (inputs 1 and 2)

To configure Alarm 1 or 2 (pin 5 or 6) for supervision, you must install a 2.2 K end-of-line resistor in the circuit. Then, you program the alarms through the AutoDome main menu to either Normally Open Supervised (N.O.S.) or Normally Closed Supervised (N.C.S.).

Notice!
Only Alarms 1 and 2 (pins 5 or 6) can be configured for supervision. Once a supervised alarm is programmed it does not need to be enabled to indicate a tamper condition.

4.2.1 Configuring a Normally Open Supervised Alarm

1. Install a 2.2 K end-of-line resistor in the alarm circuit.
2. Connect the alarm wires to input 1 or 2 (pin 5 or 6) and to the ground (pin 7) at the AutoDome.

Figure 4.1: N.O.S. - Normally Open Supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm 1 or 2 only (Pin 5 or 6)	4	Ground (Pin 7)

- From the AutoDome main menu, select Alarms Setup>Inputs Setup, and set the Alarm Input # to N.O.S. See the table below for contact and condition details.

AutoDome Programmed N.O.S.	
Contact	Alarm Condition
Open	Normal
Closed	Alarm
Cut or brake	Tamper

4.2.2 Configuring a Normally Closed Supervised Alarm

1. Install a 2.2 K end-of-line resistor in the alarm circuit.
2. Connect the alarm wires to input 1 or 2 (pin 5 or 6) and to the ground (pin 7) at the AutoDome.

Figure 4.2: N.C.S. - Normally Closed Supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm 1 or 2 only (Pin 5 or 6)	4	Ground (Pin 7)

- From the AutoDome main menu select Alarm Setup>Inputs Setup, and set Alarm Input # to N.C.S. See the table below for contact and condition details.

AutoDome Programmed N.C.S.	
Contact	Alarm Condition
Open	Alarm
Closed	Normal
Short	Tamper

4.3 Configuring Non-supervised Alarms (inputs 1 through 7)

You can configure alarms 3 through 7 as non-supervised Normally Open (N.O.) or Normally Closed (N.C.) alarms.

4.3.1 Configuring a Normally Open Non-supervised Alarm

- Connect the alarm to the appropriate input (1 through 7) and ground at the AutoDome.

Figure 4.3: N.O. - Normally Open Non-supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm Inputs 1 to 7	4	Ground

- From the AutoDome main menu select Alarm Setup>Inputs Setup, and set Alarm Input # to N.O. See the table below for contact and condition details.

AutoDome Programmed N.O.	
Circuit	Alarm Indication
Open	Normal
Closed	Alarm

4.3.2 Configuring a Normally Closed Non-supervised Alarm

- Connect the alarm to the appropriate input (1 through 7) and ground at the AutoDome.

Figure 4.4: N.C. Normally Closed Non-supervised Connections

1	Dry Contact	3	Dome Connector
2	Alarm Inputs 1 to 7	4	Ground

- From the AutoDome main menu select Alarm Setup>Inputs Setup, and set Alarm Input # to N.C. See the table below for contact and condition details.

AutoDome Programmed N.C.	
Circuit	Alarm Indication
Open	Alarm
Closed	Normal

4.4 Alarm Outputs

The AutoDome incorporates two (2) types of alarm outputs: a dry contact relay and three (3) open collector outputs or transistor outputs.

4.4.1 Configuring a Dry Contact Relay

The dry contact relay acts like an on/off switch. It has a maximum voltage rating of 2 A @ 30 DC.

1. Connect the appropriate stripped wire to the AutoDome COM connector.
2. Connect the appropriate stripped wire to the N.O. or N.C. connector, depending on your requirement.

4.4.2 Configuring an Open Collector Output

Outputs 1, 2, and 3 are open collector types. These outputs must be connected to a positive voltage between 5 and 32 V to complete the circuit, with a maximum voltage rating of 32 VDC @ 150 ma.

1. Connect the appropriate stripped wire to the open connector (1, 2, or 3) of the transistor.
2. Connect the appropriate stripped wire to the ground (GND) connector.

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