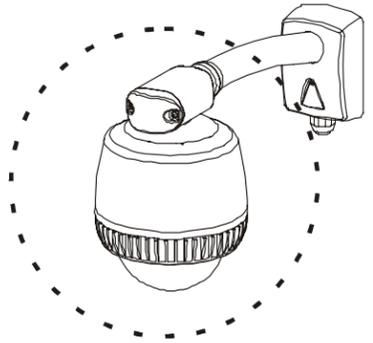


ADSDUHOC, ADSDUHOS, ADSDUHOVRC, ADSDUHOVRS SpeedDome® Ultra Outdoor Housing Installation Guide



= Step Prevents Water Intrusion.

Before performing these steps, read additional information attached for important details and warnings!

IMPORTANT! This housing meets IP66/Nema 4 ratings provided it is used with a properly installed ROENDC End Cap Assembly and one of the following mounts: RHOTR Over-the-Roof Mount, RHOSW Short Wall Mount, or RHOLW Long Wall Mount.

At end of pipe.

Seal Sleeve

Ensure black foam plug is around cable and press-fit into pipe.

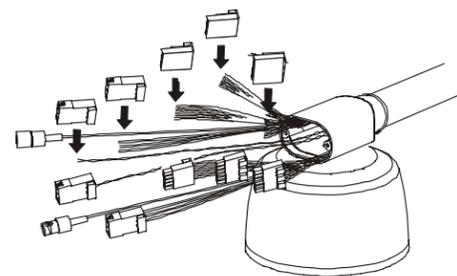
Ensure seal and sleeve are properly set.

See A, B, C.

Line up. Push to line and maintain compression. Tighten.

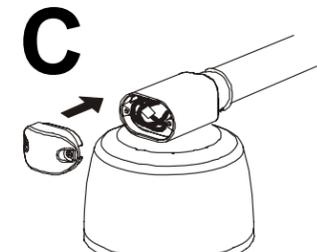
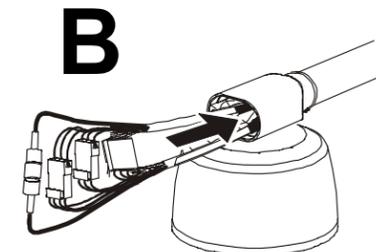
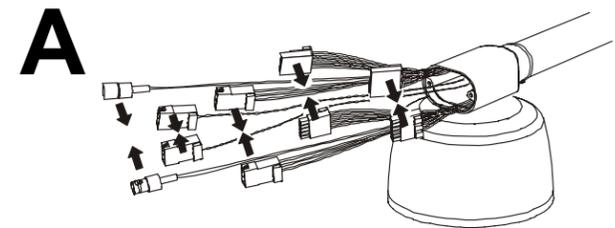
2

Attach cable connectors.



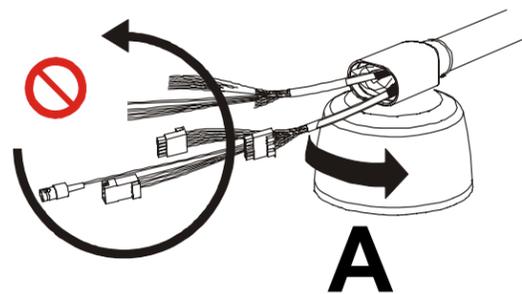
3

Make connections, insert cables into end cap assembly, and attach cover.



1

Thread cables through end cap assembly and attach housing to mounting structure.



B

Keep cables from twisting while turning housing.

A

Turn until no threads are exposed.

Green 3-Pin Connector (Power)

- Pin 1 - Black (24Vac)
- Pin 2 - Red (Common)
- Pin 3 - White (24Vac)

Green 2-Pin Connector (Twisted Pair Video)

- Pin 1 - + (video high)
- Pin 2 - - (video ground)

Black Connector (Data) Manchester

- Pin 1-4 - Not used
- Pin 5 - White/Orange (Manchester W)
- Pin 6 - White/Yellow (Manchester B)

RS-422

- Pin 1 - Orange (Rx +)
- Pin 2 - Green (Rx -)
- Pin 3 - Yellow (Tx +)
- Pin 4 - Brown (Tx -)
- Pins 5-6 - Not used

SensorNet

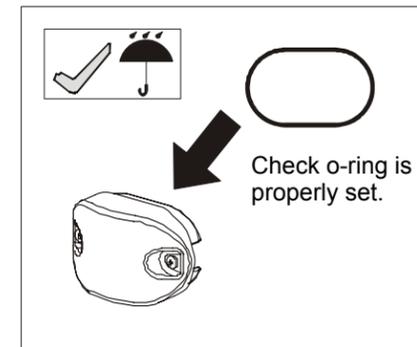
- Pin 1-4 - Not used
- Pin 5 - White/Orange (SensorNet Hi)
- Pin 6 - White/Yellow (SensorNet Lo)

Gray 5-Pin Connector (Relay)

- Pin 1 - Blue (NC)*
- Pin 2 - Purple (Common)*
- Pin 3 - Gray (NO)*
- Pin 4 - White/Red (Alarm Return)
- Pin 5 - White/Black (Alarm 1)
- * Relay contact not to exceed 1A @ 30Vdc or 0.3A @ 125Vac.

Blue 4-Pin Connector (Alarm)

- Pin 1 - White/Blue (Alarm 2)
- Pin 2 - White/Brown (Alarm 3)
- Pin 3 - White/Purple (Alarm 4)
- Pin 4 - White/Red (Alarm Return)

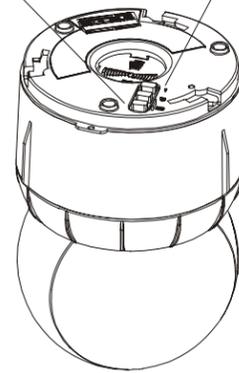
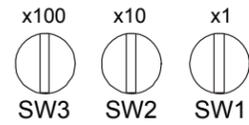


4

Set the dome address.

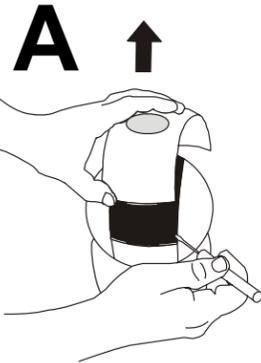
The address range is from 001 to 255, except for Manchester, which is 01 to 64.

Set switches. Example: For address 107, set SW3 to 1, SW2 to 0, and SW1 to 7.

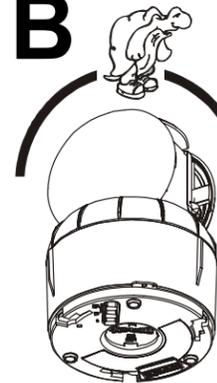


5

Remove and discard both eyeball covers.



B



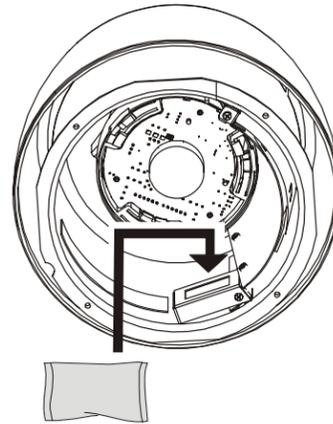
! To avoid motor damage, turn eyeball slowly to expose second cover!



6

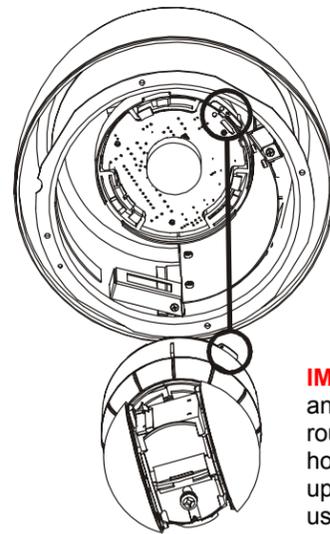
IMPORTANT! Both the outdoor housing and dome camera are shipped “terminated” for when they are installed at the end of a data cable. Should the cable continue to another dome, “unterminate” the housing. See information attached.

A Place the desiccant bag in the pocket located inside the housing and adjacent to the blower/heater assembly.

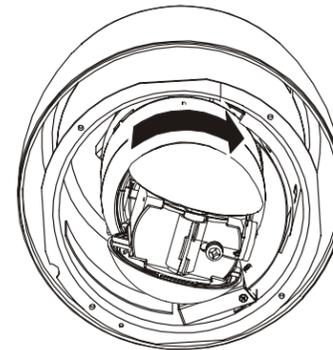


IMPORTANT! If the bubble is attached to the dome for up to 30 minutes or more and then detached, the bag must be replaced before the bubble is attached again. An extra bag is supplied. If more are needed, order kit 0352-0207-02.

B Connect dome camera by aligning protrusion on dome with fluorescent marks on the mounting base.



C Turn clockwise to lock.



IMPORTANT! Power the dome (heater fans turn on) and check it performs its homing routine. During this routine, the camera lens moves up into the dome housing, down to the floor, pans slowly, and moves up to its home position. The controller can then be used to call up and control the dome. If OK, continue. If not, see “Troubleshooting” in information attached.

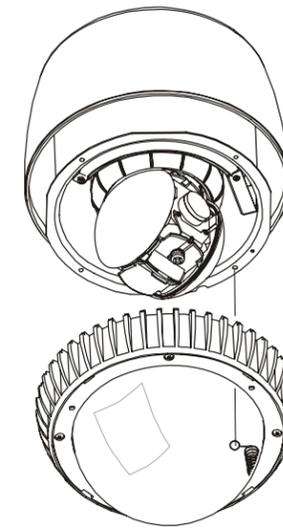
IMPORTANT! If installing a SpeedDome Ultra 8 dome in a legacy outdoor housing, go to the Dome Information screen and select I/O Configuration. Then select “Outdoor”. This setting will ensure proper operation of the heater/blower.

7

Attach bubble assembly.

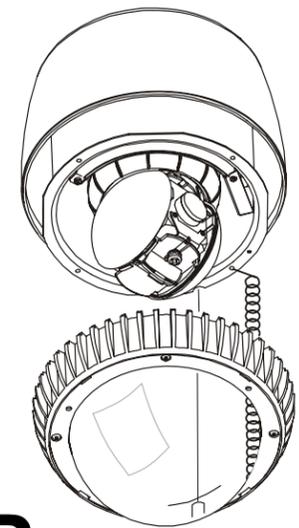
A

Attach lanyard to stud on flange of housing. Secure with thumbnut.



B

Attach bubble to housing. Vandal-resistant version has additional shield installed.



Once the bubble is attached to the housing, surface A must meet surface B on all sides. Ensure lanyard is not caught between flange and trim ring gasket, or trim ring and sunshield.

Check for bent flange. Discard housing if found.

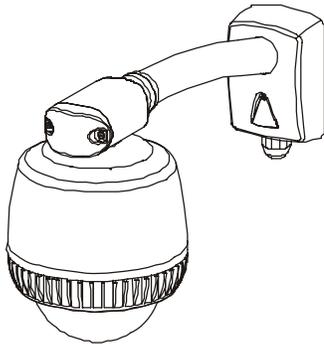
Check for cracks in bubble. Discard bubble if found.

Ensure all four tamperproof screws are tight.



SpeedDome® Ultra Outdoor Housing

Installation Guide—Continuation



ADSDUHOC
ADSDUHOS
ADSDUHOVRC
ADSDUHOVRS

Contents:

To the Installer.....	3
About the Product.....	3
Parts Supplied.....	3
Tools Required.....	3
Warnings and Cautions.....	4
Preventing Condensation.....	5
Parts List for Authorized Users.....	5
Connector Pin Assignments.....	6
Cable Requirements.....	6
Housing Termination and Video Configuration.....	7
Troubleshooting.....	9
Specifications.....	11
Declarations.....	12

To the Installer

This guide assumes that the outdoor mounting structure to which the housing is attached is in place and that data and power cables have been pulled to the installation site. To install the outdoor mounting structure, see documents shipped with the structure.

About the Product

The outdoor housing has a sunshield cover and bubble that protect the SpeedDome Ultra dome camera. Tamperproof screws affix the bubble to the housing.

The housing is temperature controlled and weatherproof. A built-in thermostat and heater prevent ice from forming on the outside of the bubble.

The non-vandal resistant version has four alarm inputs and one SPDT relay. Surge protection is provided on all external lines, including video.

Parts Supplied

- Housing assembly 0101-0115-03
- Housing assembly, vandal-resistant 0101-0116-03
- Bubble assembly 0404-1402-01 (Clear) / -02 (Smoked)
- Tamperproof drive 1400-0149-01
- Install kit 0352-0248-03

Purchase or Supply Separately

Male BNC connector

Tools Required

- 6.6mm (1/4in) fixed-handle nut driver for Torx bit
- Wire cutters and strippers
- 2.5mm (0.1in) slotted screwdriver

Warnings and Cautions

Please review the following warnings and cautions before you begin installation or service.

Warnings



WARNING! Always use proper lift and safety equipment for the location and type of installation. Use the safety features of the lift equipment.



WARNING! When connecting wires, ensure electrical power is not connected to the camera dome. The dome will move when power is applied. Also, ensure electrical power is not connected to nearby fixtures you might touch during installation.



WARNING! The camera dome runs on 24Vac. DO NOT connect line voltage to the dome.

North America power requirements: In North America, this device is intended to be supplied from a Class 2 power supply. For outdoor installations, use Class 3 wiring techniques, liquid-tight conduit, or liquid-tight pipe.

This installation should be made by a qualified service person and should conform to all local codes.



WARNING! DO NOT install this housing where combustible or explosive products are stored or used.



WARNING! EU power requirements: This product runs on 24Vac. In the EU, it is intended to be powered from a Limited Power Source. A limited power source is a certified source of SELV, and if inherently limited, with 8 amps maximum output current, and a maximum of 100VA available; or if not inherently limited, fused with a maximum value of 3.3 Amps, meeting section 2.11 of IEC950, and a maximum of 250VA available. The power supply can be obtained through American Dynamics or through another source where the provider can furnish the required certification. This is required to assure electrical safety in the product.

Cautions



Water leaks, even small ones, can increase humidity inside the outdoor housing. To help eliminate humidity, follow all instructions explicitly and also the following cautions:

- DO NOT use over seals such as RTV and silicone caulks.
- Ensure blower/heater assembly fans spin when power is on.

Also see “Preventing Condensation” on page 5.

- To protect the bubble assembly, leave it in its box until you are ready to install it.
- Do not run data/power cables adjacent to or in the same conduit as line voltage mains power.
- Network cable/device requirements (additional requirements are listed on page 6):

Network	Cable Thickness Required	Maximum Devices per Cable Run
SensorNet	0.326mm ² (22AWG)	32
RS-422	0.326mm ² (22AWG)	10
Manchester	0.823mm ² (18AWG)	3

- Remove both slot covers from the eyeball to prevent overheating
- Keep cables within the housing away from the heater assembly
- If required, set data cable termination inside the housing (see “Unterminating the Outdoor Housing” on page 7).
- If possible, mount the housing so the least needed view (such as a wall, building corner, or pole) is opposite the blower/heater assembly.
- Protect this equipment from direct lightning strikes. See *Lightning Protection Reference Guide* 8200-0627-01 available online at www.americandynamics.net.

Preventing Condensation



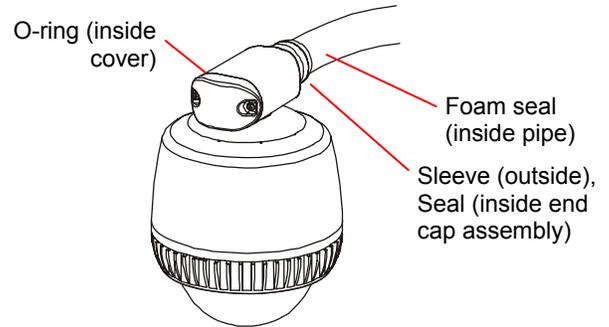
Damage, missing parts, or procedures that most often allow water to enter the housing are as follows (refer to figures opposite):

- Missing O-ring on cover, or missing sleeve or seal on end cap assembly
- Missing Teflon tape around any housing pipe threads
- RTV or similar sealant covering an air path
- Blower fans not turning
- Loose tamperproof screws in bubble assembly
- Bent flange on metal housing that compromises the gasket seal between the bubble and the housing
- Plugged drain holes in the bubble trim ring
- Cracked bubble
- Tamperproof screws that are missing or improperly tightened compromise the gasket seal between the bubble and the housing
- Ensure lanyard is not caught between: a) flange and trim ring gasket, and b) trim ring and sunshield
- In high humidity environments, the desiccant bag may need to be replaced occasionally.

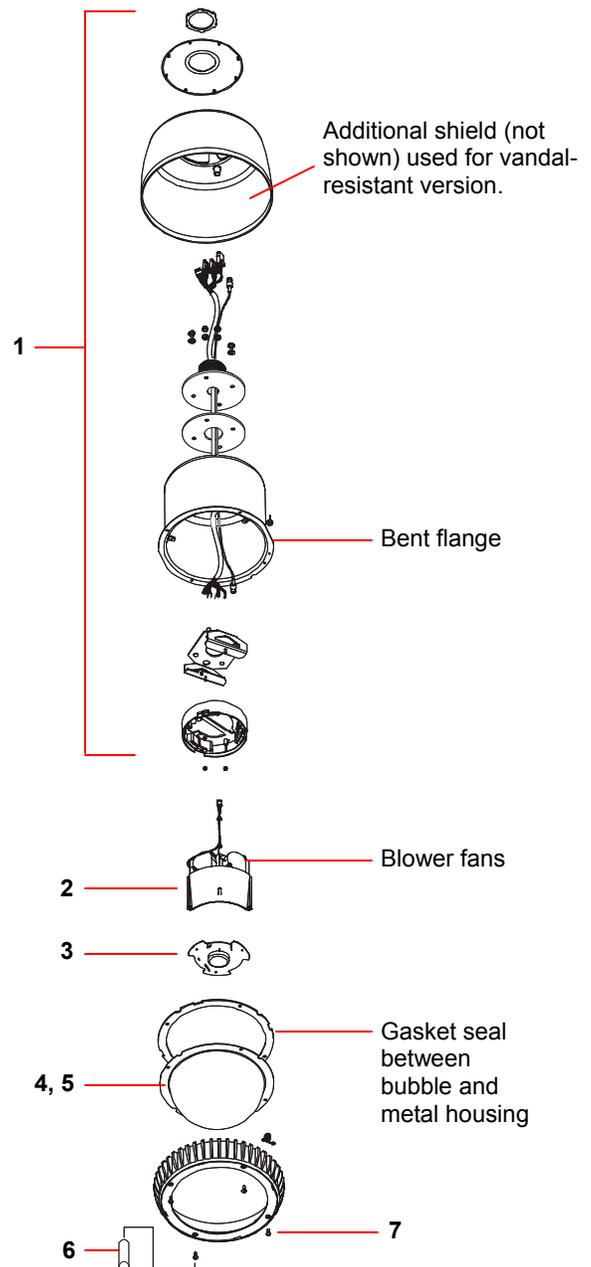
Parts List for Authorized Users

The parts listed below and shown in the exploded view can only be ordered by authorized users. To become authorized, contact your sales representative.

1. Housing Assy., 0404-0260-03
2. Blower/Heater Assy., 0304-2906-01
3. I/O Board Assy., 0312-2124-03
4. Bubble Assy. (Clear), 0400-1402-01
5. Bubble Assy. (Smoke), 0400-1402-02
6. Drive, Tamperproof, 1400-0149-01
7. Screws, Tamperproof, 0500-8034-01 (x4)
8. Desiccant Kit, 0352-0207-02



Exploded view



Connector Pin Assignments

GREEN CONNECTOR (POWER)

Pin	Color	Description
1	Black	24Vac
2	Red	Common
3	White	24Vac

BLACK CONNECTOR (DATA)

Manchester

Pin	Color*	Designation
1-4	—	Not used.
5	White/Orange	Manchester (White)
6	White/Yellow	Manchester (Black)

RS-422 / SensorNet

Pin	Color*	Designation
1	Orange	RS-422 Data In High (+)
2	Green	RS-422 Data In Low (-)
3	Yellow	RS-422 Data Out High (+)
4	Brown	RS-422 Data Out Low (-)
5	White/Orange	SensorNet (unshielded)
6	White/Yellow	SensorNet (unshielded)

*Color based on composite cable.

GREEN CONNECTOR (TWISTED PAIR VIDEO)

Pin	Color	Designation
1	—	+ (video high)
2	—	- (video ground)

GRAY CONNECTOR (RELAY ALARM OUTPUTS)

Pin	Color	Description
1	Blue	Normally Closed*
2	Purple	Common*
3	Gray	Normally Open*
4	Wht/Red	Alarm Return
5	Wht/Blk	Alarm input 1 (3.5mA sink)

*Relay contact not to exceed 1A @ 30Vdc or 0.3A @ 125Vac.

BLUE CONNECTOR (ALARM INPUT)*

Pin	Color	Designation
1	Wht/Blue	Alarm input 2
2	Wht/Brn	Alarm input 3
3	Wht/Purple	Alarm input 4
4	Wht/Red	Alarm Return

* 0101-0115-0X non-vandal resistant housing, 0101-0116-0X vandal-resistant housing.

Cable Requirements

Data Cable

The table below shows requirements for SensorNet, RS-422, and Manchester networks. For more information about communication protocols and cable networks, see Communication Protocols and Cable Networks, 8000-2573-19.

Data cable requirements

	SensorNet	RS-422	Manchester
Cable type	1 unshielded, twisted pair*	2 shielded, twisted pair*	1 shielded twisted pair**
Wire gauge	22 AWG	22 AWG	18 AWG
Connection	Non-polarized	Polarized	Polarized
Max. devices on line	32	10	3

* Power, data, and video cables can be ordered separately or within a composite cable that can be ordered in various lengths. Plenum-rated cables must be used in indoor ceilings used for environmental air return (called "other air space" in the National Electrical Code). Order parts through your distribution network.

Note: If you order cable from an outside source, wire colors may be different.

** Belden 88760 (plenum), or Belden 8760 cable (non-plenum) cable is recommended. Plenum-rated cables must be used in indoor ceilings used for environmental air return (called "other air space" in the National Electrical Code). Order cable directly from Belden by calling 1-800-235-3361.

Power Cable

The camera dome and housing are to be connected to a Class 2 LPS, 24Vac, 80VA power source. Do not exceed the maximum outdoor Class 2 ratings of 30Vac, 100VA.

	0.823mm ² (18AWG)	1.31mm ² (16AWG)	2.08mm ² (14AWG)
Low Line Voltage 102/204Vac	60m (200ft)	100m (320ft)	160m (520ft)
Low Line Voltage 90/180Vac	30m (100ft)	50m (160ft)	80m (260ft)

Housing Termination and Video Configuration

Both the outdoor housing and dome camera are shipped “terminated” for when they are installed at the end of a data cable. Should the cable continue to another dome, “unterminate” the housing using the following procedure.

IMPORTANT! Leave the dome camera set to “terminated.”

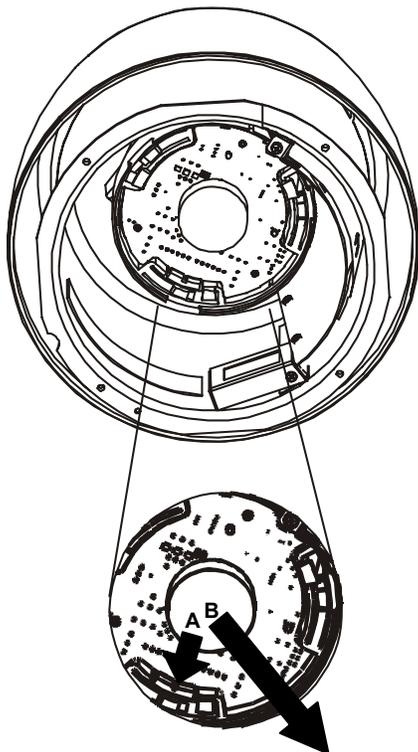
Unterminating the Outdoor Housing



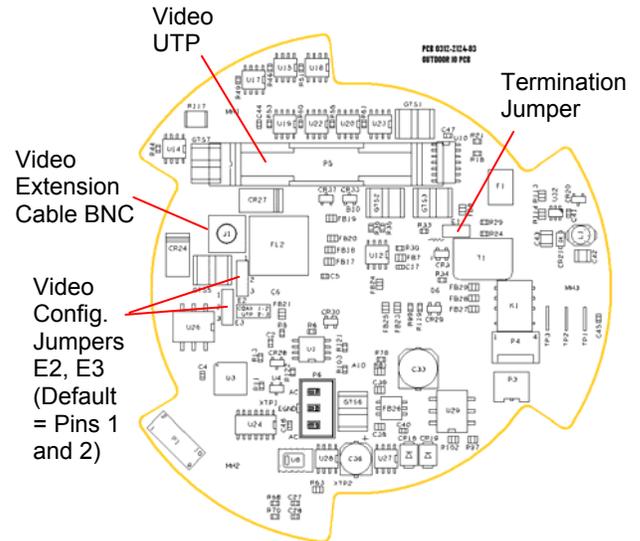
CAUTION: The environmental circuit board inside the housing is static sensitive! Touch the metal housing to discharge it before touching the board.

1. As shown above, detach the circuit board from the housing by:
 - A. Pushing fingers molded into the base away from the board while
 - B. Pulling on the dust cover protecting the board’s spring finger connector.

Note: Keep the dust cover in place for the next two steps.



On the circuit board:



2. Set the termination jumper E1 according to the dome’s position in the communications line.

Position of dome in communications line...	Setting	Pins
Between other devices	Unterminated	Off
End of communications line	Terminated	1-2

Note: You may need a small slotted screwdriver to gently pry the jumper loose. Be careful not to damage the PC board.

3. Connect video and set jumpers:
 - Coax: Connect to the I/O board BNC video cable extension and leave video configuration jumpers E2 and E3 across pins 1 and 2 (default position). These pins are closest to the video extension cable.
 - UTP: Connect to plug P5 and place video configuration jumpers E2 and E3 across pins 2 and 3 (pins farthest to the video extension cable).

TB5 Pin Designations

Pin	Designation
1	Video Hi
2	Video Lo

4. On the circuit board is a mark (shown below).
To reattach the board to the housing, match the mark to an identical mark on the base and snap the board in place.



5. Gently remove the dust cover.

Note: Keep the cover and use it to protect contacts should the environmental PC board need to be removed from the housing.

Troubleshooting

This section covers what to do when:

- Dome does not respond to commands
- Fans do not turn
- Picture is grainy or discolored
- Poor video
- Ice forms on bubble.



CAUTION: Some steps in this section involve tightening wire connections.

- Use a 2.5mm (0.1in) slotted screwdriver. Using a blade too wide can damage connectors.
- Screws on the ac connector are delicate. DO NOT over tighten them!

Dome Does Not Respond to Commands

Follow steps until the problem is corrected. See page 5 to order parts.

1. Detach the camera dome from the base and check the address switches. Are they set correctly?
 - YES: Continue.
 - NO: Set the correct address and reconnect the dome.
2. Verify power is reaching the housing. Press and hold switch SW2 on the environmental PC board and observe the green (ac power) LED. Does the LED glow steadily?
 - YES: Reattach the dome and continue.
 - NO: Check power at the J-box and ac cable connections at connector P7 on the other side of the environmental PC board. If OK, replace the PC board.

Connector P7 pin outs

Pin	Color	Description
1	N/A	24Vac
2	N/A	Common
3	N/A	24Vac

3. Verify data is reaching the housing. SENSORNET or RS-422: Press and hold switch SW2 on the environmental PC board and observe the yellow (comm.) LED. The LED should blink (SensorNet) or glow steadily (RS-422).

To verify RS-422 connections at connector P1, press and hold data test switch SW1 on environmental PC board. Check the nearby red and green LEDs; they indicate the following:

Constant green, Blinking red	RS-422 line is correctly wired.
Constant green, No red	RS-422 "Data In -" is shorted to ground.
Constant red, Blinking green	"Data In + / -" wires are reversed.
Blinking red, Green off	"Data In +" is shorted to ground.
Both LEDs off	"Data In + / -" wires are shorted or open.

P1 pin outs:

Manchester data connections (Ultra IV only)

Pin	Color	Designation
1-4	—	Not used.
5	White/Orange	Manchester (White)
6	White/Yellow	Manchester (Black)

RS-422 Data connections

Pin	Color	Designation
1	Orange	RS-422 Data In High (+)
2	Green	RS-422 Data In Low (-)
3	Yellow	RS-422 Data Out High (+)
4	Brown	RS-422 Data Out Low (-)
5-6	—	Not used.

SensorNet Data Connections

Pin	Color	Designation
1-4	—	Not used.
5	White/Orange	SensorNet (unshielded)
6	White/Yellow	SensorNet (unshielded)

4. Check fans. Are they on?
 - YES: Continue.
 - NO: Go to “Fans Do Not Turn” procedure next.
5. Check video on monitor. Does the picture roll?
 - YES: Use the video controller or switcher to synchronize video vertical sync phases of all domes to the ac line. For specific instructions, see the installation and service manual for the controller or switcher.
 - NO: Continue.

Is the picture normal?

 - YES: See “Detailed Troubleshooting” in the installation and service manual supplied with the dome.
 - NO: See “Poor or No Video” on this page.

Blowers Do Not Turn

Follow steps until the problem is corrected. See page 5 to order parts.

1. Determine if the dome camera is receiving power. Look for evidence such as a picture on the video monitor or dome movement.
2. Detach the dome camera to access the environmental PC board.

Note: Power to blowers comes from the dome. Fans will not function with the dome removed.



CAUTION: Touch the metal housing before handling the environmental PC board.

3. Verify power is reaching the housing. Press and hold switch SW2 and observe the green (ac power) LED; it should glow steadily. If not, check power at the J-box and check that the ac cable is plugged into connector P7 on the top side of the environmental PC board.
4. Check the blower connector. Is it plugged into connector P5 on other side of the environmental PC board?
 - YES: Replace blower/heater assembly 0304-2906-01. Remove two screws to remove assembly.
 - NO: Plug the connector in, reinstall the environmental PC board, and reconnect the dome. If blower/heater fans still do not work, replace the blower/heater assembly.

Picture is Grainy or Discolored

Check the blowers. If they are not turning, the camera dome may be overheating. See “Dome Does Not Respond to Commands” on page 9.

Poor or No Video

See “Dome Does Not Respond to Commands” on page 9.

Ice Forms On Bubble

Follow steps until the problem is corrected. See page 5 to order parts.

1. Are blower/heater fans in the housing working? If not, see “Fans Do Not Turn” opposite.
2. Is the camera dome receiving power? Look for evidence such as a picture on the video monitor or dome movement.
3. Detach the dome to access the environmental PC board.

Note: Power to the heater comes from the dome. The heater will not function with the dome removed.



CAUTION: Touch the metal housing before handling the PC board.

4. Verify power is reaching the housing. Press and hold switch SW2 and observe the green (ac power) LED; it should glow steadily. If not, check power at the J-box and if the ac cable is plugged into connector P7 on other side of environmental PC board.
5. Check the heater connector on other side of the environmental PC board. Is it plugged into connector P2?
 - YES: Unplug the heater cable and check heater resistance across pins of plug. Is the resistance approximately 16 ohms?

If yes, replace environmental PC board 0312-2124-03. If not, replace fan/heater assembly 0400-0935-01 by removing the two screws.
 - NO: Plug the connector in, reinstall the environmental PC board, and reattach the dome. If the fans still do not work, replace the fan/heater assembly.

Specifications

Electrical (combined dome and housing)

Input Voltage	24 to 30Vac, 50/60 Hz NEC Class 2 Certified Limited Power Source
Design Tolerance	20 to 36Vac, 50/60 Hz
Power Consumption	80W max
Power On In-Rush current.....	3A

Surge Protection:

Video	Series resistor of 3.9 ohms; low-capacitance Zener suppressor of 6.5V, 1500W, 500W, 10kA impulse-rated gas tube
Power Line.....	TVS rated at 60V, 1.5 joules, 250A 8/20µs impulse, 500W, 10kA impulse-rated gas tube
RS-422	Series resistor of 3.3 ohms; TVS rated at 5.6V, 40A, 0.1 joules, 8/20µs impulse, 500W, 10kA impulse-rated gas tube
Manchester/SensorNet.....	Isolation transformer coupled 2000Vrms; PTC fuse protects transformer; TVS rated at 5.6V, 40A, 0.1 joules, 8/20µs impulse, 500W, 10kA impulse- rated gas tube
Alarm Input	Series resistors of 33 ohms; TVS rated at 5.6V, 40A, 0.1 joules, 8/20µs impulse, 500W, 10kA impulse-rated gas tube
Auxiliary Output	1000V Isolation Form 1-C relay

Environmental

Operating Temperature	-40°C to 50°C (-40°F to 122°F)
Relative Humidity.....	0 to 95% non-condensing
Storage Temperature	-10°C to 50°C (-14°F to 122°F)
Wind loading.....	Sustained winds of 240Km/hour (150 miles/hour) when properly installed and mounted (wall, pole, ceiling, and over-the-roof mount with proper support)

Mechanical

Height	32.1cm (12.6in)
Diameter	24.4cm (9.6in)
Weight:	
Without dome	2.7kg (6.1 lbs.)
With dome	3.9kg (8.7 lbs.)
Mechanical connection.....	1.5in NPT

Declarations

Regulatory Compliance

REG ID: SV SDUO

Emissions	47 CFR, Part 15, Class A ICES-003 CISPR 22, Class A
Immunity	EN50130-4
Safety	UL 1950 CSA C22.2 No. 950 EN60950-1 IEC 60950-1

FCC COMPLIANCE: This equipment complies with Part 15 of the FCC rules for Class A digital devices when installed and used in accordance with the instruction manual. Following these rules provides reasonable protection against harmful interference from equipment operated in a commercial area. This equipment should not be installed in a residential area as it can radiate radio frequency energy that could interfere with radio communications, a situation the user would have to fix at their own expense.

EQUIPMENT MODIFICATION CAUTION: Equipment changes or modifications not expressly approved by Sensormatic Electronics Corporation, the party responsible for FCC compliance, could void the user's authority to operate the equipment and could create a hazardous condition.

Other Declarations

Thank you for using American Dynamics products. We support our products through an extensive and worldwide network of dealers. The dealer, through whom you originally purchased this product, is your point of contact if you have a need for service or support. Our dealers are fully empowered to provide the very best in customer service and support. Dealers should contact American Dynamics at (800) 507-6268 or (561) 912-6259 or on the web at www.americandynamics.net.

WARRANTY DISCLAIMER: Sensormatic Electronics Corporation makes no representation or warranty with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose.

NOTICE: The information in this manual was current when published. The manufacturer reserves the right to revise and improve its products. All specifications are therefore subject to change without notice.

LIMITED RIGHTS NOTICE: For units of the Department of Defense, all documentation and manuals were developed at private expense and no part of it was developed using Government Funds. The restrictions governing the use and disclosure of technical data marked with this legend are set forth in the definition of "limited rights" in paragraph (a) (15) of the clause of DFARS 252.227.7013. Unpublished - rights reserved under the Copyright Laws of the United States.

TRADEMARK NOTICE: *American Dynamics* and *Sensormatic* are trademarks or registered trademarks of Sensormatic Electronics Corporation. Other product names mentioned herein may be trademarks or registered trademarks of Sensormatic or other companies.

COPYRIGHT: Under copyright laws, the contents of this manual may not be copied, photocopied, reproduced, translated or reduced to any electronic medium or machine-readable form, in whole or in part, without prior written consent of Sensormatic.

MDR 01/08

www.americandynamics.net