# Honeywell

# Day/Night DNS Fixed Dome Camera

## NTSC  /  PAL

**HD4D**                    **HD4DX**

## User Guide

## Revisions

| Issue | Date | Revisions |
|-------|------|-----------|
| A | 04/07 | New document. |
| B | 05/07 | Increase line weight of illustrations. |
| C | 05/07 | Corrected specifications. |
| D | 06/07 | Changes: |
|   |   | Page 14, LL switch is on power supply board. |
|   |   | Page 18, corrected Day/Night mode explanation. |
|   |   | Page 24, corrected Vertical Phase Adjustment to 0 - 359°. |

# Warnings

Installation and servicing should be performed only by qualified and experienced technicians to conform to all local codes and to maintain your warranty.

**WARNING!** **12 VDC/24 VAC models require the use of CSA Certified/UL Listed Class 2 power adapters to ensure compliance with electrical safety standards.**

**WEEE (Waste Electrical and Electronic Equipment)**. Correct disposal of this product (applicable in the European Union and other European countries with separate collection systems). This product should be disposed of, at the end of its useful life, as per applicable local laws, regulations, and procedures.

# Explanation of Graphical Symbols

| | | |
|---|---|---|
| **CAUTION** **RISK OF ELECTRIC SHOCK DO NOT OPEN** | **THIS SYMBOL INDICATES THAT DANGEROUS VOLTAGE CONSTITUTING A RISK OF ELECTRIC SHOCK IS PRESENT WITHIN THE UNIT.** |
| **CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER. NO USER-SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL** | **THIS SYMBOL INDICATES THAT IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS ACCOMPANY THIS UNIT.** |

# FCC Compliance Statement

**Information to the User**: This equipment has been tested and found to comply with the limits for a Class A digital device. Pursuant to Part 15 of the FCC Rules, these limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Caution**     Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This Class A digital apparatus complies with Canadian ICES-003.

# Manufacturer's Declaration of Conformance

The manufacturer declares that the equipment supplied with this guide is compliant with the essential protection requirements of the EMC directive 89/336/EEC and the Low Voltage Directive LVD 73/23 EEC, conforming to the requirements of standards EN 55013 for emissions, EN 50130-4 for immunity, and EN 60065 for Electrical Equipment safety.

# Contents

# Introduction

The unobtrusive, low-profile design of the HD4D CCTV Camera is ideal for indoor and outdoor installations in commercial and residential venues.

## Before You Begin

Please read this guide carefully before you install the HD4D CCTV Camera.

Keep this guide for future reference.

### Unpack Everything

Check that the items received match those listed on the order form and packing slip. The HD4D packing box should include, in addition to this User Guide:

- One fully-assembled HD4D camera, including factory-installed pigtail power and video connections
- One HD4D hardware kit
- One bag containing mounting screws
- One Product warranty

If any parts are missing or damaged, contact the dealer you purchased the camera from or call Honeywell Customer Service (see *Warranty and Service*).

### Equipment Required

You will require the following tools to complete the installation:

- Phillips screwdriver
- Tools supplied in the hardware kit (three Allen keys): one for the security screw on the lid one for the conduit plug locking screw, and one for the lens locking screw
- Side-cutters

# Installation

The HD4D is weather-sealed for indoor or outdoor locations. The HD4D is a fully-integrated enclosure with camera and lens. The wiring can be completely concealed to reduce the risk of tampering.

**Figure 1    Installation Components**



HD4D dome enclosure
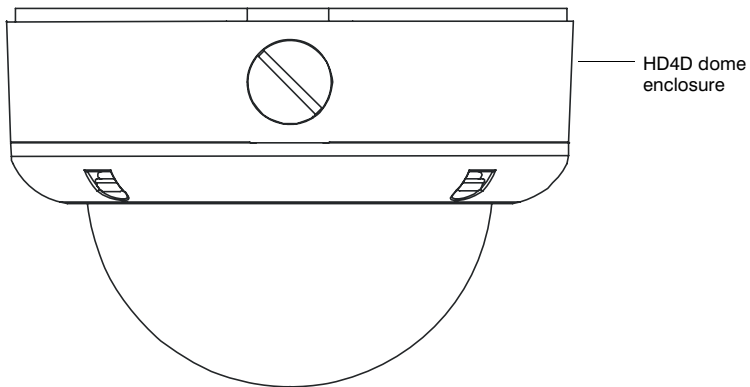
# Mounting the Camera

The HD4D Camera is designed to be surface mounted on a wall or ceiling. Before you mount the camera, use the mounting template provided to mark and pre-drill the holes.

## Connecting Cables Through the Housing Base

For installations requiring pulling cables through the grommet located in the bottom of the base:

1.  Use a sharp knife to cut an ⊗ opening in the base gasket (see the figure below). Be careful. The opening should only be big enough to feed the cable assembly through.
2.  Pull the cabling through the opening.
3.  Apply appropriate sealant around the opening to prevent moisture from entering the housing.

⊗   Base gasket opening
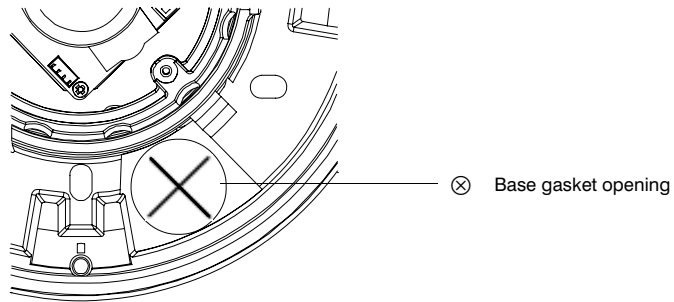
## Connecting Cables Through the Side Conduit

1. Peel back the bottom flat gasket below the side conduit just enough to expose the security screw.
2. Use the Allen key supplied to loosen and remove the security screw (see below).
3. Use a flat screwdriver to unscrew the conduit plug.
4. Pull the cabling through the hole.
5. Apply appropriate sealant around the opening to prevent moisture from entering the housing.



security screw

supplied
allen key
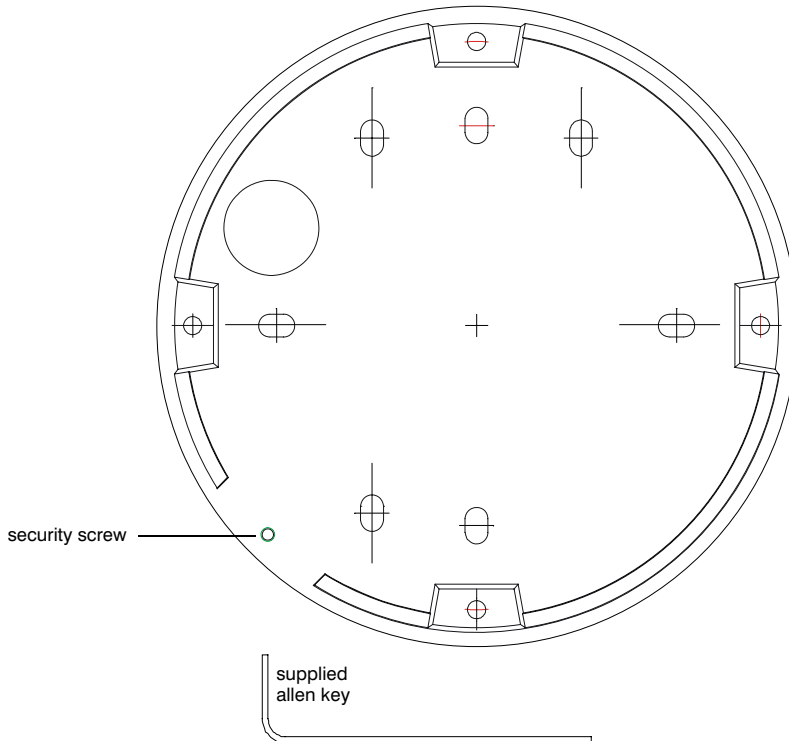
# Electrical Box Installations

*Figure 2* illustrates how to mount the HD4D directly to a 4S electrical box or directly to wall or ceiling. For 4S electrical box installations, the optional adapter plate can be used to cover ceiling or wall imperfections around the electrical box opening.

**Figure 2    4S Electrical Box Installation**

Electrical box (not supplied)

Ceiling/wall

Secure the optional adapter plate to the 4S electrical box using appropriate screws (not supplied)

Adapter plate (use is optional)

Secure the HD4D base with screws appropriate to your installation (supplied)

HD4D base

For surface mount installations (without an electrical box), use #6-1 7/16 inch slotted Type A screws (x4) supplied
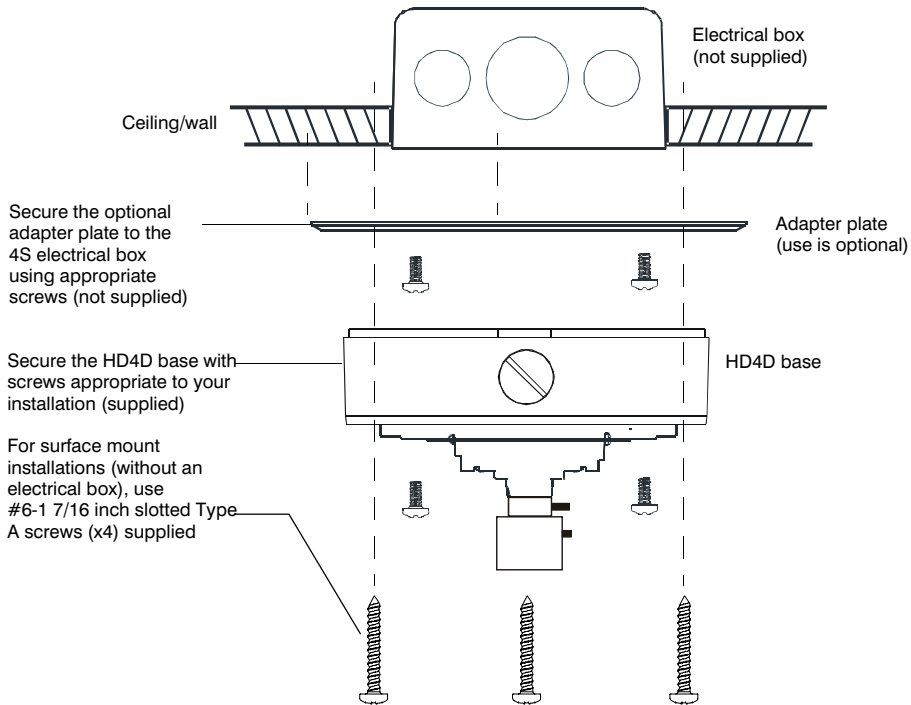
**Note**    Honeywell recommends that you orient the conduit plug facing downwards (wall mount installations) to prevent moisture from entering the housing.

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*Figure 3* illustrates how to mount the HD4D directly to a double gang or single gang electrical box.

**Figure 3    Double Gang/Single Gang Electrical Box Installation (Single Gang Shown)**

Electrical box
(not supplied)

Ceiling/wall

Secure the HD4D base with screws appropriate to your installation (not supplied)

HD4D base

For surface mount installations (without an electrical box), use #6-1 7/16 inch slotted Type A screws (x4) supplied
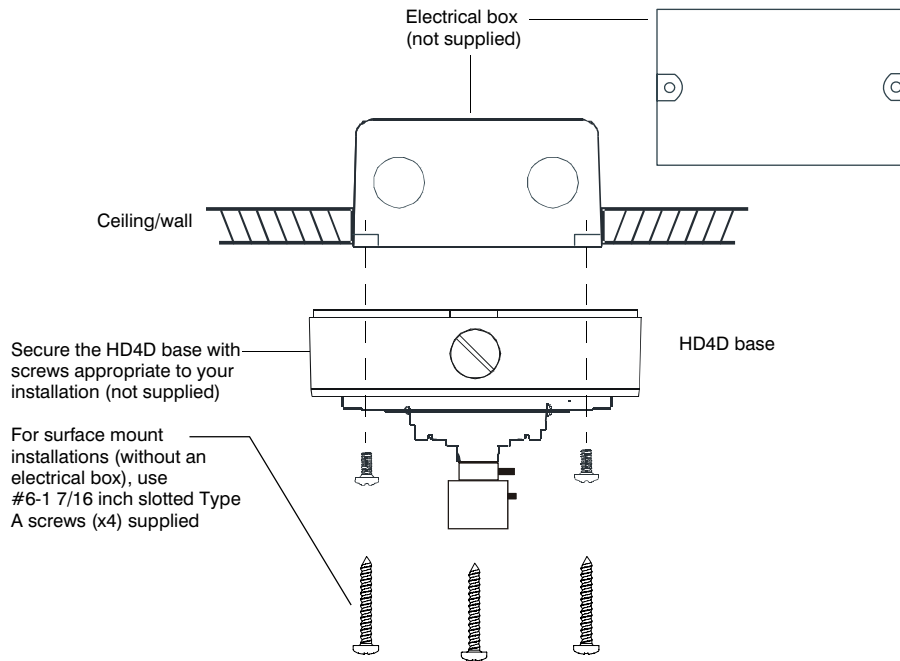
# Connecting the Wiring

Follow *Figure 4* for the wiring connection.

**Figure 4    Wiring Connection**
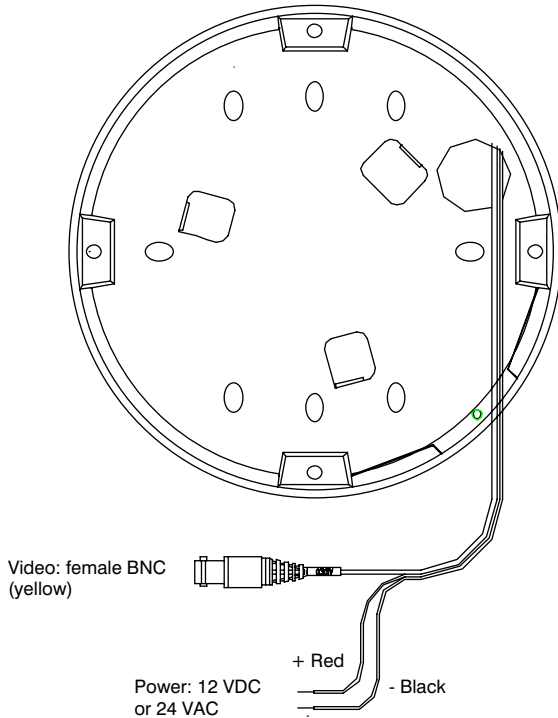


**Note**    For secure installations, surface mounted cables should be protected by plastic or metal cable covers.

Video: female BNC (yellow)

+ Red

Power: 12 VDC or 24 VAC

- Black

# Adjusting the Camera

To adjust the HD4D Camera:

1. Apply 12 VDC or 24 VAC power to the camera and monitor the video signal.
2. Loosen the screws that lock the gimbal assembly in place (see *Figure 5*).
3. Adjust the camera carrier to the desired view.
4. Tighten the screws to lock the gimbal assembly in place.

**Note** Orient the camera as shown in *Figure 5* to maintain the correct picture orientation.

**Figure 5    Gimbal Adjustment**



**Top view**

Locking screw. Loosen to adjust Horizontal (B).

Set focal length (bottom)

Line Lock switch **must be left in ON position.**

Set focus (top)

**Angle view**

Setscrews (x2). Loosen to adjust Pan (C). Other setscrew located on opposite side.

Locking screw

**Legend**

A = Tilt rotation
B = Horizontal rotation
C = Pan rotation
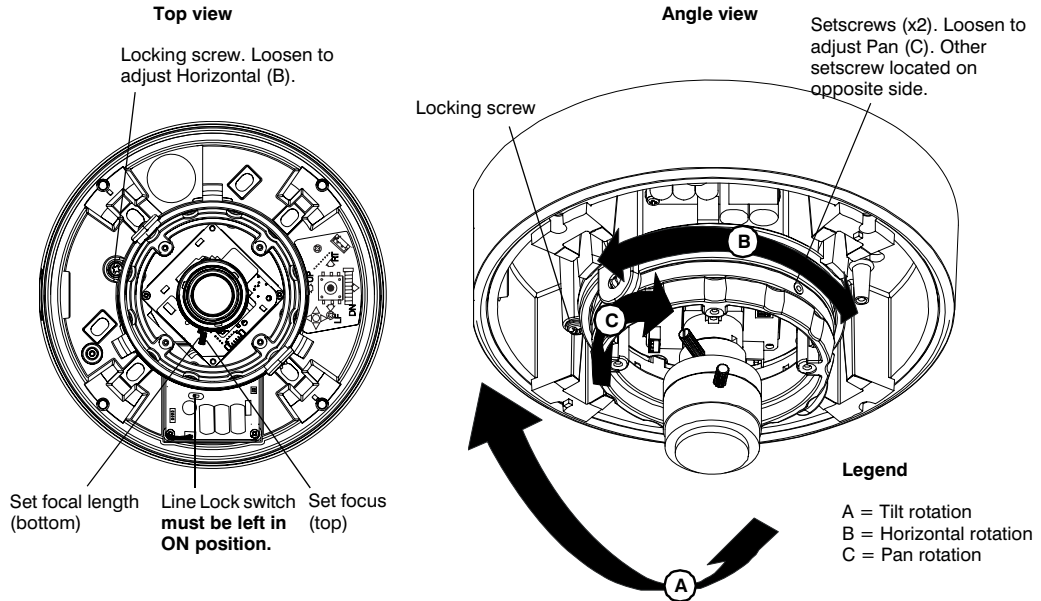
## Line Lock

The Line Lock switch on the power supply board must be left in the ON position. To switch between Line Lock and Internal Lock, use the OSD menu (see *Sync Control Setup*, page *19*).

## Adjusting the Lens Focus

Lenses are pre-focused at the factory but may require a final adjustment after installation in the unlikely event the optical effect of the dome causes a slight defocusing of the lens.

**TECH TIP!**  To check the focus, hold the dome over the lens while making any adjustments.

To adjust the camera direction, view angle and focus, connect the service monitor cable (supplied) to the video monitor output.

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# Camera Settings

## Camera Functions

### Figure 6    Camera Controller
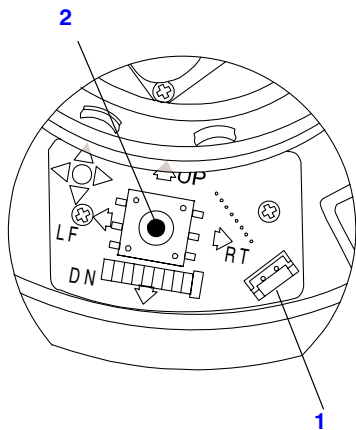


**Legend**

| # | Description |
|---|---|
| **1** | Video-test monitor output connector |
| **2** | Camera OSD control (four position plus center push) |

| Press this control | To do this |
|---|---|
| UP, DOWN | Select a new item |
| LEFT, RIGHT | Select a menu item |
| SETUP (MENU) (CENTER PUSH) | Enter SETUP MENU, access a submenu |

# OSD Menu Structure

The HD4D camera menu system consists of one main setup menu for easy programming.

**Main MENU**　　　　**Sub-Menus**　　　　**Options**

```
SETUP MENU ──1── LENS ──────── DC↵
                               VIDEO
                               MANUAL

           ──2── SHUTTER ───── FLK (FLICKERLESS)
                               ESC↵
                               MANUAL↵

           ──3── WHITE BAL. ── ATW
                               MANUAL↵
                               AWC↵

           ──4── BACKLIGHT ─── OFF
                               LOW
                               MIDDLE
                               HIGH

           ──5── AGC ───────── OFF
                               LOW↵
                               MIDDLE↵
                               HIGH↵

           ──6── DNR ───────── OFF
                               LOW
                               MIDDLE
                               HIGH (with AGC in OFF mode)

           ──7── SENS-UP ───── OFF
                               AUTO↵(with LENS in MANUAL
                               mode or SHUTTER in FLX mode)

           ──8── SPECIAL ───── CAMERA ID
                               DAY/NIGHT
                               SYNC
                               MOTION DET
                               PRIVACY
                 EXIT MENU     MIRROR
                               SHARPNESS
                               RESET
```

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# SETUP Menu

| Menu Item | Option | Description |
|---|---|---|
| LENS | DC↵<br>VIDEO<br>MANUAL | Selects Lens type. Only DC mode is supported at this time.<br><br>**Caution**     Selecting VIDEO or MANUAL adversely affects camera operation. |
| SHUTTER | FLK<br>MANUAL↵<br>ESC↵ | Adjusts shutter settings.<br><br>**FLK** (Flickerless) reduces on-screen flickering.<br>**MANUAL** adjusts the shutter speed from 1/60-1/120,000 of a second (NTSC) or 1/50-120,000 of a second (PAL). Not available in DC lens mode.<br>**ESC** (Electronic Shutter Control) adjusts the brightness level on screen. Not available in DC lens mode. |
| WHITE BAL (White Balance) | ATW<br>MANUAL↵<br>AWC↵ | Controls color on the screen.<br><br>Select **ATW** (Auto Tracing White Balance) when the color temp is 2400°K - 12000°K; for example, under a fluorescent light, or outdoors.<br>**MANUAL** mode allows you to increase or decrease the red or blue factor on the screen.<br>**AWC** (Auto White Balance Control) automatically adjusts the white balance to your specific environment. |
| BACKLIGHT | OFF<br>LOW<br>MIDDLE<br>HIGH | Provides light level control to overcome severe backlighting conditions. |
| AGC | OFF<br>LOW↵<br>MIDDLE↵<br>HIGH↵ | Adjusts value of AGC (Automatic Gain Control). Increase the GAIN level to brighten the picture (noise/distortion may develop). |
| DNR (Digital Noise Reduction) | OFF<br>LOW<br>MIDDLE<br>HIGH | Reduces noise/distortion on the screen. Increasing the DNR level reduces noise but may introduce video artifacts. DNR is deactivated if AGC is turned off. |
| SENS-UP (Sensitivity Up) | OFF<br>AUTO↵ | Automatically provides a clear image under low-light conditions. You can control the maximum low-light magnification from 2x to 128x. Increasing magnification may cause noise/distortion. |
| EXIT | | Exits the SETUP menu and returns to video monitoring. |

# SPECIAL Menu

On the main SETUP menu:

1. Press **UP** or **DOWN** and then select **SPECIAL**.
2. Push **SETUP** (**MENU**) to access the SPECIAL menu.

| | Menu Item | Option | Description |
|---|---|---|---|
| 1 | CAMERA ID | OFF<br>ON | Turns ID display off and on. To add a camera title (name and/or number) to be displayed on the screen, see *Adding a Camera Title Display*. |
| 2 | DAY/NIGHT | AUTO<br>COLOR<br>BW | When set to **AUTO** , the camera automatically switches to Night mode (B/W) when the light level is low.<br>When set to **COLOR**, the camera stays in Day mode (Color).<br>When set to **BW**, the camera stays in Night mode (B/W). |
| 3 | SYNC | INT<br>L/L | Synchronizes the vertical interval sync pulse of your camera with other equipment to reduce the effect of picture roll on the monitor.<br>Select **L/L** (Line Lock) mode to adjust the phase from 0° to 359°. |
| 4 | MOTION DET | OFF<br>ON↵ | Detects moving objects on screen and displays MOTION DETECTED along with the number of movements counted. Allows you to select the area on screen you want to observe (see *Motion Detection Setup*). |
| 5 | PRIVACY | OFF<br>ON↵ | Allows you to mask up to 4 areas of the screen from video monitoring. |
| 6 | MIRROR | OFF<br>ON | Produces a horizontal mirror image on screen. |
| 7 | SHARPNESS | ON↵<br>OFF | Sharpens the image on screen. You can adjust the sharpness level from 0 - 31 (excessive sharpening may cause picture noise to develop). |
| 8 | RESET | | Restores all factory default settings. |
| | RETURN↵ | | Returns to the main SETUP menu. |

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## Adding a Camera Title Display

On the **SPECIAL** menu, select **CAMERA ID**, then press **SETUP** (**MENU**)..

1. Press the menu control **UP**, **DOWN, LEFT, or RIGHT** to select a character, then press **(SETUP) MENU** to accept it. The character is saved and the title cursor at the bottom of the screen moves to the next position. Use the ← → symbols to go backward or forward in the title name/number to make changes. Select **CLR** to delete the entire title and start again.

2. Repeat *step 1* until your camera title is complete.

3. Select **POS** to position the camera title on the screen. Select the position using the menu control, then press **(SETUP) MENU** to confirm the position.

4. Select **END** when you are finished.

```
            CAMERA ID

A B C D E F G H I J K L M
N O P R Q S T U V W X Y Z
a b c d e f g h i j k l m
n o p q r s t u v w x y z
−  .    0 1 2 3 4 5 6 7 8 9

←   →   CLR  POS  END
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _
```

## Sync Control Setup

On the **SPECIAL** menu, select **SYNC**, then press **SETUP** (**MENU**).
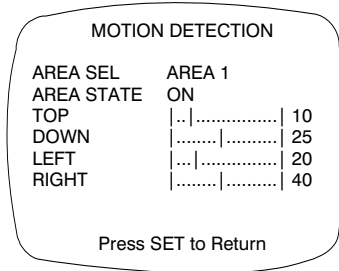
| Menu Item | Description |
|-----------|-------------|
| INTERNAL | When line lock is not required. |
| LINELOCK | Adjust the vertical phase (VPH): |
| | VPH: 000 - 359 (factory default is 0). |
| RETURN | Press **MENU** to return to the SETUP menu. |

```
        <SYNC. CONTROL>


SYNC              INT (L/L)



RETURN↵
```
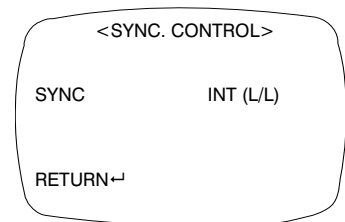
# Motion Detection Setup

On the **SPECIAL** menu, select **MOTION DET**, then press **SETUP** (**MENU**).
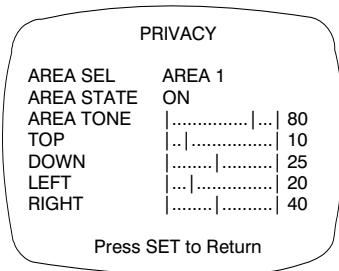
| Menu Item | Option | Description |
|---|---|---|
| AREA SEL | AREA 1<br>AREA 2<br>AREA 3<br>AREA 4 | Select which of the four motion detection grids top left, top right, bottom left, bottom right) you would like to modify. |
| AREA STATE | ON<br>OFF | Choose whether to activate or deactivate the selected grid. |
| TOP<br>DOWN<br>LEFT<br>RIGHT | | Press **LEFT** or **RIGHT** control to alter the dimensions of the selected grid. |

```
         MOTION DETECTION

AREA SEL      AREA 1
AREA STATE    ON
TOP           |..|................| 10
DOWN          |........|..........| 25
LEFT          |...|...............| 20
RIGHT         |........|..........| 40

         Press SET to Return
```

# Privacy Mode Setup

On the **SPECIAL** menu, select **PRIVACY**, then press **SETUP** (**MENU**).

| Menu Item | | Description |
|---|---|---|
| AREA SEL | AREA 1<br>AREA 2<br>AREA 3<br>AREA 4 | Select which of the four masking grids (top left, top right, bottom left, bottom right) you would like to modify. |
| AREA STATE | ON<br>OFF | Choose whether to activate or deactivate the selected grid. |
| AREA TONE | | Press **LEFT** or **RIGHT** menu control to change the shade of the masking grids. |
| TOP<br>DOWN<br>LEFT<br>RIGHT | | Press **LEFT** or **RIGHT** menu control to alter the dimensions of the selected grid. |

```
              PRIVACY

AREA SEL      AREA 1
AREA STATE    ON
AREA TONE     |...............|...| 80
TOP           |..|................| 10
DOWN          |........|..........| 25
LEFT          |...|...............| 20
RIGHT         |........|..........| 40
         Press SET to Return
```

# Installing the Enclosure Cover

To install the enclosure cover, use the Allen key (supplied) to secure the HD4D dome enclosure to the base with four #8-32 security screws.

HD4D dome enclosure

#8-32 security screws (x4)
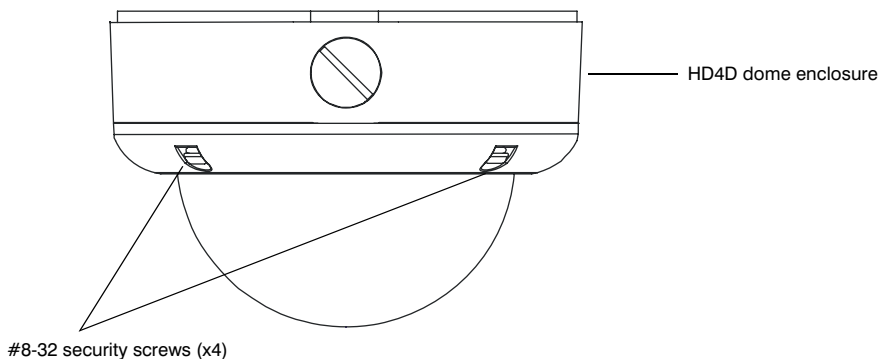
# Routine Maintenance

Use regular liquid cleaners to remove dirt and grime from the HD4VC4HR dome.

**Caution**    Do not use harsh or abrasive cleaners which can scratch the polycarbonate dome and reduce visibility for the camera.

If the camera view is obstructed by scratches, remove the front plate and rotate to find an unscratched part of the dome.

# Solving Common Technical Issues

### No Video

❏ Check that the power supply voltage is within the operating specifications for your camera model. See *Specifications* for details.

❏ Check the video signal connections are correct.

❏ Check for a loose connection.

### Fuzzy Video

❏ Check the video ground connections.

❏ Check for ground loops.

Call Honeywell Technical Support for additional assistance (see *Warranty and Service*).

# Warranty and Service

Subject to the terms and conditions listed on the Product warranty, during the warranty period Honeywell will repair or replace, at its sole option, free of charge, any defective products returned prepaid.

In the event you have a problem with any Honeywell product, please call Customer Service at 1.800.796.CCTV for assistance or to request a **Return Merchandise Authorization (RMA)** number.

Be sure to have the model number, serial number, and the nature of the problem available for the technical service representative.

Prior authorization must be obtained for all returns, exchanges, or credits. **Items shipped to Honeywell without a clearly identified Return Merchandise Authorization (RMA) number may be refused.**

# Specifications

| Video Signal Specifications | |
|---|---|
| Pickup device: | 1/3 in. Sony Interline CCD sensor |
| Synchronization system: | 12 VDC: Internal / 24 VAC: (Internal or Line lock) |
| Vertical phase adjustment: | Adjustable, 0° - 359°,  OSD control |
| Horizontal resolution: | 540 TV lines |
| Lens type: | 3.3 - 12 mm Vari-focal Auto Iris, IR Corrected F1.5, DC Drive |
| Minimum illumination response: | 0.3 lux @ F1.5 (Color) |
| | 0.03 lux @ F1.5 (B/W) - Sens Up |
| Signal to noise ratio: | Better than 50 dB (AGC Off) |
| Gain control: | Automatic, selectable |
| Lens iris control: | DC Auto Iris type |
| White balance: | Selectable: ATW/AWB |
| Gamma: | 0.45 |
| BLC: | Low/Middle/High/Off |
| DNR: | High/Medium/Low |
| DSS: | Off/Auto (selectable limit 2X - 128X) |
| Privacy Function | On/Off (4 Programmable Zones) |
| Video output: | 1 V p-p composite |
| Video output impedance: | 75 Ohms |

| Format Specifications | NTSC | PAL |
|---|---|---|
| Color video signal format: | Standard | Standard |
| Effective picture elements: | 768 (H) x 494 (V) | 752 (H) x 582 (V) |
| Scanning system (2:1 interlace): | 525 lines, 60 fields/sec. | 625 lines, 50 fields/sec. |
| Electronic shutter: | 1/60 - 1/120,000 second | 1/50 - 1/120,000 second |
| General Specifications | | |
| Construction: | Die cast (housing) Polycarbonate (dome) | |
| Finish: | Gray/off white powder coating | |
| Dimensions (D) x (H): | 5.5 in. x 3.6 in.(140.2 mm x 91.5 mm) | |
| Weight: | 2.5 lb. (1.1 kg) max | |
| Power supply auto switching: | 12 VDC @ 4.8 watts max. 24 VAC, 60 Hz @ 3.8 watts max. | |
| Temperature: | Storage: -49°F to +167°F (-45°C to +75°C) Operating: -13°F to +131°F (-25°C to +55°C) | |
| Relative humidity: | 0% to 95% RH non-condensing | |
| Regulatory | | |
| Emissions: | FCC, CE (EN55013) | |
| Immunity: | CE (EN50130-4) | |
| Safety: | EU: 73/23/EEC LVD | |
| Environmental: | Meets IP66 | |

# Cable Guidelines

**Maximum Power Supply Cable Length (feet/meters)**
**Cameras With AC/DC Power Supplies**

| Total load | Optional Power supply | Wire gauge | | | |
|---|---|---|---|---|---|
| | | 24 AWG | 22 AWG | 18 AWG | 16 AWG |
| 2.5 W | 15 VDC | 260/79 | 415/126 | 1055/322 | 1680/512 |
| 2.5 W | 24 VAC | 608/185 | 980/299 | 2515/767 | 3930/1198 |
| 3.5 W | 15 VDC | 180/55 | 290/88 | 730/220 | 1170/352 |
| 3.5 W | 24 VAC | 470/143 | 760/232 | 1926/587 | 3065/934 |

**Note** Calculations are based on an unregulated linear power supply, which would be the worst case. Using a regulated or switching power supply can increase the cable distance. Honeywell recommends using a **CSA Certified/UL listed Class 2** power adapter to ensure compliance with electrical safety standards.

**Maximum Video Coaxial Cable Length (feet/meters)**

| | RG-59 | RG-6 | RG-11 |
|---|---|---|---|
| Cable type | | | |
| Wire gauge | 23 AWG* | 18 AWG* | 16 AWG* |
| Maximum length (feet/meters) | 750/229 | 1500/457 | 2000/610 |

\* Copper clad steel core, 95% braided shield

**HD4D/HD4DX Mounting Template**
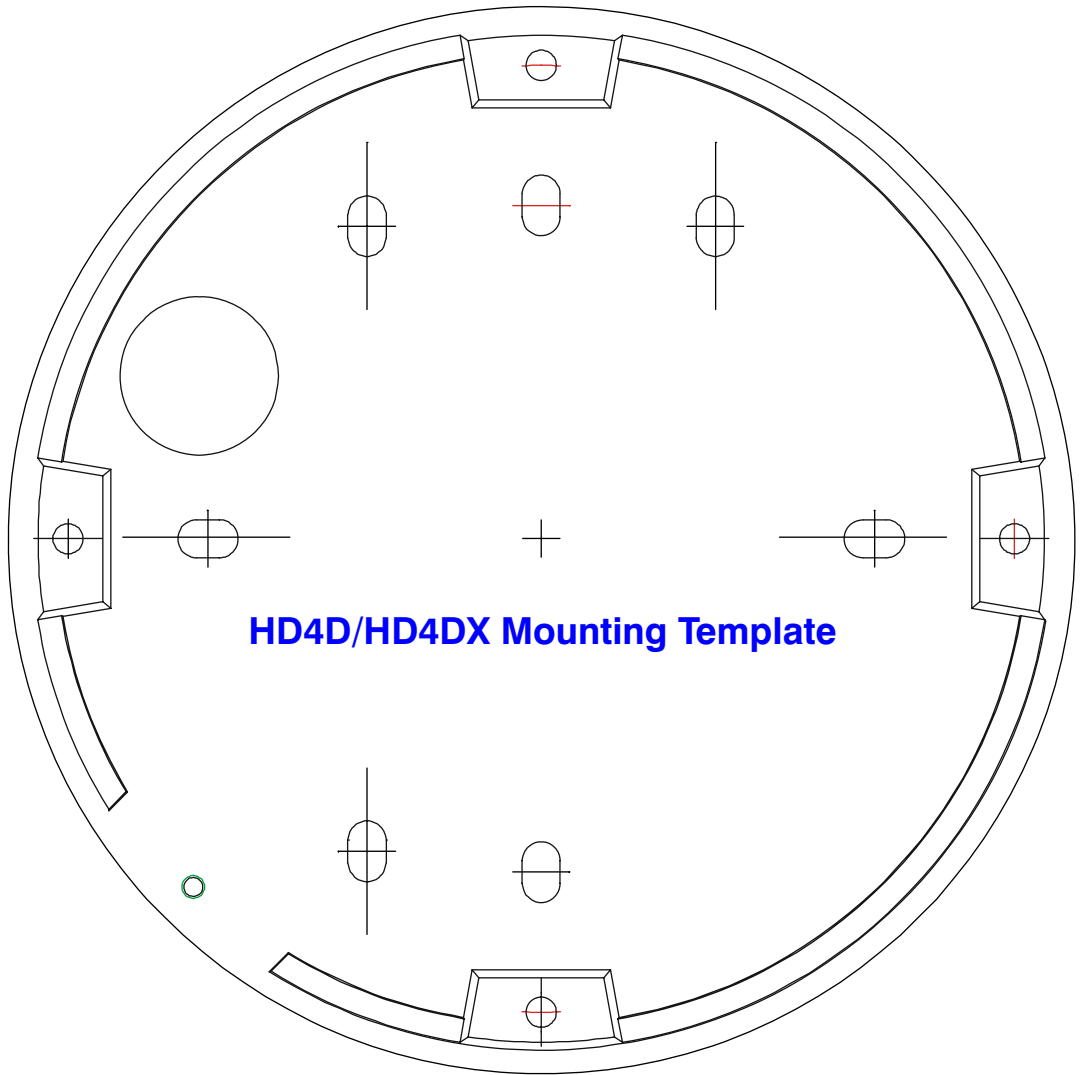
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