

Premium Vandal Dome Camera

NTSC / PAL

HD28C4HR6	HD28C4HR6X
HD28C4HR9	HD28C4HR9X
HD28W4HR6	HD28W4HR6X
HD28W4HR9	HD28W4HR9X
HD28D4HR6	HD28D4HR6X
HD28D4HR9	HD28D4HR9X

Installation Guide

Revisions

Issue	Date	Revisions
1.00	09/05	New document.
1.01	10/05	Changed HD28R to HD28 throughout, removed utp & fiber termination boards updated back cover.

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! The use of CSA Certified/UL Listed Class 2 power adapters is required 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.

Cet appareil numérique de la Classe A est conforme à norme NMB-003 du Canada.

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 55022 for emissions.

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Introduction

The HD28 Series is Honeywell's premium line of vandal-resistant, fully-integrated CCTV cameras. The HD28 series enclosure is designed for easy installation and setup.

Before You Begin

Please read this guide carefully before you install the HD28 series 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 HD28 series packing box should include, in addition to this User Guide

- One HD28 series camera
- One hardware kit
- One mounting template
- 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" on page 12).

Equipment Required

You will require the following tools to complete the installation:

- Phillips screwdriver
- Mounting screws. Use mounting screws appropriate to your installation (capable of holding at least twice the weight of the camera).

Installation

Your HD28 camera is weather-sealed for indoor or outdoor locations. The wiring can be completely concealed for maximum vandal and tamper resistance.

Mounting the Camera

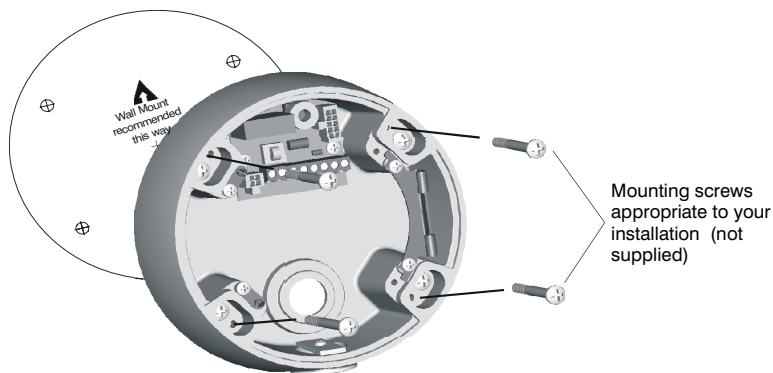
The HD28 camera is designed to be surface mounted on a wall or ceiling.

Preparing the Mounting Surface

1. Affix the mounting template to the mounting surface (see *Figure 1*).
2. Pre-drill four holes as indicated on the template, using the recommended hole size for the screws being used.
3. Drill out the conduit hole, if required (see *Installing the Conduit Plug*).
4. Connect the wiring (see *Connecting the Wiring*).
5. Mount the camera base to the wall or ceiling using mounting screws (not supplied) capable of holding at least twice the weight of the camera.

Note Alternate fasteners (preferably stainless steel) can be used, provided they are not larger than the screw holes on the mounting template.

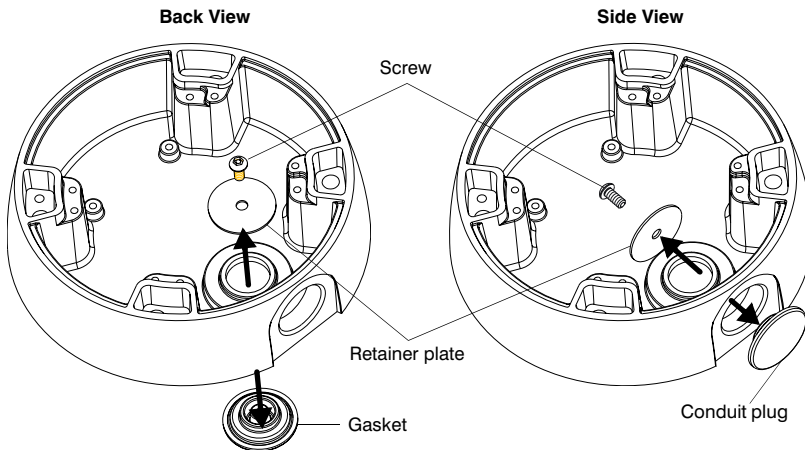
Figure 1 Mounting Template Guide



Installing the Conduit Plug

Your HD28 enclosure comes with a conduit plug pre-installed in the 1/2" conduit entry on the back of the housing. This plug may be removed and installed in the side 3/4" conduit entry (see *Figure 2*).

Figure 2 Conduit Plug Installation

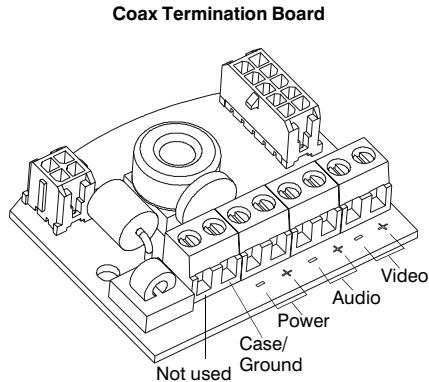


Caution If a conduit is not used for cable routing, install the rubber grommet in the conduit hole, then slit the grommet \otimes and feed the wiring through. Seal the grommet to prevent moisture from entering the housing.

Wiring Options

Your HD28 Series camera is supplied with a coaxial termination board mounted to the bottom of the enclosure. All connections are made here (see *Figure 3*).

Figure 3 Wiring Options



Connecting the Wiring

1. Pull the cables through either the back or the side conduit.
2. To minimize moisture leaking into the housing, position the enclosure with the conduit pointing down. Apply an appropriate sealant around the conduit connection.

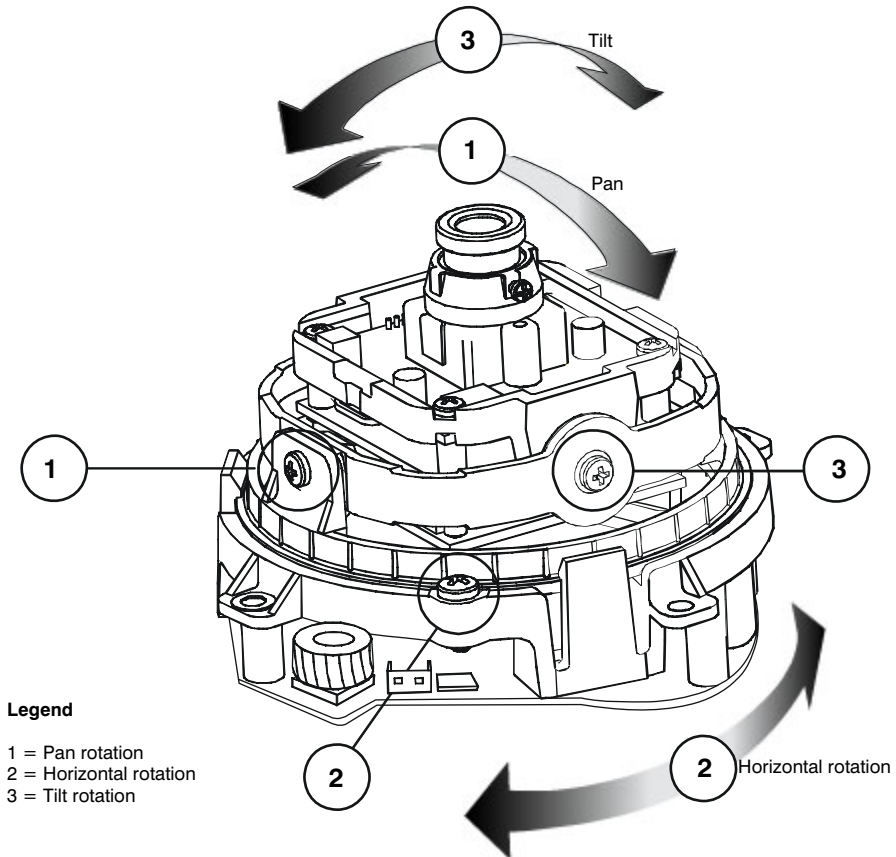
Adjusting the Camera

To adjust the HD28 camera:

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

Note Orient the camera as shown in *Figure 4* to maintain the correct picture orientation.

Figure 4 Gimbal Adjustment



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.

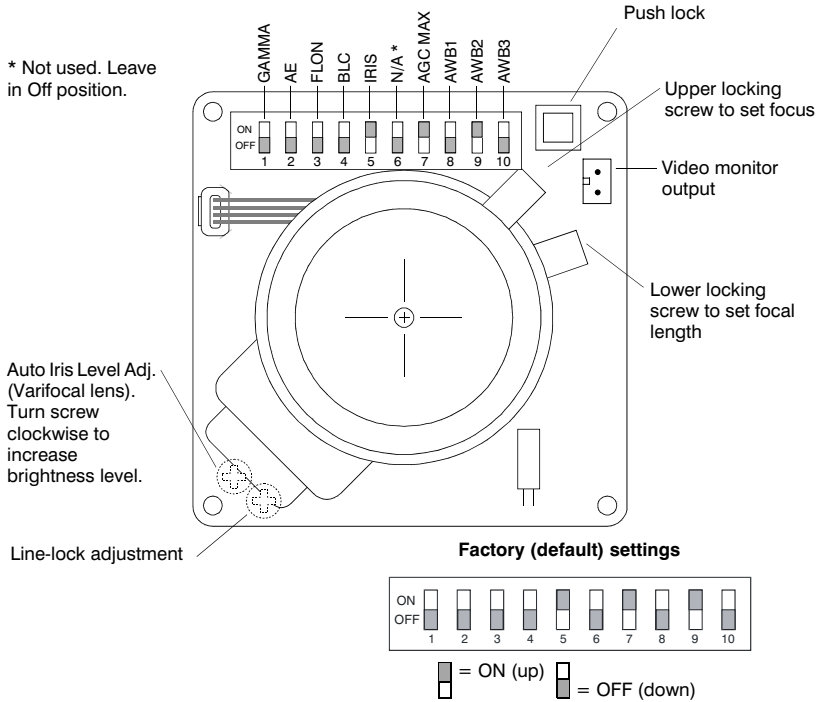
TECH TIP! To check the focus, hold the dome over the lens while making any adjustments.

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

Dip Switch Functions (Color Cameras, Including TDN Models)

Follow *Figure 5* to set the dip switches on a color camera.

Figure 5 Color Camera Switch Settings



Adjustment Method (Color Cameras)

Switch no.	Function	Off	On
1	GAMMA	Off (0.45)	On (1.0)
2	AE (Automatic Exposure)	Off	On (see <i>Manually Setting Shutter Speed (Color Cameras)</i>)
3	FLON (Flicker Less)	Off	On
4	BLC (Backlight Compensation)	Off	On (Center window)
5	IRIS Control	Electronic IRIS	Auto IRIS
6	Not used	Not used	Not used
7	AGC	4 dB	26 dB

White Balance Adjustment Method (Color Cameras)

Symbol	SWB8 AWB1	SWB9 AWB2	SW10 AWB3
AWB	Off	Off	Off
ATW	Off	On	Off
Push lock	Off	On	On *
Indoor (3200° K)	On	Off	On
Outdoor (6500° K)	On	On	On

* To manually set Push lock feature: place a white background in front of camera and press "Push lock" switch.

Manually Setting Shutter Speed (Color Cameras)

To manually set the shutter speed, turn switch #2 to the ON position; then set switch #3, #4, and #5 for the desired shutter speed (see *Figure 5*).

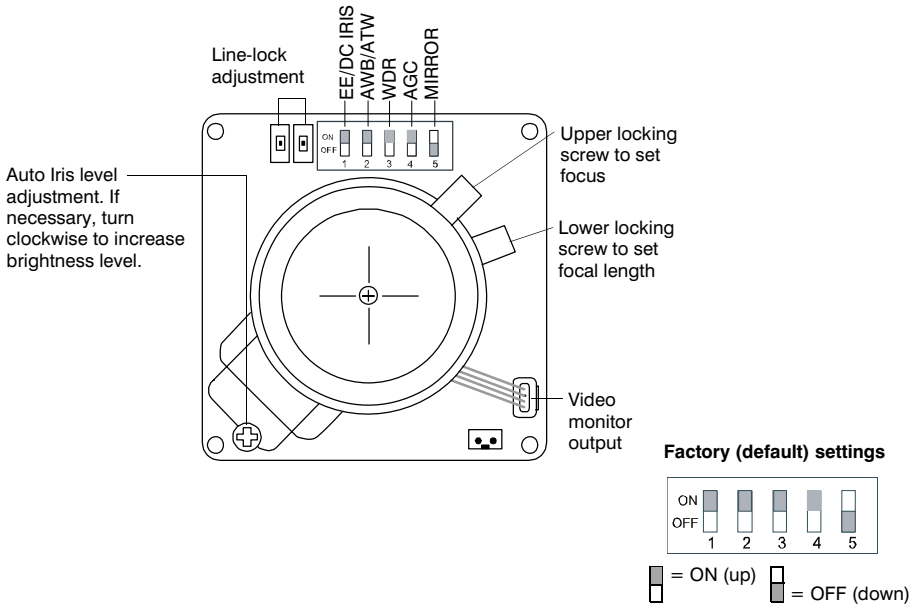
Shutter speed(s)	SW2 AE	SW3 FLON	SW4 BLC	SW5 IRIS
1/50 (PAL) 1/60 (NTSC)	On	Off	On	Off
1/100 (PAL) 1/120 (NTSC)	On	On	On	Off
1/250	On	Off	Off	Off
1/500	On	On	Off	Off
1/1000	On	Off	On	On
1/2000	On	On	On	On
1/4000	On	Off	Off	On
1/10000	On	On	Off	On

FLON and BLC can be set when switch #2 is set to the OFF position.

Caution Before you adjust the shutter speed, it is important that you understand how the settings can affect the scene detail.

Dip switch functions (WDR cameras)

Figure 6 Wide Dynamic Range Camera Switch Settings



Note The Wide Dynamic Range camera has been designed for the best wide dynamic performance and can only be used with vari-focal auto iris lenses.

Adjustment method (Wide Dynamic Range Cameras)

Switch No.	Function	Off	On
1	EE/DC IRIS	EE IRIS	DC IRIS
2	AWB/ATW	AWB	ATW
3	WDR (Wide Dynamic Range)	Off	On
4	AGC	Off	On
5	MIRROR	Off	On

Adjusting the Line Lock (Vertical Phase) for 24 VAC Operation

Phase adjustment may be necessary in multiple camera installations to prevent picture roll when switching between two cameras. To adjust the vertical phase while switching between two cameras, turn the Line lock adjustment screw on one camera until there is no vertical roll. See *Figure 5* for color cameras. The Wide Dynamic Range cameras use line lock adjustment buttons to adjust the vertical phase (see *Figure 6*).

Note If the phase cannot be adjusted to prevent picture roll, reverse the power polarity.

Adjusting the Backlight Compensation

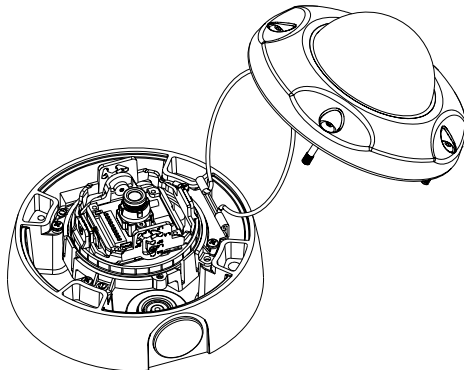
The backlight compensation (BLC) adjusts the electronic shutter speed of the camera based on the light levels in specific areas of the scene. This adjustment provides better image quality for scenes that are unevenly lit.

To adjust the BLC, set the BLC switch to ON (see *Figure 5* for color cameras). Center window weighted.

Securing the Enclosure Cover

1. Slide the hinge towards the base until the screws align with the screw holes (see *Figure 7*).
2. Secure the cover in place.

Figure 7 Enclosure Cover Installation



Routine Maintenance

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

Troubleshooting

No video

Check:

- Power supply voltage is within the operating specifications for your camera model (see *Troubleshooting*).
- Video connections to the monitor or CCTV system.
- The camera connections to the terminal board.
- Video switcher or other equipment connections. To eliminate video problems, connect a video monitor directly to the HD28 video output cable.

Noisy video

Check:

- Video ground connections
- For ground loops.

For additional assistance, call Honeywell Customer Service (see below).

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 1.800.796.2288 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

Note Specifications apply to all camera models, unless otherwise noted.

Video Signal Specifications

Pickup device:	1/3 in. CCD
Electronic iris:	1/60 (1/50) to 1/100,000 seconds
Surge protection:	1.5 kW transient
Video output:	
Coaxial	1 V p-p @ 75 Ω
Video signal:	NTSC or PAL Standards
Light sensitivity:	
Color, Including TDN	0.6 lux @ f1.5
Wide Dynamic	1.0 lux @ f1.5
Resolution:	480 TV lines
Backlight compensation:	Center window weighted. User-selectable on/off switch
Auto white balance:	AWB/ATW/Indoor (3200° K), Outdoor (6500° K)
(Color cameras only)	

Power Requirements

Input voltage (at camera):	15 VDC (11-16V) or 24 VAC
Current consumption:	
Color, including TDN	3.5W (complete system)
Wide Dynamic	4.5W (complete system)

Operating Temperature -13°F to 122°F (-25°C to 50°C)

Housing Specifications

Housing dimensions:	6.1 in. diameter (150 mm), overall height 4.13 in. (115 mm)
Weight	3.0 lbs. (1.37 kg)
Housing material:	Die cast aluminum alloy
Finish:	Urethane powder paint
Dome material:	Hard coated polycarbonate (clear dome with insert)

Ratings FCC Part 15B
CE, Meets IP66, UL2044

Cable Guidelines

Power supply cable maximum length (feet/meters)

Cameras with AC/DC power supplies

	Wire gauge			
Power supply	24 AWG	22 AWG	18 AWG	16 AWG
15 VDC	45/14	73/22	185/56	295/90
24 VAC	408/125	660/201	1674/510	2664/812

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 supply to ensure compliance with electrical safety standards.

Coaxial video cable maximum length (feet/meters)

Cable type	RG-59	RG-6	RG-11
Wire gauge	23 AWG*	18 AWG*	14 AWG*
Maximum length	750/229	1500/457	2000/610

* Copper clad steel core, 95% braided shield

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