

Honeywell

HCU484/X
Ultra Wide Dynamic
Day/Night Body Camera

NTSC

HCU484

PAL

HCU484X

User Guide

Revisions

Issue	Date	Revisions
1.00	08/06	New document
1.01	10/06	Reordered WDR Presets, page 8.





Warnings

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

WARNING! The use of a CSA Certified/UL Listed Class 2 power supply 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.

Regulatory Notice

INTENDED PURPOSE:

SECURITY AND SURVEILLANCE CCTV APPLICATIONS.

The product must be installed and maintained in accordance with good installation practice to enable the product to function as intended and to prevent problems. Refer to Honeywell Video Systems for installation guidance.

Manufacturer's Declaration of Conformance

FCC Statement (U.S.A.)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Notice

This digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique toutes les exigences du Règlement sur la matériel brouilleur du Canada.

CE

The CE mark on the product indicates that the system has been tested to, and conforms with, the provisions noted within the 89/336/EEC Electromagnetic Compatibility Directive.

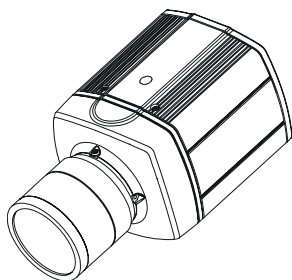
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Introduction

Honeywell's HCU484 Ultra Wide Dynamic Day/Night Series camera uses Digital Pixel System®¹ Image Capture technology to convert images into a digital format within each individual pixel immediately after the image has been captured. This camera is ideal for complex light environments; for example, lobbies, entrances, and outdoor areas.

An intuitive menu and Graphical User Interface (GUI) helps you quickly set up the camera to ensure the best picture quality for your unique environment. The HCU484 requires little or no adjustment after initial installation.



Features

- 1/3" Wide Dynamic Digital Imager
- 32-bit digital processing
- Independent per-pixel exposure
- Dynamic range: 102 dB typical, 120 dB maximum
- 50/60 FPS progressive video capture
- 0.4 lux @ F1.2
- 480 TV lines of resolution
- 12 VDC or 24 VAC with line lock
- Supports DC (Direct Drive) and Manual Iris lenses

Package Contents

Check that the items received match those listed on the order form and packing slip. The HCU484 camera packing box should include, in addition to this User Guide, one HCU484 (NTSC) or HCU484X (PAL) camera.

If any parts are missing or damaged, contact the dealer you purchased the camera from or call Honeywell Customer Service.

¹. Digital Pixel System® is a registered trademark of Pixim Inc.

Installation

Installing the Lens

Note You must use an Auto Iris lens to take full advantage of this camera's wide dynamic performance.

Note The camera auto senses whether an Auto Iris lens or a Manual Iris lens is attached.

The HCU484 Series camera is factory configured for a CS-mount lens.

Follow *Figure 1* to attach a customer supplied lens, screw the lens ❶ into the front of the camera body ❷.

Figure 1 CS Mount

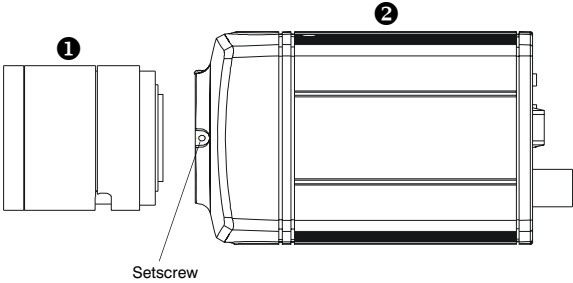
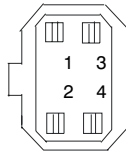


Figure 2 Pin Definitions

Pin	DC Lens
1	CTRL -
2	CTRL +
3	DRV +
4	DRV -



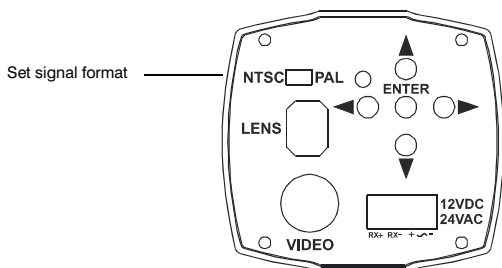
Adjusting the Flange Back Focus

The back focus adjustment is accessible at the front end of the camera housing to adjust the back focal length or picture focus.

1. Loosen the setscrews with a Phillips screwdriver.
2. Adjust the focus ring to focus the picture.
3. Retighten the setscrew.

Setting the Signal Format

Figure 3 Camera Rear View



Set the signal format switch (see *Figure 3*) to:

NTSC for North America

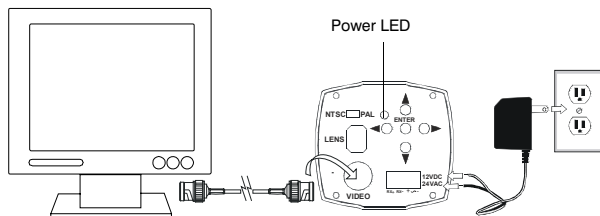
PAL for International

Connecting Monitor and Power

Note Check the power source from the external power supply before applying power to the camera.

1. Connect the VIDEO connector on the rear of the camera to the video-in connector on your monitor.
2. Connect the camera to a 12 VDC or 24 VAC power supply (appropriate to your installation). Use a screwdriver to first loosen the ~AC24V/DC12V terminal screws on the terminal block.

Figure 4 Video Connections



Note To ease installation, the terminal block can be removed. The power connections of the removable terminal block are not polarity-sensitive. Connect either power lead to either connector terminal.

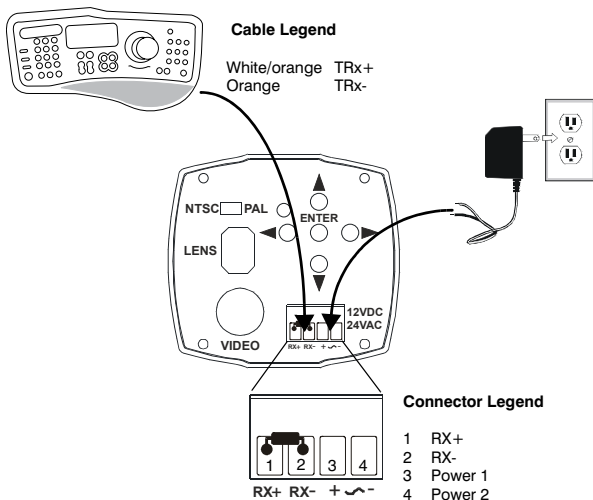
3. Secure the power leads by retightening the terminal screws until snug.

4. Plug the power supply into an appropriate power source. The power LED illuminates to show that the camera is receiving power. If it does not illuminate, check the removable terminal block connections and the power source.

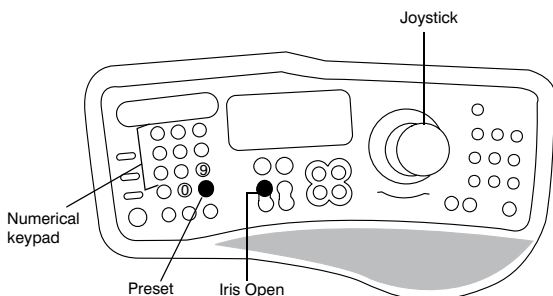
Remote Control Connections

The HCU484 Series camera can be controlled remotely using an RS485 connection. *Figure 5* shows a remote control connection using a Honeywell HJZTP keyboard controller.

Figure 5 Camera Connection Via RS485



HJZTP Keyboard Control (Optional)



To program the HCU484 menu using the HJZTP keyboard controller, first select the Camera ID on the HJZTP, then:

- Press **90 + Preset** to access the menu.
- Rotate the Joystick **Up**, **Down**, **Left**, and **Right** to navigate through the menu and submenus.
- Press **Iris Open** to enter a screen or select a menu option (similar to ENTER on the camera OSD).

Single Camera Connection

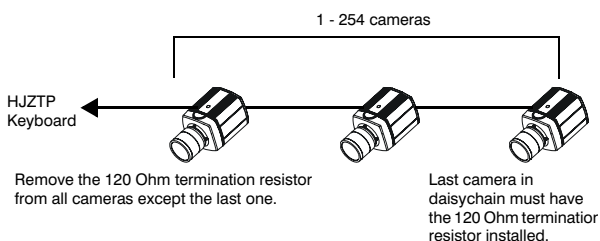
Note Do not remove the 120 Ohm termination resistor provided with the camera.

Multiple Camera Connections

For installations of more than one HCU484 camera in a daisychain configuration, keep the 120 Ohm termination resistor (provided with the camera) only in the last camera in the series (see *Figure 6*). For all other cameras in the daisychain, remove the 120 Ohm termination resistor.

Note Up to 254 cameras can be daisychained.

Figure 6 Multiple Camera System



Mounting the Camera

Mounting points are provided on the top and bottom of the camera and are used to mount the camera on a bracket or tripod. They are designed to accept standard sized mounting bolts. The mounting bracket must be capable of supporting the weight of the camera and its lens.

Caution Some installation codes dictate that the mounting bracket must be capable of supporting up to four times the combined weight of the camera and lens.

Making Final Adjustments

Adjust the focus in your field of view; that is, until you see a clear image. If necessary, adjust the brightness using the OSD menu controls (see *>BRIGHTNESS* on page 12). Confirm the exposure on the monitor screen.

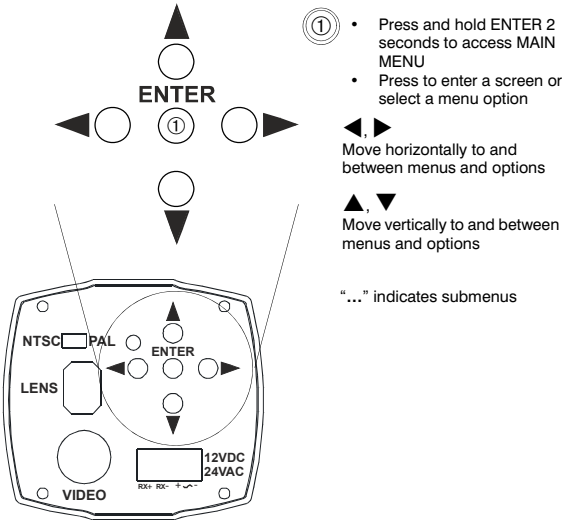
Programming

On-Screen Display

Use the OSD (On-Screen Display) to program the camera.

OSD menu controls

Figure 7 Menu Controls



Navigating Through the Menus

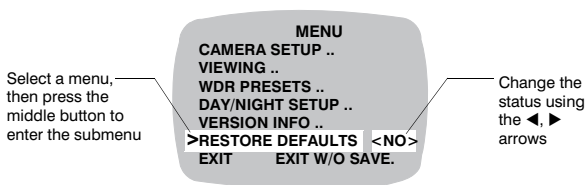
Press ① (the middle button) for two seconds to enter the menus.

Note Menu items followed by ... (for example, WHITE BALANCE ...) indicate submenus. Select the menu, then press ① to enter the submenu.

To leave the screen and return to the previous menu, select **PREVIOUS PAGE**, and then press ①.

To save your changes, select **SAVE & EXIT**, and then press ①. Your settings remain in effect when power is turned off, then on again.

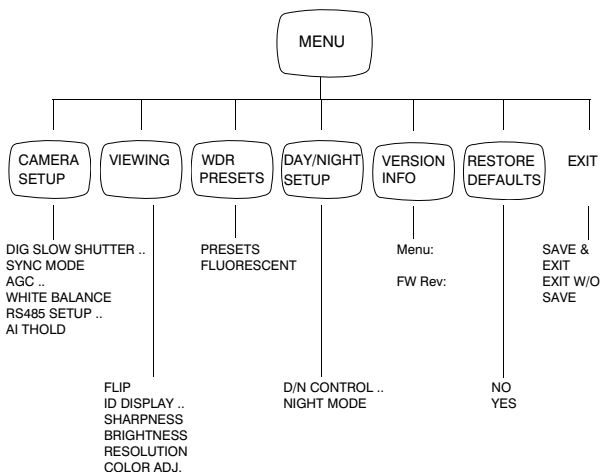
When no buttons are pressed, the menu display turns off automatically after 5 minutes.



OSD Menu Structure

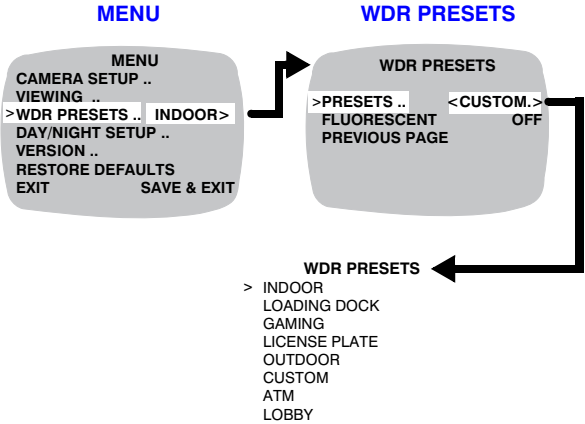
The HCU484 menu system consists of four setup menus for easy camera programming.

Figure 8 Menu Structure



Configuring the WDR Presets

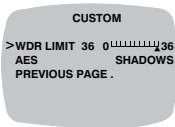
Select the appropriate camera mode for the lighting conditions.



The table below explains the Preset options on the **WDR PRESETS** menu. Double-click a Preset to display a read-only screen showing the factory settings. INDOOR is the default.

WDR Preset	Area of Interest	WDR	Exposure
INDOOR	Full scene	Wide	Highlights
LOADING DOCK	Center scene	Wide	Highlights
GAMING	Full scene spot glare	Medium	Highlights
LICENSE PLATE	Full scene spot glare	Medium	Shadows
OUTDOOR	Full scene	Ultrawide	Highlights
ATM	Center scene	Ultrawide	Shadows
LOBBY	Center scene	Wide	Shadows

<CUSTOM>



Opens the **CUSTOM** screen where you can adjust the limits of the wide dynamic range by moving the cursor.

Note Observe the results on the video monitor for the best results.

>WDR LIMIT Adjust the dynamic range to change the camera's light optimization. Reduce the level to lower the dynamic range. Adjust the slider from **0** to **36** (default is 20).

<AES>

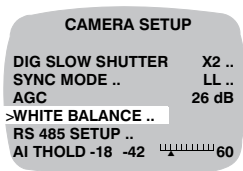
The AES (Automatic Electronic Shutter) feature compensates for excessive light levels by automatically adjusting the shutter speed of the camera. Select from:

HIGHLIGHTS for optimum exposure of bright areas of the scene.

SHADOWS for optimum exposure of dark areas of the scene.

Optimizing the Camera Setup

Note This menu is for advanced users only.

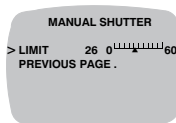
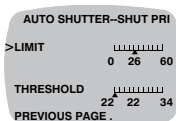
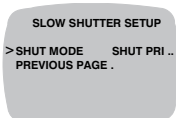


The table below explains the options on the **CAMERA SETUP** menu. Each selection on this menu takes you to a separate screen, as described below.

DIG SLOW

SHUTTER (Digital Slow Shutter)

> CUSTOM.



Select a shutter speed, from **x2** to **x32**. Notice that the **AGC** value changes accordingly.

Opens the **SLOW SHUTTER SETUP** menu where you select the optimum exposure adjustment. Shutter mode options are:

SHUT PRI (Priority) to select the sensitivity **LIMIT** from **0** to **60** (26 is the default), or the sensitivity **THRESHOLD** from **22** to **34** (22 is the default).

GAIN PRI (Priority) to adjust the noise **LIMIT** in the image, from **0** to **60** (26 is the default), or adjust the gain **THRESHOLD** from **28** to **42** (28 is the default).

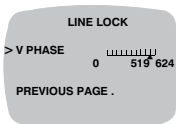
MANUAL to manually set the sensitivity **LIMIT** the sensitivity from **0** to **60** (26 is the default).

>SYNC

Synchronize the vertical interval sync pulse of your camera with other equipment to reduce the effect of picture roll on the monitor. Select either:

<**INTERNAL**> (default) for cameras using DC power or when line lock is not required, or

<**LINE LOCK**> to open the Line Lock screen where you can adjust the Vertical Phase (**V PHASE**) from **0** to **624** (519 is the default).

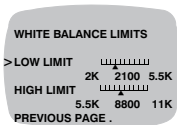


>AGC

The AGC (Automatic Gain Control) setting affects the day/night threshold. A higher AGC value results in the camera switching from day to night mode at lower levels. While observing a video monitor, adjust the noise in the image, from **0 dB** to **36 dB**.

<ATW Normal>

<ATW Desat>



Opens the **WHITE BALANCE** menu where you set how the camera tracks to accept different lighting conditions within the color range of 2000K to 11000K.

The ATW Normal (default) and ATW Desat options open the **WHITE BALANCE LIMITS** screen where you set the Low and High white balance limits (**2100K** to **8800K**) while observing the video monitor.

ATW Desat is useful for low light conditions.

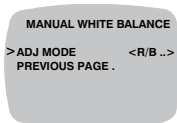
<AWB>

Opens the **PUSH AWB CONFIRM** screen where you **save** your AWB settings to have them take effect, or select **CANCEL**.

Auto white balance ensures that color integrity is maintained.

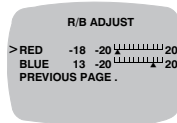
Caution Selecting **Save** will overwrite all previous settings.

<MANUAL ...>



Opens the **MANUAL WHITE BALANCE** menu where you adjust the color settings while observing the scene in the video monitor. Options are:

<**KELVIN**> Move the cursor to set the **TINT**, from **2K** to **11K** (default is 2900).



<**R/B**> Adjust the **RED** and **BLUE** settings, from **-20** to **20**. The default red is -18 and the default blue is 13.

Use this feature when:

- Non-standard lighting exists or color lighting temperature exceeds the range of the camera.
 - A significant part of the scene contains a single color or a completely red or blue background.
-

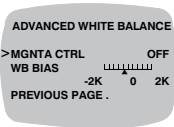
<ATW Xtn>

Automatic Tracking White Balance (Extended Range). Continuously monitors the color temperature while an internal micro controller sets the white balance. Select this mode when the scene illumination varies between indoor scenes and outdoor scene lighting. Operating color temperature range is 2000K to 11000K.

>ADVANCED WHITE BAL ..

Opens the **ADVANCED WHITE BALANCE** menu where you can adjust the magenta or the white balance bias. Options are:

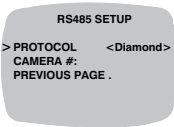
<MGNTA CTRL>. Select <OFF> <ON> <CUSTOM> to open the **MAGENTA CONTROL** screen and, while observing the video monitor, adjust the level, from **0** to **100** (5 is the default).



<WB BIAS> to adjust the level from **-2K** to **2K** (0 is the default).

>RS485 SETUP ..

Opens the **RS485 SETUP** screen where you can select from the supported protocols and enter an RS485 Camera ID #. Options are:



<PROTOCOL> <Diamond> (default) <Pelco D>

<CAMERA #:> Selectable from **1** to **255** (1 is the default).

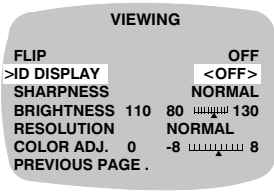
>AI THOLD

Adjust the Automatic Iris (AI) threshold, from **-42** to **60** (default is -18).

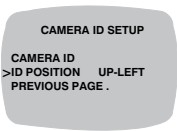
Note When using a manual iris lens, set the AI threshold to **-42** (recommended).

Note The AI threshold is factory set to -18 for all WDR presets.

Setting the Camera Image Properties



The table below explains the options on the **VIEWING** menu.

<p>> FLIP</p>	<p>Select either:</p> <ul style="list-style-type: none"> <ON> to reverse the image horizontally on the video monitor, or <OFF> (default)
<p>> ID DISPLAY.</p>  <p>> ID POSITION</p>	<p>Select ON to open the CAMERA ID SETUP screen where you can add a CAMERA ID (title) of up to 8 characters.</p> <p>Move the cursor (>) to CAMERA ID, then press ①. The first character appears. Press ◀, or ▶ to change the character, then press ① to move to the next character.</p> <p>When you are satisfied, press ▲, or ▼ and move the cursor to another item.</p> <p>Select where you want the Camera ID to appear on the monitor screen Select from the list:</p> <ul style="list-style-type: none"> <UP-LEFT>, <UP-CENTER>, <UP-RIGHT>, <DOWN-LEFT>, <DOWN-RIGHT>
<p>> SHARPNESS</p>	<p>Select the level of sharpness of the image. Choices are:</p> <ul style="list-style-type: none"> <NORMAL> (default) <SHARP> <SOFT>
<p>> BRIGHTNESS</p>	<p>While observing the video monitor, move the cursor to adjust the overall brightness level, from 80 to 130 (110 is the default).</p>
<p>RESOLUTION</p>	<p>Select the camera resolution. Choices are:</p> <ul style="list-style-type: none"> <NORMAL> (default) <HIGH>

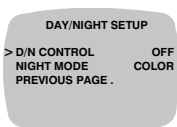
>COLOR ADJ

While observing the video monitor, move the cursor to adjust the color saturation, from **-8** to **8** (0 is the default).

Setting the Day/Night Control

The table below explains the options on the **DAY/NIGHT SETUP** menu.

>D/N CONTROL



Select either:

<**AUTO**> (default), or

<**OFF**> camera stays in color mode.

Note This setting is dependent on the AGC setting. (See “>AGC” on page 10.)

>NIGHT MODE

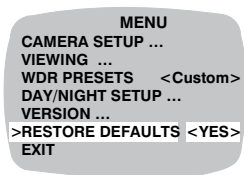
The **NIGHT MODE** screen determines whether monochrome (B/W) or color is present in the video. Options are:

<**B/W**> suppresses all color, including color burst, present in the video.

<**B/W + CLR**> (default) = B/W with color burst

<**COLOR**> the camera never switches to B/W in night mode.

Restoring Settings



On the main **MENU**, select **RESTORE DEFAULTS**, then **YES** followed by ENTER (middle button). This reloads the factory default camera settings.

Caution This action replaces all custom settings.

Solutions

If this happens ...	It could be caused by ...	Try this ...
No picture on monitor	Lens cap still in place	Remove lens cap.
	No power to camera	Check that the power LED on the camera is lit. If not lit, check the camera power supply.
	Monitor not functioning	Connect a test monitor to the VIDEO Out connection and check for a local video signal.
	A faulty coaxial cable	Check cable.
Poor picture quality	Dirty camera lens	Clean camera lens.
	Monitor not configured properly	Check the monitor settings. Ensure termination at monitor is correct. Check cable connections.
	Camera not focused	Set the lens focus. Refer to the instructions that came with your lens.
For service and support	Refer servicing to qualified personnel or contact Honeywell Technical Support at +1.800.796.CCTV for assistance.	

Frequently Asked Questions

The image appears to have a white cast and looks soft. How can I reduce this effect?

Select the Wide Dynamic Preset that gives you the best picture for your scene. If you still have the problem, go to the **CUSTOM** menu and reduce the dynamic range slider to a lower value. Using the **VIEWING** menu, set the Resolution to High and Sharpness to Normal or to Sharp.

The image on a standard high resolution color camera appears to have brighter colors. How do I make the HCU484 have a similar look to a traditional CCTV camera?

Select the Wide Dynamic Preset that gives you the best picture for your scene. If you still have the problem, go to the **VIEWING** menu and increase the color saturation to a higher value.

If I select a WDR preset and change the AGC value, when I go back to the WDR preset, it has changed to “Custom”. Has my preset been changed or erased?

The WDR presets set the dynamic range, the exposure, sharpness and the AGC level. Changing any of these will change the WDR preset to Custom. When you saw the Custom setting, the preset that you selected was still loaded, except that the AGC had changed, thus customizing your setup. This camera function allows any WDR preset to be loaded into custom so that you can modify the dynamic range and exposure of the underlying preset.

There are seven WDR presets in the camera. How do I know which one to use for my scene?

The WDR presets consist of three main types—center-weighted scene, full scene, and full scene with spot glare. Depending on the scene, you can narrow down your choice to the presets within each of these groups. Most applications can use the full scene WDR preset—**INDOOR** or **OUTDOOR**—as these are optimized for general lighting conditions (General Scenes in the first generation HCCWD484 wide dynamic camera).

Other applications in which the area of interest is primarily in the center of the scene should use the **ATM**, **LOADING DOCK** or **LOBBY** WDR presets.

- **ATM** is optimized to render proper exposure of faces when the person is backlit by the sun, while still allowing the ability to make out a person standing behind the person using the ATM machine.
- **LOADING DOCK** is for areas with a tall vertical opening and walls on either side.
- **LOBBY** is for areas with large windows across the scene.

However, depending on your lighting conditions and angle of view, a different preset may render a better picture for your scene.

For scenes in which there are hot spots of illumination that can occur anywhere in the scene and you need to see detail of objects near these hotspots, the Full scene with spot glare presets—**GAMING** and **LICENSE PLATE**—will likely offer the best picture quality for seeing the objects of interest.

- **GAMING** is optimized to allow the reading of cards when the card is in a hotspot and is producing glare.
- **LICENSE PLATE** is optimized to allow the viewing of the front license plate when the headlights are shining into the camera.

Specifications

	HCU484	HCU484X
Operational		
Video Standard:	NTSC, 525 lines, 2:1 interlace	PAL, 625 lines, 2:1 interlace
Scanning System:	Progressive	
Image Sensor:	1/3" WDR digital image device	
Number of Pixels:	720 (H) x 540 (V)	
Minimum Illumination:	0.4 lux @ F1.2	
Horizontal Resolution:	480 TVL	
Video Output:	1 V p-p, 75 Ohms	
Sync System:	12 VDC: Internal 24 VAC: (Line lock)	
S/N Ratio:	53 dB typical	
Auto Gain Control (AGC)	Auto (0–36 dB maximum)	
Automatic Electronic Shutter	1/60 - 1/100,000 sec	1/50 - 1/100,000 sec
Lens Iris Control	DC Drive	
White Balance:	AWB/ATW/ATW XtnD/Manual	
Line Lock Phase Adjust:	Adjustable line lock vertical phase	
Electrical		
Input Voltage:	12 VDC/24 VAC	
Input Range:	11 - 16 VDC, 17 - 28 VAC	
Surge Suppression:	1.5 kW transient	
Power Consumption:	2.5 W	
Temperature:		
Operating:	14°F to 122°F (-10°C to 50°C)	
Storage:	-4°F to 140°F (-20°C to 60°C)	
Mechanical		
Dimensions (W x H x L):	2.68 in. x 2.46 in. x 3.86 in. (66 mm x 63 mm x 98 mm)	
Weight:	1.1 lb (.5 kg) Camera only	
Housing Construction:	Extruded aluminum housing	
Housing Finish:	Powder coated	
Lens Mount:	CS adjusting mounting ring	
Video Output:	BNC connector	
Power Input:	Removable screw terminal block	

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