Honeywell

HCCM674M

High Resolution Day/Night Miniature Box Camera

User Guide

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.

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 la norme NMB-003 du Canada.

Safety Instructions

Read Instructions
Read all of the safety and operating instructions before using the product and retain them for future reference.

Cleaning
Turn off the power and clean with a dry, soft cloth.
Do not use liquid cleaners or aerosol cleaners.

Attachments
Do not use attachments not recommended by the manufacturer as doing so may result in fire, electric shock, or serious injury.

Water and Moisture
Do not use this product near water or moisture.

Mounting
Follow the manufacturer's instructions when mounting the product. Use only mounting accessories recommended by the manufacturer.

Power Sources
This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your facility, consult your equipment dealer or local power company.

Ventilation
Do not block any ventilation openings. Install in accordance with the manufacturer's instructions to ensure reliable operation of the product and to protect it from overheating.

Servicing
Do not attempt to service this product yourself. Refer all servicing to qualified service personnel.

Precautions

Operating

Before using the camera, make sure the power supply and video output are properly connected. When operating the camera, if any abnormal condition or malfunction is observed, stop using the camera immediately and call your equipment dealer.

Handling

Do not disassemble the camera. Never touch the internal parts of the camera.

Do not drop the camera or subject it to shocks and vibrations.

When attaching or removing the lens, take care that no moisture or dust enters the camera body.

Avoid viewing bright objects (such as light fixtures) for extended periods, or bright vertical and horizontal lines may appear on the screen.

Installation and storage

Do not point the camera at the sun as this could damage the camera whether it is operating or not.

Do not install the camera where the temperature could exceed the allowable range. Make sure the ambient temperature is less than 104°F (40°C) in installations intended for long term continuous operation.

Avoid installing or storing the camera in locations where the camera may be exposed to:

- water/rain
- humidity
- dust
- radiation
- mechanical vibrations
- strong magnetic fields and electrical signals

Daily check

To maintain proper operation for surveillance use, check the camera output every day for a clear and focused picture.

Contents

Features

High sensitivity 1/3″ CCD with on-chip micro lenses and low-noise digital signal processing circuit provides sensitivity down to 0.1 lux at F1.2, 50 IRE.

High-quality image Horizontal resolution of 650 TVL. Digital signal processing with optimization of control program and image correction algorithm.

BLC/HLC When strong light enters the scene background (such as from a spotlight or window), backlight compensation automatically adjusts the video level to preserve visibility. Highlight compensation masks bright spots in a scene.

White balance Seven user-selectable white balance control modes for varying conditions.

Iris function Drive output for video iris and DC iris lens. Built-in electronic shutter allows eight shutter speeds up to 1/100,000 s. CCD iris function automatically sets picture brightness by changing the shutter speed of the camera according to the incident light when using a manual iris lens.

Other functions

- Camera ID of up to 24 characters
- Noise reduction
- 4 motion detection zones
- 4 privacy zones
- Picture adjustment for mirror, brightness, contrast, sharpness, hue, and gain
- 24 V AC or 12 V DC power source
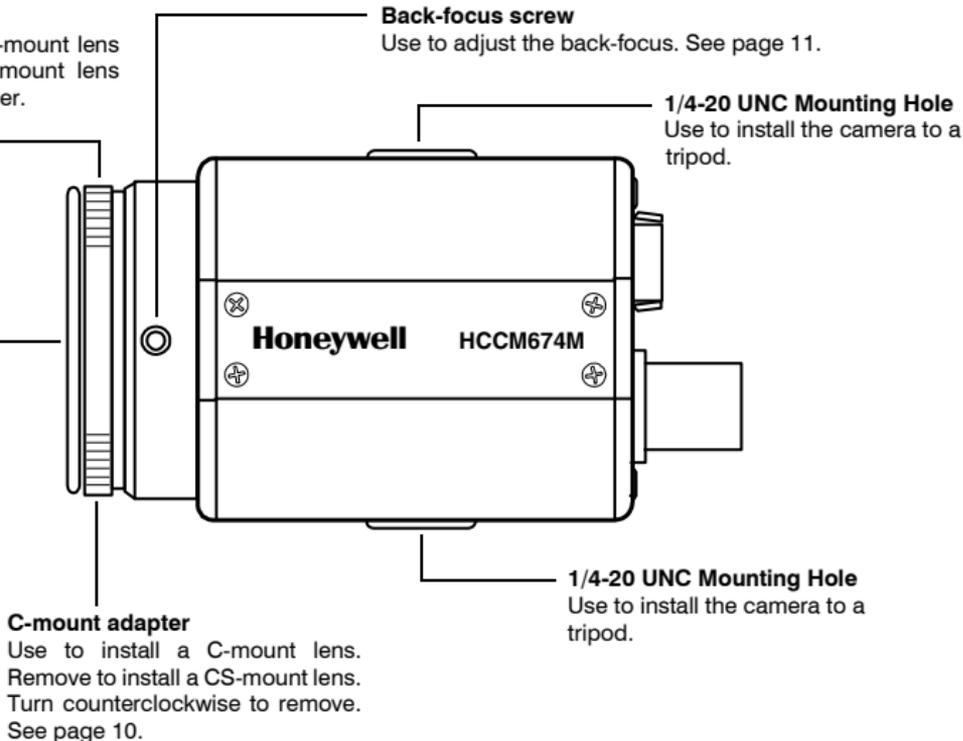- C or CS mount lenses

Camera Parts Explained

Lens mount
Use when installing the lens. C-mount lens uses a C-mount adapter. CS-mount lens does not need a C-mount adapter.

Back-focus screw
Use to adjust the back-focus. See page 11.

1/4-20 UNC Mounting Hole
Use to install the camera to a tripod.

Lens mount cap
Use to cap the lens mount when the lens is not attached.

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1/4-20 UNC Mounting Hole
Use to install the camera to a tripod.

C-mount adapter
Use to install a C-mount lens. Remove to install a CS-mount lens. Turn counterclockwise to remove. See page 10.

Setup buttons
Set up and adjust the camera using the on-screen menu. See page 16.

INT/LL switch
INT: Internal sync mode
LL: Line lock sync mode

Power indicator
Lights up when the camera is powered.

Lens connector
Use to connect the lens cable when using an auto-iris lens.

Alarm output connector
Factory use only.

Video output connector
Connector a BNC connector that outputs a composite video signal.

Power input terminal
Connect to a 24 V AC or 12 V DC power source.
Do not connect the power source until all other connections have been completed.
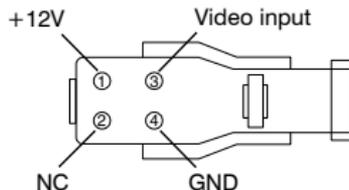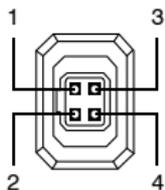
Lens Connector

When using an auto-iris lens, install the accessory lens plug onto the lens cable as shown below.

Video Type Lens

1. Set the lens type to **VIDEO**.
2. Connect the lens cable of a video type lens. If the plug on the cable is of a different type, replace it with the supplied 4-pin iris plug.
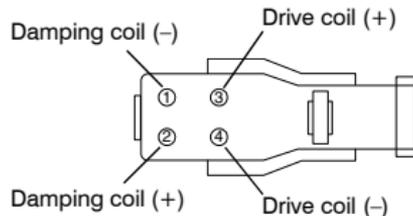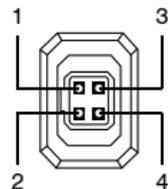

Pin Assignment

Pin	Signal
1	+12 V DC (50 mA max)
2	NC (not connected)
3	Video (0.7 Vp-p, high impedance, no sync)
4	GND

DC Type Lens

1. Set the lens type to **DC**.
2. Connect the lens cable of a DC (galvanometric) type lens. If the plug on the cable is of a different type, replace it with the supplied 4-pin iris plug.

Pin Assignment
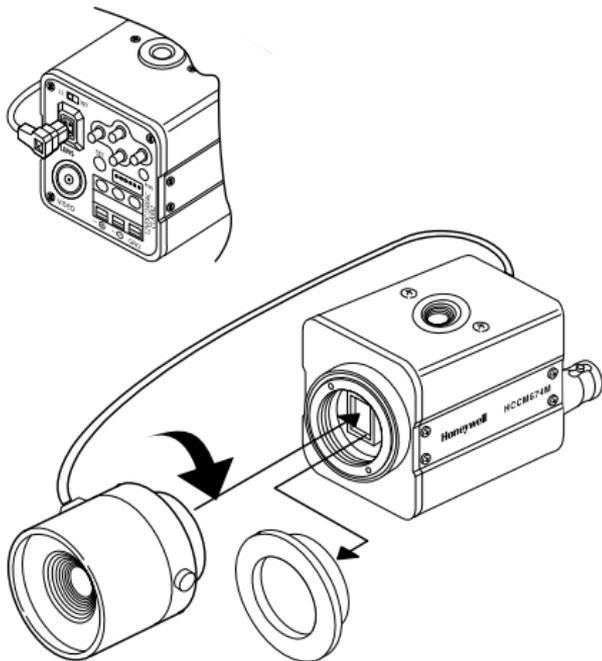

Pin	Signal
1	Damping coil (−)
2	Damping coil (+)
3	Drive coil (+)
4	Drive coil (−)

3. After installing the connector plug, connect it to the lens connector on the rear panel of the camera.
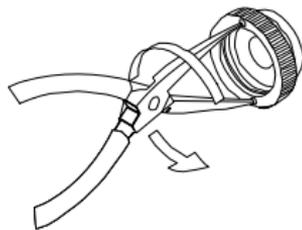
Installation

Lens Installation

Mounting a Lens

1. Remove the lens mount cap from the camera.

2. Attach or remove the C-mount adapter, depending on the lens to be used.

   If necessary, use long-nosed pliers to remove the C-mount adapter. Insert the tips of the pliers into the holes with no threads, then turn until the adapter comes loose.

   You can also use a screwdriver by inserting M3 screws into the holes so that the screwdriver has something to grip.

   Store the C-mount adapter for future use.

3. Attach and secure the lens to the lens mount.

4. If the lens has an auto-iris mechanism, connect the lens cable to the lens connector.

    •   Video-iris lens: Set the lens type to **VIDEO**.

    •   DC lens: Set the lens type to **DC**.

Back-focus Adjustment

When a lens is mounted, it may need back-focus adjustment. Adjust the lens focus ring only when the correct focus cannot be obtained.
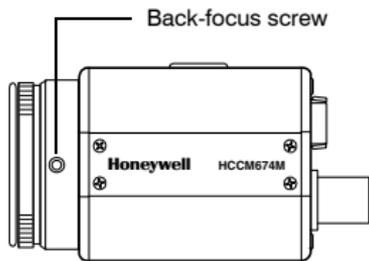
Back-focus screw

Fixed-Focus Lens

1. Fully open the iris and set the focus ring to NEAR.

    With an auto-iris lens, make sure that the lens is pointed toward a dark area so that the iris is fully open.

2. Loosen the two back-focus screws with a hex wrench (supplied), and then turn the lens mount to focus.

3. After adjusting the back focus, retighten the back-focus screw. Do not overtighten.

Zoom Lens

1. **Manual lens:** Fully open the iris, set the zoom ring to full WIDE, and then set the focus ring to NEAR.

    DC lens: Same zoom and focus settings as above, but make sure that the lens is pointed toward a dark area so that the iris is fully open. You can also use an ND filter in front of the lens.

2. Loosen the two back-focus screws with a hex wrench (supplied), and then turn the lens mount to focus.

3. After adjusting the back focus, retighten the back focus screw. Do not overtighten.

4. Confirm that the lens can be focused at full TELE.

Suitable Lenses

- The camera can use C-mount lenses when the C-mount adapter (standard accessory) is installed. When removed, CS-mount lenses can also be used.

- Use a suitable lens for the required field of view. the field of view for different focal length can be obtained using the following formula:

$$\text{Height of the area of view (m)} = \frac{A \times \text{Distance between camera and object (m)}}{\text{Focal length of lens (mm)}}$$

$$\text{Width of the area of view (m)} = \frac{B \times \text{Distance between camera and object (m)}}{\text{Focal length of lens (mm)}}$$

Mounted Lens	1/2″ Lens	1/3″ Lens
A	4.8	3.6
B	6.4	4.8

Note Do not attach the C-mount adapter when using a CS-mount lens.

Note In the illustration below, "L" should be as shown in the table. If "L" exceeds the value in the table, it may damage the inside of the camera and make correct mounting impossible.

Recommended focal point

L
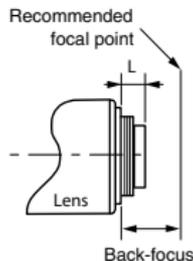
Lens

Back-focus

Lens	Back-focus (mm)	Distance "L" (mm)
C-mount *	17.526	< 9
CS-mount **	12.5	< 4

* With the C-mount adapter attached.
** With the C-mount adapter removed.

Camera Installation

The camera can be installed on a tripod using the 1/4-20 UNC mounting holes on the top and bottom of the camera. Ensure that the camera is installed securely.

Camera mounting hole

1/4″ – 20 UNC – 2B

26.65 mm
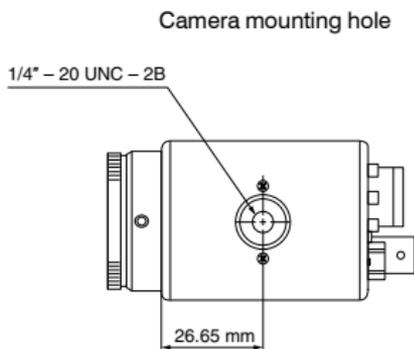
Connections

Connect the video output of the camera to the video input of a monitor or other equipment. When using a "loop through" connection of two or more monitors, set the 75 ohm switch of only the final monitor to On. Select the type of cable according to the distance between the camera and the connected equipment.

Note   Do not turn on the power of any connected equipment until all connections are completed.

Video iris or DC iris lens

To lens connector

To video input connector

To power input terminal

Power source (24 V AC or 12 V DC)
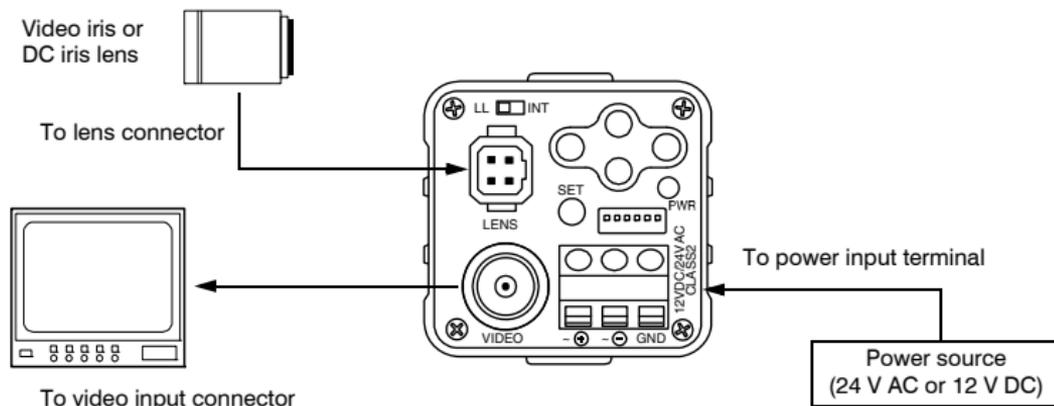
Menu System

The menu system activates all the features and options available on the camera.

The menus are superimposed over the image displayed on the screen. The commands can open other menus, toggle options, or change variable parameters.

Five rear panel setup buttons are used to move the cursor and select items from the menus.
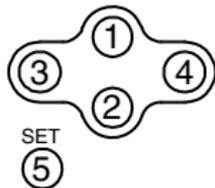
(1) Up button   Shift the cursor upwards
(2) Down button   Shift the cursor downwards
(3) Left button   Shift the cursor left
(4) Right button   Shift the cursor right
(5) Set button   Display the main menu or check the
                   setting and proceed to the next item.

The camera settings can be changed to accommodate usage conditions. When connected to a monitor, convenient on-screen menus facilitate checking and adjusting the settings.

The setting menus are shown on the next page.

Menu Description

```
                          ┌─────────────┐        ┌─────────────┐
                          │ SETUP MENU  │        │    LENS     │
                          │             │        │ - AUTO      │
                          └─────────────┘        │ - MANUAL    │
                                                 └─────────────┘
```

SHUTTER/ AGC	WHITE BALANCE	BACK LIGHT	PICT ADJUST	ATR	MOTION DETECTION	NEXT
- AUTO - MANUAL	- ATW - PUSH - USER1-2 - ANTI CR - MANUAL - PUSH LOCK	- OFF - BLC - HLC	- MIRROR - BRIGHTNESS - CONTRAST - SHARPNESS - HUE - GAIN	- OFF - ON	- OFF - ON	

PRIVACY	DAY/ NIGHT	NOISE REDUCTION	CAMERA ID	SYNC	LANGUAGE	CAMERA RESET	SAVE ALL
- OFF - ON	- AUTO - COLOR - BW	- Y LEVEL - C LEVEL	- OFF - ON	- INT - LL	- ENGLISH - JAPANESE - GERMAN - FRENCH - RUSSIAN - SPANISH - PORTUGESE		

Setup Menu

1. Press **SET** on the rear panel of the camera to display the Setup menu.

```
SETUP MENU

LENS          AUTO ⌐
SHUTTER/AGC   AUTO ⌐
WHITE BAL     ATW ⌐
BACKLIGHT     OFF
PICT ADJUST   ⌐
ATR           OFF
MOTION DET    OFF
NEXT ⌐
EXIT ⌐        SAVE ALL
```
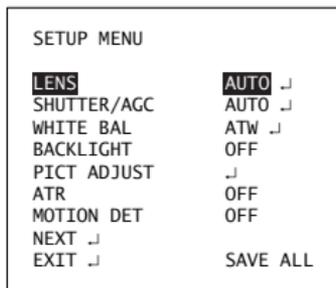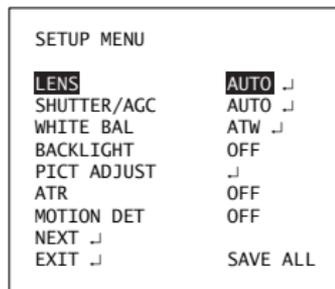
2. Check the present settings. If this is your first time accessing the menu, the factory default settings are displayed.

3. If the settings meet your requirements, and no further changes are necessary, move the cursor to the **EXIT** position, and then press **SET** to return to the normal video screen.

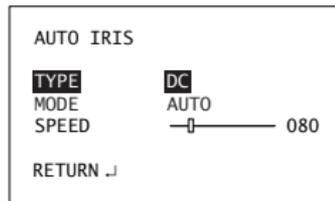4. To change a setting, use the setup buttons to move the cursor to the desired field and option.

   To save the new settings in the camera's memory, move the cursor to **SAVE ALL**, and then press **SET**.

Lens

1. Press **SET** to display the Setup menu.

2. Move the cursor to **LENS**, and then press the left or right setup button to select the Lens mode.

```
SETUP MENU

LENS          AUTO ⌐
SHUTTER/AGC   AUTO ⌐
WHITE BAL     ATW ⌐
BACKLIGHT     OFF
PICT ADJUST   ⌐
ATR           OFF
MOTION DET    OFF
NEXT ⌐
EXIT ⌐        SAVE ALL
```

3. Position the cursor at **AUTO**, and then press **SET** to select Auto Iris.

```
AUTO IRIS

TYPE    DC
MODE    AUTO
SPEED   ─┼──── 080

RETURN ⌐
```
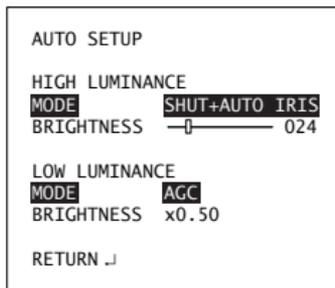
4. Change the settings as desired.

5. Move the cursor to **RETURN**, and then press **SET** to return to the Setup menu.

Shutter/AGC

1. Press **SET** to display the Setup menu.
2. Move the cursor to **SHUTTER/AGC**, and then press the left or right setup button to select either Auto mode or Manual mode.

Auto Mode

When using an auto-iris lens, the picture brightness is controlled by setting the brightness level.

```
AUTO SETUP

HIGH LUMINANCE
MODE          SHUT+AUTO IRIS
BRIGHTNESS    ─0──── 024

LOW LUMINANCE
MODE          AGC
BRIGHTNESS    x0.50

RETURN ⏎
```

In SHUT+AUTO IRIS mode, the camera automatically changes the shutter speed according to the changing light.

The brightness indicates the DC level of the DC lens in High Luminance mode. In Low Luminance mode, brightness indicates the AGC level.

Manual Mode

When using a manual iris lens, the picture brightness is controlled by setting the shutter level.

```
MANUAL SETUP

MODE          SHUT+AGC
SHUTTER       1/60
AGC           x6.00

RETURN ⏎
```
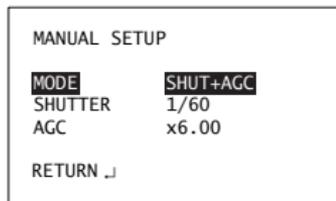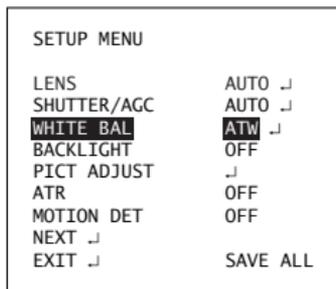
In MANUAL mode, the shutter and AGC levels will change as follows:

- Shutter: 1/60 to 1/100,000 sec (8 stages)
- AGC level: 6 dB to 44.8 dB (8 stages)

  Note For proper operation of the electronic shutter, if the illumination levels exceed 10,000 lux, use an auto-iris lens.
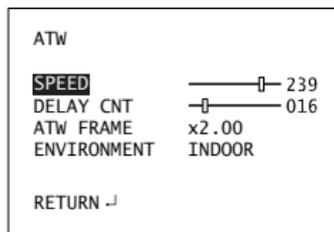
White Balance

1. Press **SET** to display the Setup menu.
2. Move the cursor to **LENS** and then press the left or right setup button to select the white balance mode.

```
SETUP MENU

LENS          AUTO ↵
SHUTTER/AGC    AUTO ↵
WHITE BAL      ATW ↵
BACKLIGHT      OFF
PICT ADJUST    ↵
ATR            OFF
MOTION DET     OFF
NEXT ↵
EXIT ↵         SAVE ALL
```

3. Select a white balance control mode.
4. Move the cursor to **SAVE ALL** and then press **SET**.

ATW ATW automatically tracks changes in the color temperature and adjusts the white balance.

> **Note** Only advanced users should adjust ATW settings.

```
ATW

SPEED          ────□─ 239
DELAY CNT      ─□──── 016
ATW FRAME      x2.00
ENVIRONMENT    INDOOR

RETURN ↵
```

SPEED: Adjusts the pull-in speed of ATW.
DELAY CNT: Sets the time-based hysteresis of ATW.
ATW FRAME: Sets the pull-in frame magnification.
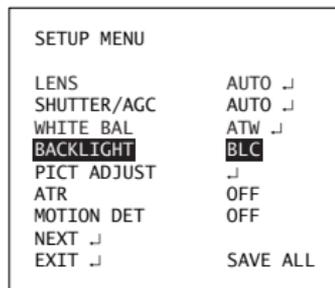ENVIRONMENT: Sets the pull-in frame of ATW (indoor or outdoor).

PUSH	Adjusts the white balance regardless of the lighting condition (Pull-in mode).
USER1	Manually adjusted white balance by User mode1 (Color temperature is preset at 2500K).

USER2	Manually adjusted white balance by User mode2 (Color temperature is preset at 5600K).
ANTI CR	Minimizes the color changes (color rolling) over long periods caused by small differences between the flicker frequency of non-inverter fluorescent lights and the drive frequency of the image sensor devices.
MANUAL	Allows the white balance to be adjusted manually following the black body radiation curve. The R gain is automatically adjusted in tandem with the up/down setting of the B gain.
PUSH LOCK	Locks the WB gain after PUSH (pull-in) control and shutting down the pull-in control.

Backlight

Select either backlight compensation or highlight compensation, depending on environmental conditions.

```
SETUP MENU

LENS            AUTO ↵
SHUTTER/AGC     AUTO ↵
WHITE BAL       ATW ↵
BACKLIGHT       BLC
PICT ADJUST       ↵
ATR             OFF
MOTION DET      OFF
NEXT ↵
EXIT ↵          SAVE ALL
```
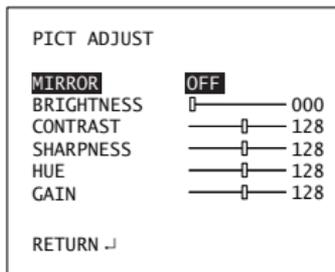
BLC Mode The backlight compensation function automatically compensates for a loss of dark detail by increasing brightness in the overall screen.

The excessive front lighting compensation function automatically compensates for overexposure due to excessive front lighting by reducing the brightness in the overall scene.

HLC Mode The highlight compensation function improves the visual recognition of license plates and other such objects by suppressing or masking strong light sources (such as automobile headlights) in dark places.

Picture Adjust

1. Press **SET** to display the Setup menu.
2. Move the cursor to **PICT ADJUST**, and then press the left or right setup button to adjust the video output signal.
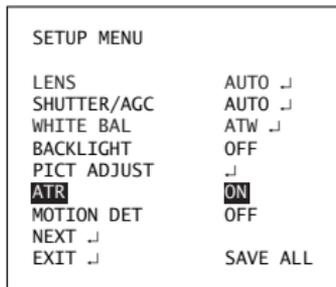
```
PICT ADJUST

MIRROR      OFF
BRIGHTNESS  □———— 000
CONTRAST    ————□— 128
SHARPNESS   ————□— 128
HUE         ————□— 128
GAIN        ————□— 128

RETURN ↵
```

MIRROR	Sets the horizontal flip for the display output.
BRIGHTNESS	Sets the brightness of the video output signal.
CONTRAST	Sets the contrast of the video output signal.
SHARPNESS	Sets the sharpness of the video output signal.
HUE	Sets the color of the video output signal.
GAIN	Sets the chroma gain of the video output signal.

ATR (Adaptive Tone Reproduction)

The ATR function provides gradation compensation to improve the contrast of subjects whose gradation has been lost in cases where, for instance, both low-luminance areas and high-luminance areas exist in the same scene.

The ATR function improves the visibility of the entire picture by providing the optimum gradation compensation for the image in one field based on the luminance information.

1. Press **SET** to display the Setup menu.
2. Move the cursor to **ATR**, and then press the left or right setup button to ATR to **ON**.

```
SETUP MENU

LENS           AUTO ⏎
SHUTTER/AGC    AUTO ⏎
WHITE BAL      ATW ⏎
BACKLIGHT      OFF
PICT ADJUST    ⏎
ATR            ON
MOTION DET     OFF
NEXT ⏎
EXIT ⏎         SAVE ALL
```
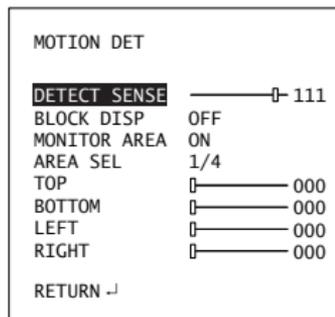
3. Press **SET** to enter the ATR submenu.
4. Set the Luminance to **LOW**, **MID**, or **HIGH**.
5. Set the Contrast to **LOW**, **MIDLOW**, **MID**, **MIDHIGH**, or **HIGH**.

Motion Detection

The motion detection function detects moving objects in a scene. Motion detection is triggered when the differences between frames in a monitored area exceed a specific level.

1. Press **SET** to display the Setup menu.
2. Move the cursor to **MOTION DET**, and then press the left or right setup button to set the motion detection function.
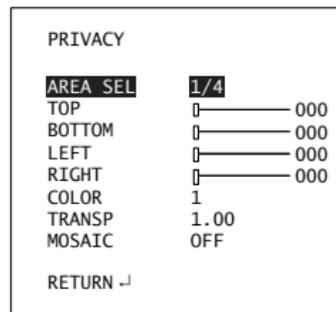
```
MOTION DET

DETECT SENSE   ————◻ 111
BLOCK DISP     OFF
MONITOR AREA   ON
AREA SEL       1/4
TOP          ◻————  000
BOTTOM       ◻————  000
LEFT         ◻————  000
RIGHT        ◻————  000

RETURN ⏎
```

DETECT SENSE	Sets the motion detection sensitivity.
BLOCK DISP	Controls the motion detection block display.
MONITOR AREA	Sets whether to use the monitoring frames.
AREA SEL	Selects the monitoring frame to be set.
TOP	Sets the top side of the monitoring frame.
BOTTOM	Sets the bottom side of the monitoring frame.
LEFT	Sets the left side of the monitoring frame.
RIGHT	Sets the right side of the monitoring frame.

Privacy

The privacy function hides a specific area in the scene from being seen on the screen.

1. Press **SET** to display the Setup menu.
2. Move the cursor to **PRIVACY**, and then press the left or right setup button to set Privacy to **ON**.
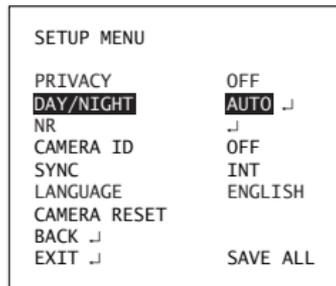3. Press **SET** to enter the Privacy submenu.

```
PRIVACY

AREA SEL    1/4
TOP         ▯————— 000
BOTTOM      ▯————— 000
LEFT        ▯————— 000
RIGHT       ▯————— 000
COLOR       1
TRANSP      1.00
MOSAIC      OFF

RETURN ↵
```

AREA SEL	Selects the mask frame to be adjusted.
TOP	Sets the top side of the mask frame.
BOTTOM	Sets the bottom side of the mask frame.
LEFT	Sets the left side of the mask frame.
RIGHT	Sets the right side of the mask frame.
COLOR	Sets the color of the mask frame.
TRANSP	Sets the transparency ratio of the mask frames.
MOSAIC	Sets the mask frame mosaic function.

Day/Night

When Day/Night is enabled, the camera provides color video in well-lit conditions and automatically switches to black-and-white video in low-light conditions.

1. Press **SET** to display the Setup menu.
2. Move the cursor to **DAY/NIGHT**, and then press the left or right setup button to set Day/Night to **COLOR**, **B/W**, or **AUTO**.

```
SETUP MENU

PRIVACY        OFF
DAY/NIGHT      AUTO ↵
NR             ↵
CAMERA ID      OFF
SYNC           INT
LANGUAGE       ENGLISH
CAMERA RESET
BACK ↵
EXIT ↵         SAVE ALL
```

| COLOR	Day/Night function is set to OFF.
B/W	Forces the camera into Night mode and chroma is set to OFF.
AUTO	The camera automatically switches to Day or Night mode, depending on the illumination conditions.

Auto Mode

- Press **SET** to adjust the Day/Night function settings.

```
DAY/NIGHT

BURST        ON
DELAY CNT    ─◻─── 010
DAY->NIGHT   ◻──── 003
NIGHT->DAY   ◻──── 005

RETURN ↵
```
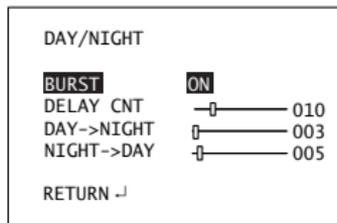
BURST	Selects whether to output the burst signal when the BW status has been identified.
DELAY CNT	Sets the delay prior to the Day-to-Night or Night-to-Day transition.
DAY-> NIGHT	Sets the Day-to-Night switching threshold.
NIGHT-> DAY	Sets the Night-to-Day switching threshold.

B/W Mode

- Press **SET** to adjust the Night mode settings.

```
BW

BURST         ON
IR OPTIMIZER  ON
MODE          AUTO
LEVEL         ─◻─── 015

RETURN ↵
```
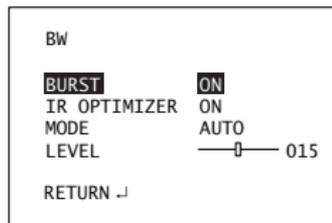
BURST	Selects whether to output the burst signal when the BW status has been identified.
IR OPTIMIZER	Not supported
MODE	Not supported
LEVEL	Not supported

Noise Reduction

Noise reduction reduces the amount of image noise generated under low-light conditions and other high-gain states.

Note   Y = Luminance
C = Chrominance

1. Press **SET** to display the Setup menu.
2. Move the cursor to **NR**, and then press **SET** to select the noise reduction function.

```
NR

NR MODE     Y/C
Y LEVEL     —0——— 004
C LEVEL     —0——— 004

RETURN ↵
```
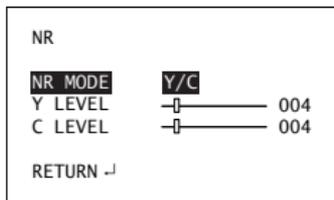
3. Move the cursor to **NR MODE** and then press the left or right setup button to change the NR mode.

Y/C	Y and C filter ON
Y	Y filter ON
C	C filter ON
Y LEVEL	Sets the Y filter strength.
C LEVEL	Sets the C filter strength.

Camera ID

When the internal OSD menu display is hidden in the internal mode, it is possible to display the camera ID on screen.

Any character string consisting of two rows (vertical) or up to 24 characters (horizontal) on each row can be used for the camera ID. It can be positioned anywhere on the screen.

1. Press **SET** to display the Setup menu.
2. Move the cursor to **CAMERA ID**, and then press **SET** to set the camera ID.

```
CAMERA ID
█

 ABCDEFGHIJKLMNOPQRSTUV
 WXYZ0123456789-!"#$%&'
 ()_`,¥:;<=>?@\^*.x+/
   ←→↑↓ CLR POS ↵


EXIT ↵
```
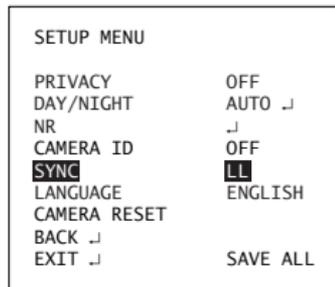
3. Press the setup buttons to select a character, and then press **SET** to generate the camera ID.

4. Move the cursor to **POS**, then press **SET** to set the camera position.

5. Press the setup buttons to move the camera ID position.

Sync

The Sync function displays the current synchronization mode. When line lock is being used as the synchronization mode, it is possible to adjust the phase in the vertical direction.

Note   Line lock cannot be adjusted if the camera is using a DC power supply.

1. Press **SET** to display the Setup menu.

2. Move the cursor to **SYNC**, and then press the left or right setup button to select the Sync mode.
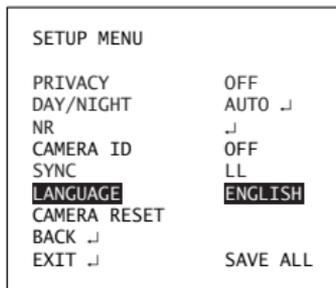
```
SETUP MENU

PRIVACY         OFF
DAY/NIGHT       AUTO ↵
NR              ↵
CAMERA ID       OFF
SYNC            LL
LANGUAGE        ENGLISH
CAMERA RESET
BACK ↵
EXIT ↵          SAVE ALL
```

3. Position the cursor at **LL**, then press **SET** to adjust the line lock phase.

```
LL

PHASE          ——□— 326


RETURN ↵
```
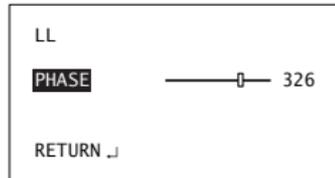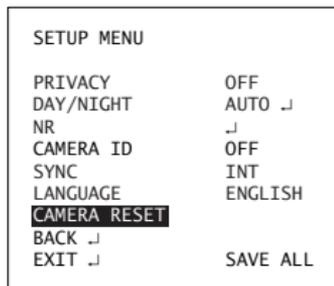
Language

The OSD menu display supports seven languages: English, French, German, Japanese, Portuguese, Russian, and Spanish.

1. Press **SET** to display the Setup menu.
2. Move the cursor to **LANGUAGE**, and then press the left or right setup button to select your preferred language.

```
SETUP MENU

PRIVACY        OFF
DAY/NIGHT      AUTO ↵
NR             ↵
CAMERA ID      OFF
SYNC           LL
LANGUAGE       ENGLISH
CAMERA RESET
BACK ↵
EXIT ↵         SAVE ALL
```

Camera Reset

The Camera Reset function restores the default settings.

```
SETUP MENU

PRIVACY        OFF
DAY/NIGHT      AUTO ↵
NR             ↵
CAMERA ID      OFF
SYNC           INT
LANGUAGE       ENGLISH
CAMERA RESET
BACK ↵
EXIT ↵         SAVE ALL
```

1. Press **SET** to display the Setup menu.
2. Move the cursor to **CAMERA RESET**, and then press **SET**.

Save All

Use this function to save the various settings in the OSD menu in the EEPROM. SAVE ALL is always displayed on the bottom line of the top-level menu.

Specifications

Video Specifications	
Video Standard	NTSC
Image Sensor	1/3″ Sony Interline Transfer CCD
Number of Pixels (H × V)	976 × 494
Minimum Illumination	0.1 lux @ F1.2, 50 IRE
Horizontal Resolution	650 TVL
Video Output	1 Vp-p @ 75 ohms
Sync System	Internal, line lock
S/N Ratio	50 dB (AGC off)
AGC Range	6 dB to 44.8 dB (Manual)
Electronic Shutter	Auto/Manual
Shutter Speed Range	1/60 to 1/100,000 s
White Balance	ATW/Push/User1/User2/Anti CR/ Manual/Push Lock

BLC	Off/BLC/HLC
Camera ID	Off/On (24 alphanumeric characters)
Privacy	Off/On; 4 zones
Motion Detection	Off/On; 4 zones
Noise Reduction	Y/C reduction
Day/Night	Auto/Color/BW
Picture Adjust	Mirror/Brightness/Contrast/ Sharpness/Hue/Gain
OSD Language	English, French, German, Japanese, Portuguese, Russian, Spanish

Electrical Specifications

Input Voltage	24 V AC, 60 Hz, 12 V DC
Input Range	10–14 V DC, 20–28 V AC
Surge Suppression	1.5 kW transient
Power Consumption	3.5 W (max)
Auto-Iris Lens Outputs	Video signal input type lens: Luminance signal 1.0 Vp-p, high impedance, power supply 12 V DC, 50 mA Galvanometer type lens: Coupling coil impedance, damper: 1.2 Kohms ± 10%; drive: 200 ohms ± 10%

Mechanical

Dimensions (L × W × D)	2.8″ × 1.6″ × 1.6″ (72 mm × 41 mm × 41 mm)
Weight	0.35 lb (0.16 kg)
Construction	Housing: Die-cast/aluminum Finish: Charcoal powder coat
Connectors	Lens: 4-pin connector Lens mount: C/CS mount Camera mount: 1/4-20 UNC

Environmental

Temperature	Operating: 14°F to 122°F (−10°C to 50°C) Storage: −4°F to 140°F (−20°C to 60°C)
Relative Humidity	Less than 85%, non-condensing

Regulatory

Emissions	FCC: Part 15, Class A
Immunity	EN 50130-4

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