

## INSTALLATION/OPERATION



### CCC1380H-6, CCC1380H-6X, and MCC1380H-6



**1/3-Inch CCD Camera**

**C1963M (8/04)**

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## IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
7. Only use attachments/accessories specified by the manufacturer.
8. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
9. Installation should be done only by qualified personnel and conform to all local codes.

The product and/or manual may bear the following marks:



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



## **REGULATORY NOTICES**

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.

## **RADIO AND TELEVISION INTERFERENCE**

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

You may also find helpful the following booklet, prepared by the FCC: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402.

Changes and Modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission's rules.

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

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

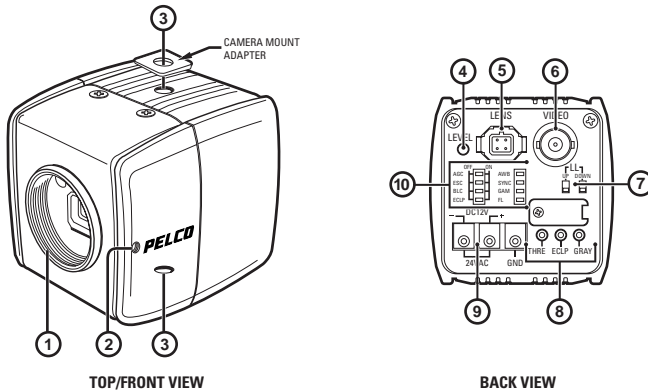
## DESCRIPTION

The CCC1380H-6, CCC1380H-6X, and MCC1380H-6 digital cameras are high resolution, compact video cameras that feature a 1/3-inch CCD imager. Each camera's high resolution and high-density image sensor ensure a sharp and clear picture over a wide range of conditions.

## MODELS

CCC1380H-6	1/3-inch, high resolution, color CCD camera, 24 VAC, 60 Hz/12 VDC, NTSC
CCC1380H-6X	1/3-inch, high resolution, color CCD camera, 24 VAC, 50Hz/12 VDC, PAL
MCC1380H-6	1/3-inch, high resolution, monochrome CCD camera, 24 VAC, 60 Hz/12 VDC, EIA

## LOCATION AND FUNCTION OF PARTS



**Figure 1.** Location and Function of Parts

① **Lens Mount**

The camera has a standard CS lens mount but can use a C-mount lens when a C/CS-mount adapter is installed between the lens and camera.

② **Back Focus Lock Screw**

Loosen the locking screw to adjust the back focus. Back focus adjustment has been set at the factory to the standard CS-mount back focus distance. Do not loosen the back focus locking screw unnecessarily. Refer to the section on *Back Focus Adjustment* for instructions on how to adjust back focus length.

③ **Camera Mounts**

Mounting points are provided on the top and bottom of the camera. Maximum thread length is 3/16-inch. Attach the camera mount adapter to extend thread depth to a standard 1/4-inch.

④ **Level Adjuster**

Controls the video output level when using a DC-controlled auto iris lens.

⑤ **Lens Connector**

Four-pin DC-control connector for auto iris lenses. Refer to the section on *Auto Iris Lenses* in this manual for pin connections.

⑥ **Video Output Connector**

Refer to the section on *Connections* for instructions for how to connect a coaxial cable to the BNC video output connector.

⑦ **LL – Vertical Phase Adjustment**

Use these switches to adjust the vertical phase to eliminate vertical roll when multiple cameras are connected to the same power supply. Refer to the section on *Camera Synchronization* in this manual for instructions on how to synchronize cameras.

## ⑧ **Eclipser Level Controls**

The eclipser function is set at the factory and usually does not need to be readjusted. However, if adjustment is necessary, refer to the section on *Eclipser Adjustment* in this manual.

### **THRE**

Sets the level for the brightest part of the picture. Anything brighter than this adjustment will be eclipsed.

### **ECLP**

Sets the brightness of the eclipsed area.

### **GRAY**

Sets the brightness of the eclipsed area as viewed on a monitor.

## ⑨ **Power Input Terminal**

Three-pin terminal strip, push-in type; 24 VAC/12 VDC for NTSC/PAL/EIA models. Refer to the section on *Connections* in this manual for instructions for how to connect to a power supply.

## ⑩ **DIP Switch Settings**

### **AGC – Automatic Gain Control**

Automatically adjusts the image to compensate for changes in light levels when using fixed or manual iris lenses. Following are the AGC switch settings:

**OFF** – Disables the AGC mode.

**ON** (Default setting) – Enables the AGC mode.

### **ESC – Electronic Shutter Control**

The ESC feature compensates for an excessive light level by automatically adjusting shutter speed. The ESC range is 1:300. Following are the ESC switch settings:

**OFF** – Disables the Electronic Shutter Control mode.

**ON** (Default setting) – Enables the Electronic Shutter Control mode.

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**NOTE:** Set the FL switch to the off position, otherwise ESC will not function.

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### **BLC – Backlight Compensation**

The backlight compensation feature compensates for backlit scenes by enhancing objects in the center of the scene that would previously have been in silhouette. BLC will only function with a manual iris lens when the ESC feature is switched on. For direct drive and auto iris lenses, BLC will still function even though the ESC feature is switched off.

Following are the BLC switch settings:

**OFF** (Default setting) – Disables the BLC mode.

**ON** – Enables the BLC mode.

### **ECLP – Eclipser Function**

The eclipser function is used with an auto iris lens. When using a CCD imager with an auto iris lens in an area with minimal lighting contrasts, the auto iris lens closes, resulting in poor picture quality. The eclipser function distorts the signal to the auto iris lens, causing the lens to open wider and create sufficient lighting contrasts to prevent the silhouetting of figures. When the auto iris lens used is equipped with a response selector (AVERAGE/PEAK), always set the selector to AVERAGE.

Following are the **ECLP** switch settings:

**OFF** (Default setting) – Disables the ECLP mode.

**ON** – Enables the ECLP mode.

### **AWB – Automatic White Balance**

Following are the AWB switch settings:

**OFF** – Processes the viewed image to retain color balance in a restricted color temperature range.

**ON** (Default setting) – Automatically processes the viewed image to retain color balance over a wide color temperature range.

### **SYNC – Synchronization**

Locks the frame rate to the power supply frequency. Eliminates vertical roll caused by multiple cameras connected to the same switching device. Each camera output is synchronized to the frequency of the power supply. Set the camera synchronization mode to one of the following:

**OFF** (Default setting) – **Auto mode**, DC internal, AC line lock. For vertical phase adjustment refer to ⑦ **LL – Vertical Phase Adjustment**.

**ON** – Internal mode, use with noisy AC power.

### **GAM – Gamma**

There are two different levels for gamma. One setting increases the overall contrast of the scene and the other setting increases visibility in the dark areas of the scene. Set the gamma level to one of the following:

**OFF** – Linear response increases (overall) contrast.

**ON** (Default setting) – Increases visibility in dark areas of the picture.

### **FL – Flickerless**

The Flickerless setting can reduce the flicker caused by certain lighting conditions. The Electronic Sensitivity Control setting must be off for correct operation of the Flickerless function. Choose between the following settings:

**OFF** (Default setting) – Disables the Flickerless mode.

**ON** – Enables the Flickerless mode.



# CONNECTIONS

## POWER

To connect to the power supply:

1. Strip at least .50 inch (13 mm) from the power cord to expose the wires.
2. Insert the three wires into the holes in the terminal strip until they snap into place.
3. Confirm that the cord is connected to terminal securely by lightly tugging on the cord.

If you are wiring more than one camera to the same transformer, connect one side of the transformer to the same terminal on all cameras, and connect the other side of the transformer to the remaining terminal on all cameras. Failure to connect all of the cameras the same way will cause the cameras to be out of phase with each other and may produce a vertical roll when switching between cameras.

## VIDEO

Connect a video cable to the SIGNAL OUT connector (BNC) on the rear of the camera. Refer to Table A for the type of video coaxial cable to use.

**Table A. Video Coaxial Cable Requirements**

<b>Cable Type*</b>	<b>Maximum Distance</b>
RG59/U	750 ft (229 m)
RG6/U	1,000 ft (305 m)
RG11/U	1,500 ft (457 m)

\*Minimum cable requirements:

75 ohms

All-copper center conductor

All-copper braided shield with 95% braid coverage

## LENS INSTALLATION

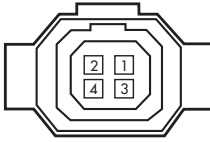
The CCC1380H-6, CCC1380H-6X, and MCC1380H-6 can use fixed, manual, or passive (DC-controlled) auto iris lenses. The camera has a standard CS lens mount but can use a C-mount lens when a C/CS-mount adapter is installed between lens and camera.

### LENS MOUNTING

1. Screw the lens onto the lens mount. Be careful to prevent dust from entering the space between the lens and the CCD element. If necessary, use clean, compressed air to remove any foreign matter.
2. Aim the camera and focus the lens to the object or area to be observed.
3. If a manual iris lens is used, adjust the iris for the best picture quality. The largest aperture gives the best light sensitivity, the smallest aperture the greatest depth of field.

### AUTO IRIS LENSES

Passive auto iris lenses are DC-controlled via the 4-pin iris drive connector (type D4-152N) located on the back of the camera. Pin connections for the iris drive connector are as follows:



LENS CONNECTOR

PIN	VIDEO SIGNAL CONTROL	DC VOLTAGE CONTROL
1	+9 VDC (40 mA max.)	Control coil (-)
2	+9 VDC (40 mA max.)	Control coil (+)
3	AI - Video	Drive coil (+)
4	GND	Drive coil (-)

## BACK FOCUS ADJUSTMENT

Do not release the back focus locking ring unnecessarily. Back focus adjustment has been set at the factory to the standard CS-mount back focus distance. However, once a lens is mounted it may be necessary to adjust back focal length to match the lens being used.

### FIXED FOCAL LENGTH LENSES

1. Mount the lens firmly to the camera.
2. With the camera operating, position the camera to view an object at least 30 feet (10 m) away.
3. Set the focus ring to infinity ( $\infty$ ).
4. Set the lens iris to its widest usable opening.
5. Adjust the back focus.
  - a. Use an Allen wrench to loosen the back focus lock screw at the side of the camera.
  - b. Turn the lens mount to obtain the sharpest image on the monitor.
  - c. Turn the back focus locking ring clockwise to tighten.

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**NOTE:** Do not over-tighten the back focus lock screw. Over-tightening the back focus lock screw can damage the threads on the mount of the lens.

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### MOTORIZED ZOOM LENSES

1. With the camera operating, position the camera to view an object at least 70 feet (25 m) away.
2. Set the lens in the following manner:
  - a. Set the lens iris to its widest usable opening.
  - b. Set the lens focus to the FAR position.
  - c. Adjust lens zoom to WIDE angle.
3. Adjust back focus until the object is in sharpest focus.
  - a. Use an Allen wrench to loosen the back focus lock screw at the side of the camera.
  - b. Turn the lens mount to obtain the sharpest image on the monitor.
  - c. Turn the back focus locking ring clockwise to tighten.
4. Move lens zoom to TELEPHOTO.
5. Zoom out all the way while observing the focus on the monitor (known as "tracking"). If the image stays in focus throughout the entire zoom range, the back focus is correct. Otherwise, repeat the process beginning with step 1.

## CAMERA SYNCHRONIZATION

The power supply of each camera is set to the same synchronized phase at the factory and usually does not need to be readjusted.

When using more than one camera power supply, a brief vertical roll may occur on the monitor each time a camera view is switched. To eliminate vertical roll, adjust the phase control by synchronizing, or line locking, the cameras to one another. Use the LL switches on the back of the camera to make adjustments.

It may be necessary to have two people in communication when synchronizing the cameras—one person at the camera and another person at the monitor to observe the vertical roll and the effect of any adjustments made at the camera.

To synchronize the cameras do the following:

1. Choose a reference camera to which all other cameras will be phased.
2. Select a camera and synchronize it to the reference camera by turning the phase adjustment control clockwise and/or counterclockwise.
3. Each time an adjustment is made, switch back and forth between the camera you are adjusting and the reference camera. Repeat this process as many times as necessary, until the roll between the cameras is no longer noticeable.
4. Adjust the phase of all other cameras by repeating steps 2 through 3. Always adjust to the reference camera selected in step 1.

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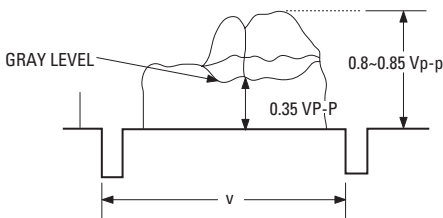
**NOTE:** *The preferred method for camera phase adjustment is to use a dual trace oscilloscope to align the vertical sync pulses of the reference camera to the selected camera(s).*

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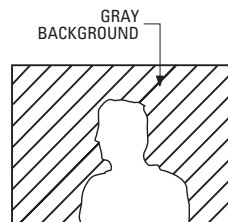
## ECLIPSER ADJUSTMENT

The eclipser function is set at the factory and usually does not need to be readjusted. However, if fine tuning is necessary, do the following:

1. Set the DIP switches.
  - a. AGC: OFF
  - b. ESC: OFF
  - c. BLC: OFF
2. Set the variable resistors and Eclipse DIP switch.
  - a. THRE: Counterclockwise
  - b. ECLP: Mechanical center
  - c. GRAY: Mechanical center
  - d. ECLP Switch: OFF
3. Set the response selector of the auto iris lens (video type) to AVERAGE. While viewing an object, set the video output level of the camera to 0.75 Vp-p (100 IRE) by adjusting the LEVEL VR of the auto iris lens.
4. While viewing a brightly lit object (Refer to Figure 2):
  - a. Set ECLP DIP switch to ON.
  - b. Adjust THRE variable resistor by turning it clockwise. Set the video output level to clip at 0.8-0.85 Vp-p.
  - c. Set gray level to 0.35 Vp-p by turning the GRAY variable resistor clockwise or counterclockwise.
5. While viewing an object in front of a bright background (refer to Figure 3), adjust the ECLP variable resistor by turning it clockwise or counterclockwise until the foreground is clear (sharp) and the background appears gray.



**Figure 2.** Gray Level Setting



**Figure 3.** Image on Monitor

# SPECIFICATIONS

## GENERAL

Imaging Device	1/3-inch interline transfer CCD
Picture Elements	
CCC1380H-6, MCC1380H-6	768H x 494V (approx. 380K)
CCC1380H-6X	752H x 582V (approx. 440K)
Sensing Area	3/16 x 1/8 - inch (4.7 mm x 3.5 mm)
Synchronization System	AC line lock/DC internal
Horizontal Resolution	
CCC1380H-6, CCC1380H-6X	480 TV lines
MCC1380H-6	560 TV lines
Iris Control	Electronic/passive
Minimum Illumination	
CCC1380H-6, CCC1380H-6X	0.7 lux at F1.2, 40 IRE, AGC on, 75% reflectance
MCC1380H-6	0.10 lux at F1.2, 40 IRE, AGC on, 75% reflectance
ESC	300:1
Signal-to-Noise Ratio	>48 dB (AGC off)
Gain Control	Automatic
Vertical Phase	±90°
Automatic Gain Control	Selectable
Backlight Compensation	Selectable
Scanning System	
CCC1380H-6, MCC1380H-6	525 lines, 2:1 interlace
CCC1380H-6X	625 lines, 2:1 interlace
Signal Processing	DSP
Auto Iris Lens Type	DC/video control
Video Output	1 Vp-p, 75 ohms

## PHYSICAL

Dimensions	2.09 (W) x 2.17 (H) x 2.21 (D) inches (53 x 55 x 56 mm)
Weight (without lens)	0.40 lb (0.20 kg)

## ENVIRONMENTAL

Operating Temperature	14°F to 122°F (-10°C to 50°C)
Storage Temperature	-40°F to 140°F (-40°C to 60°C)
Humidity	20 to 80% (noncondensing)

## ELECTRICAL

Power Requirements	
CCC1380H-6, MCC1380H-6	24 VAC, 60 Hz/12 VDC
CCC1380H-6X	24 VAC, 50 Hz/12 VDC
Power Connector	3-pin terminal strip, push-in type
Video Connector	BNC
Lens Jack	4-pin connector (miniature square)
Current Consumption	270 mA (24 VAC)/ 390 mA (12 VDC)

## MECHANICAL

Lens Mount	C/CS mount (Pelco PCMA40 mount adapter is needed to attach C-mount lens)
Camera Mount	1/4 x 20, top and bottom of camera housing

*(Design and product specifications subject to change without notice.)*

# PRODUCT WARRANTY AND RETURN INFORMATION

## WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment.

Exceptions to this warranty are as noted below:

- Five years on the following fixed camera models: CC3701H-2, CC3701H-2X, CC3751H-2, CC3651H-2X, MC3651H-2, and CC3651H-2X.
- Three years on all other fixed camera models (including Camclosure® Integrated Camera Systems) and Genex® Series (multiplexers, server, and keyboard).
- Two years on all standard motorized or fixed focal length lenses.
- Two years on Legacy®, CM6700/CM6800/CM8500/CM9500/CM9740/CM9760 Matrix, DF5 and DF8 Series Fixed Dome products.
- Two years on Spectra®, Esprit®, and PS20 Scanners, including when used in continuous motion applications.
- Two years on Esprit® and WW5700 series window wiper (excluding wiper blades).
- Eighteen months on DX Series digital video recorders and NVR300 series network video recorder and NVR300 network video recorder.
- One year (except video heads) on video cassette recorders (VCRs). Video heads will be covered for a period of six months.
- Six months on all pan and tilts, scanners or preset lenses used in continuous motion applications (that is, preset scan, tour and auto scan modes).

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to Pelco, Clovis, California. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

## RETURNS

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair).

All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Goods returned for repair or credit should be clearly identified with the assigned CA or RA number and freight should be prepaid. Ship to the appropriate address below.

*If you are located within the continental U.S., Alaska, Hawaii or Puerto Rico, send goods to:*

Service Department  
Pelco  
3500 Pelco Way  
Clovis, CA 93612-5699

*If you are located outside the continental U.S., Alaska, Hawaii or Puerto Rico and are instructed to return goods to the USA, you may do one of the following:*

If the goods are to be sent by a COURIER SERVICE, send the goods to:

Pelco  
3500 Pelco Way  
Clovis, CA 93612-5699 USA

473 Eccles Avenue  
South San Francisco, CA 94080 USA

If the goods are to be sent by a FREIGHT FORWARDER, send the goods to:

Pelco c/o Expeditors

Phone: 650-737-1700  
Fax: 650-737-0933

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## REVISION HISTORY

Manual #	Date	Comments
C1963M	8/04	Original version.



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