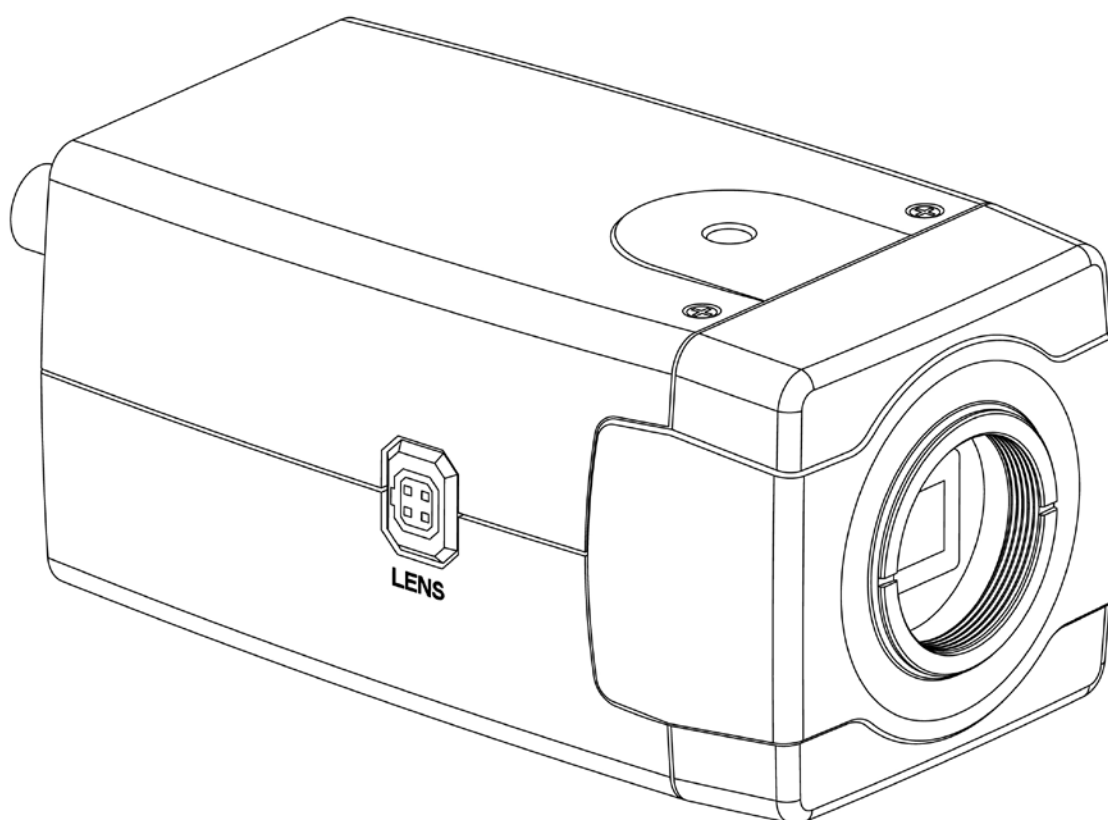


C20-CH Series 650 TV lines

High Resolution Camera
Installation/Operation Manual
18 to 32VAC (Revision A)



C3981M-A-EN (04/14)

Before attempting to connect or operate this product, please read these instructions carefully and save this manual for future use.

C20-CH series model names:

C20-CH-6(X)
C20-CH-7X

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Important Safety Instruction

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. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Only use attachments/accessories specified by the manufacturer.
10. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
11. 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.
12. Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases shall be placed on the apparatus.
13. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
14. Installation should be done only by qualified personnel and conform to all local codes.
15. Unless the unit is specifically marked as a NEMA Type 3, 3R, 3S, 4, 4X, 6, or 6P enclosure, it is designed for indoor use only and it must not be installed where exposed to rain and moisture.
16. Use only installation methods and materials capable of supporting four times the maximum specified load.

Important Safety Instruction

CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Only use replacement parts recommended by Pelco.

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.

CAUTION: RISK OF ELECTRIC SHOCK. DO NOT OPEN.



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



WARNING: This product is sensitive to Electrostatic Discharge (ESD). To avoid ESD damage to this product, use ESD safe practices during installation. Before touching, adjusting or handling this product, correctly attach an ESD wrist strap to your wrist and appropriately discharge your body and tools. For more information about ESD control and safe handling practices of electronics, please refer to ANSI/ESD S20.20-1999 or contact the Electrostatic Discharge Association (www.esda.org).

Important Notices

REGULATORY NOTICES [FCC CLASS B]

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.

Warranty

For information about Pelco's product warranty and thereto related information, refer to www.pelco.com/warranty.

Operating Notes:

Warning:

For C20-CH (Revision A); released in 2014:

- For dual voltage model: Connect to 12VDC or 18 to 32VAC power adapter.
- For high voltage model: Connect to 220VAC power source.

For older C20-CH (prior to Revision A):

- For dual voltage model: Connect to 12VDC or 24VAC power adapter.
- For high voltage model: Connect to 220VAC power source.

Operating Conditions

- Avoid viewing very bright objects (example, light fixtures) for extended periods.
- Avoid operating or storing the unit in the following locations:
 - Extremely humid, dusty, hot/cold environments
 - Close to sources of powerful radio or TV transmitters
 - Close to fluorescent lamps or objects reflecting light
 - Under unstable light sources (may cause flickering)

Suggested Installation:

Where the operating temperature is outside the recommended range of 14°F to 122°F [-10°C to +50°C])

Introduction

1. Introduction

The box camera is ideal for indoor installation in commercial environment.

Before You Begin:

Please read this guide carefully before you install the box camera. Keep this guide for future reference.

Package Contents:

Check that the items received match those listed on the order form and packing slip. The box camera packing box includes:

- One installation/operation manual
- One fully assembled camera
- One Lens mounting cap
- One Hexagonal and Minus wrench
- One C adapter ring
- One Auto Iris lens connector

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

Optional Accessories:

- C10-UM Mount

We recommend that you mount the camera with the C10-UM mount, a C10 series universal wall/ceiling/rail mounting kit.

Part Names and Locations

2. Part Names and Locations

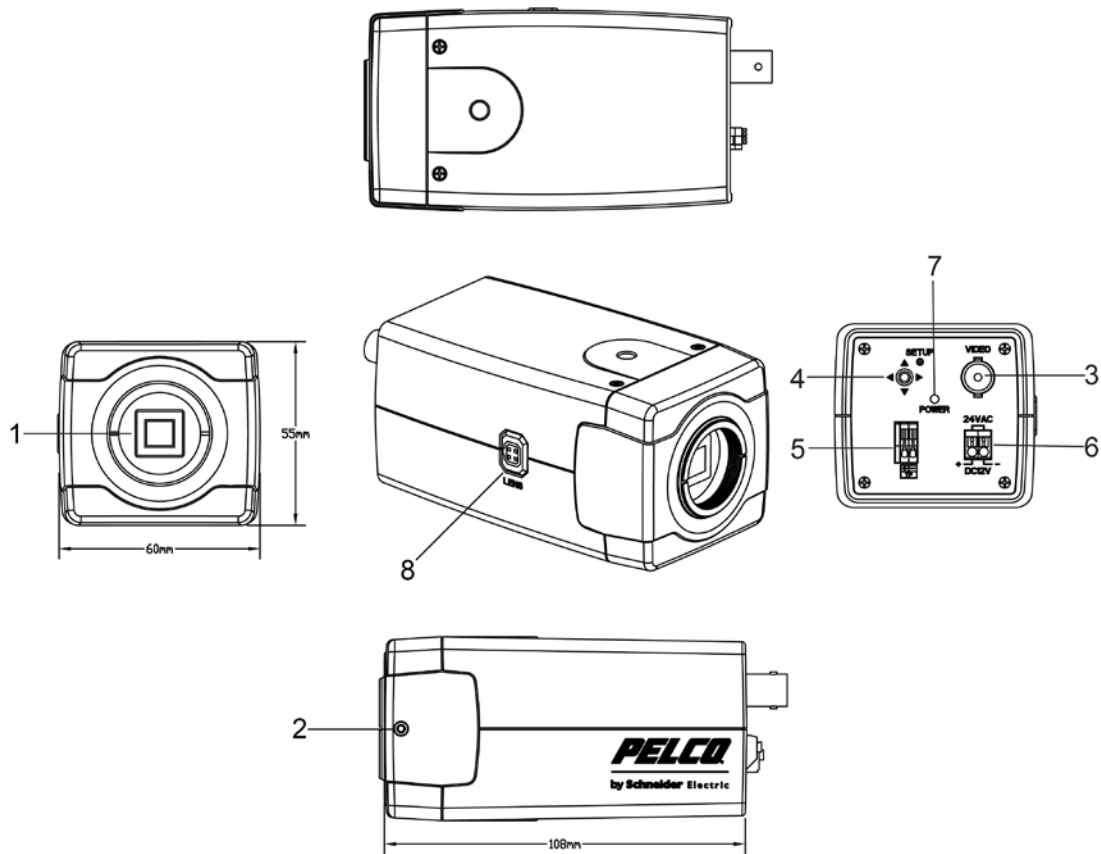


Figure 2-1 C20-CH-6/C20-CH-6X

Part Names and Locations

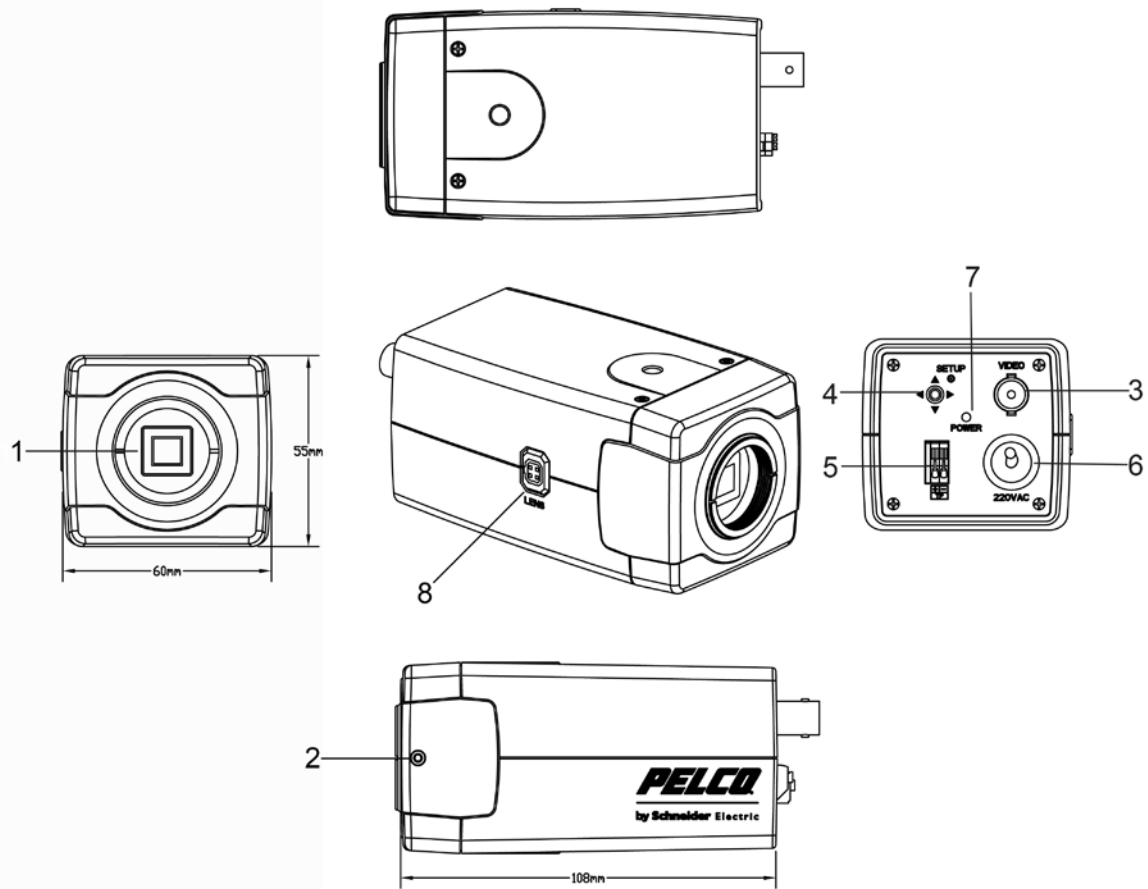


Figure 2-2 C20-CH-7X

Part Names and Locations

(1) Lens mount C/CS

For the installation of CS Mount lenses only, use no adapter.

Before mounting the C mount lens, you can screw the C adapter onto the lens, and then screw the lens onto the lens mount.

(2) Back Focus adjustment

Use a minus wrench to loosen this screw before you use the Focus Adjustment. To maintain the correct focus afterwards, ensure that it is tightened.

(3) Video Output Terminal

BNC: Used to give out the video signal. Connected to the video input terminal of a monitor, Matrix, etc. (to be terminated with 75 ohm impedance)

(4) OSD joystick control

Press the OSD joystick control straight down:

- For two seconds to enter the Main menu.
- To enter a screen or to select a submenu option. A selected menu item blinks.

(5) I/O

Connect your external devices to the corresponding I/O terminal block. The pins of the I/O terminal block controls the following signals:
TP+/-: UTP (Unshielded Twisted Pair)

(6) Power Connector

Connect to the respective power source.

- For dual-voltage model: Connect to 12VDC or 18 to 32VAC power adapter.
- For high-voltage model: Connect to 220VAC power source.

WARNING:

This apparatus must be GROUNDED.

(7) Power Indicator

The power indicator light is lit (Red), which means the power is connected.

(8) Auto Iris lens connector

Supplies power and control signals to an auto-iris lens.

OSD Setup Menu

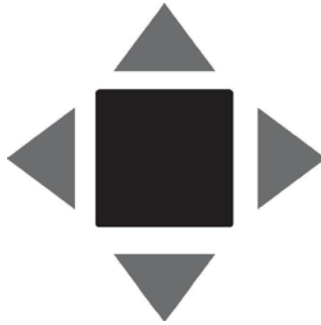
3. OSD Menu

Set up menu	Default set	Menu
Lens	AUTO	AUTO/Manual
Shutter/AGC	AUTO	AUTO (High Luminance, Low Luminance)/ Manual (Mode, Shutter, AGC)
WHITE BAL	ATW	ATW/Push Lock/User1/User2/Anti CR/Manual
Backlight	OFF	OFF/BLC/HLC
Pic Adjust	Option	Mirror, Brightness, Contrast, Sharpness, Hue, Gain
ATR	OFF	OFF/ON (Luminance, Contrast)
Motion Det	OFF	OFF/ON (Detect Sense, Block DISP, Motion Area, Area Sel)
Privacy	OFF	OFF/ON (Area Sel, Color, Transp, Mosaic)
Day/Night	AUTO	AUTO/BW/Color
NR	OFF	NR Mode (Off, Y, C) Y Level C Level
Camera ID	OFF	OFF/ON
SYNC	INT	INT
Language	English	ENGLISH / SPANISH / RUSSIAN / GERMAN / FRENCH / JAPANESE or PORTUGUESE
Camera Reset		
Exit		
Save All		

4. OSD Menu Settings

Entering OSD Menu

Push in on the joystick to open the Main menu. Use the UP/DOWN functions of the joystick to move the cursor to the item you want to modify. A selected menu item will be highlighted.



Press UP: Press to move the cursor up.

Press Down: Press to move the cursor down.

Enter button: Push in on the joystick to enter the selected item or change the settings of the selected item.

Press Right: Press to change the settings of the selected item.

Press Left: Press to change the settings of the selected item.

NOTE: When an item is selected, it will be highlighted.

After all the settings have been satisfied, move the cursor to the "Save All" item and press the enter button. Then move the cursor to the "EXIT" item and press the enter button to exit OSD setup menu.

You can also restore the settings to factory default by moving the cursor to the "CAMERA RESET" item and then pressing the Enter button. Then move the cursor to the "Save All" item and press the Enter button.

Menu Settings

Use the OSD menu to set up the camera for optimum performance.

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

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

4.1 LENS

Select the auto or Manual lens function. The default setting is AUTO (Auto Iris lens). Move the joystick control LEFT or RIGHT to select Auto or Manual Lens. Enter the AUTO submenu as shown in the figure below. Move the joystick control UP or DOWN to open, close, or set IRIS to auto mode. Move the joystick control UP or DOWN to adjust the DC Iris Lens convergence speed.

If speed value is lower, the IRIS will be slower. If speed value is higher, the IRIS will be faster.

TYPE	DC
MODE	OPEN
SPEED	046
RETURN	

4.2 SHUTTER/AGC

Set the shutter speed/AGC (Auto Gain Control) function. The default setting is AUTO. Move the joystick control LEFT or RIGHT to select AUTO or MANUAL.

SUGGESTED USE:

DC Lens: When using DC lens, We recommend to set SHUTTER/AGC to AUTO mode. Enter the AUTO submenu as shown in the figure. Move the joystick control UP or DOWN to adjust the HIGH LUMINANCE MODE to AUTO IRIS.

Manual Lens: When using MANUAL lens, We recommend to set SHUTTER/AGC to AUTO mode. Enter the AUTO submenu as shown in the figure. Move the joystick control UP or DOWN to adjust the HIGH LUMINANCE MODE and LOW LUMINANCE setting.

Menu Settings

AUTO IRIS and SHUT+AUTO IRIS difference

- Use DC lens and setting to AUTO IRIS mode for normal condition application environments. The IRIS level will be controlled by camera brightness.
- Use DC lens and setting to SHUT+AUTO IRIS mode for high light application environments. The exposure will be controlled by AES or the DC Iris. The iris level will be controlled by camera brightness.

HIGH LUMINANCE	
MODE	AUTO IRIS
BRIGHTNESS	024
LOW LUMINANCE	
MODE	AGC
BRIGHTNESS	x 0.25
RETURN	

The shutter speed is variable from 1/50 sec to the 1/10Ksec and the AGC is selectable depending on your environment condition.

MODE	SHUT+AGC
SHUTTER	1/50
AGC	6.0
RETURN	

Note: Menu settings for Lens and Shutter/AGC

- When the camera first starts up the menu setting for Lens=Auto (Mode=Auto) and the settings for Shutter/AGC= High Luminance=Auto Iris
- When you change Lens=Manual then the default settings for Shutter/AGC= High Luminance=Shut
- When you change Lens=Auto then the settings for Shutter/AGC=Shut+Autolris (this is not the default value of menu setting when first turned on)

4.3 WHITE BAL

WHITE BALANCE controls color on the screen. The default is ATW. The color temperature range is 2500°K~ 9500°K. Move the joystick control LEFT or RIGHT to select ATW (Auto White Balance), PUSH, PUSH LOCK, USER1, USER2, Anti CR (Anti Color Rolling Suppression) or MANUAL mode. Enter the ATW submenu as shown in the figure. Move the joystick control UP or DOWN to select the desired value. Select ATW (Auto White Balance) when the scene illumination varies between indoor scenes and outdoor scene lighting.

NOTE:

When setting different values of the ATW FRAME and the application environment, the color temperature range of white balance will be changed. The color temperature range of x0.50 of ATW FRAME will be smaller than x2.00.

SPEED	171
DELAY CNT	152
ATW FRAME	x 0.50
ENVIRONMENT	INDOOR
RETURN	

If you select MANUAL mode, you can adjust the LEVEL from 17 to 54.

If you select USER1 or USER2 mode, you can adjust B-GAIN and R-GAIN value from 0 to 255.

If you select PUSH mode in the appropriate position, the whole area will perform white balance.

If you select PUSH LOCK mode in the appropriate position, WHITE BALANCE will perform once.

If you select Anti CR mode in the appropriate position, the whole area will effectively restrain color cast.

Menu Settings

4.4 BACKLIGHT

Set the backlight compensation function. The default is OFF. Move the joystick control LEFT or RIGHT to select OFF, BLC or HLC (Highlight Compensation) mode. When you switch to BLC, the function controls the light level to overcome severe backlighting conditions. HLC activated automatically depending on the shooting condition (detects night and high-luminance)

BLC and HLC Compensation are the functions that achieve the brightness of a selected area to an optimum image level. Due to the intense light coming from the back of objects in the area you want to view, the auto iris lens tends to close and areas you want to see become dark and invisible.

4.5 PICTURE ADJUST

Set the PICTURE ADJUST function. Enter the PICT ADJUST submenu as shown in the figure below. Move the joystick control UP or DOWN to set picture Brightness, Contrast, Sharpness, Hue, or Gain value. In addition, you can set MIRROR to the ON mode then the picture to be left or right.

MIRROR	OFF
BRIGHTNESS	000
CONTRAST	128
SHARPNESS	128
HUE	128
GAIN	128
RETURN	

4.6 ATR*

Set the ATR (Adaptive Tone-curve Reproduction) function. The default is OFF. Move the joystick control LEFT or RIGHT to select the ON mode then enter to the ATR submenu, you can set LUMINACE and CONTRAST to optimize by image.

LUMINANCE	LOW
CONTRAST	LOW
RETURN	

*Also known as Wide Dynamic Range. This function expands the video dynamic range of the camera and improves visibility of images even in high contrast environments.

4.7 MOTION DET

Set the Motion Detection function. MOTION DET allows detecting moving objects on the screen. The default is OFF. Move the joystick control LEFT or RIGHT to select the ON mode then enter to the MOTION DET submenu. You can set 4 motion areas to detect moving objectives and adjust the motion detection sensitivity. Use the LEFT/RIGHT functions of the joystick control to set the sensitivity from 000 to 127.

DETECT SENSE	100
BLOCK DISP	OFF
MONITOR AREA	OFF
AREA SEL	1/4
TOP	000
BOTTOM	000
LEFT	000
RIGHT	000
RETURN	

Menu Settings

4.8 PRIVACY

Set the PRIVACY function. The default setting is OFF. Move the joystick control LEFT or RIGHT to select the ON mode then enter to the PRIVACY submenu. You can configure 8 privacy positions, set 8 privacy areas, choose different color zone and set transparency of 8 privacy zone. However if you enable MOTION DET function, then the PRIVACY function will support only 4 zones. In addition, the image of PRIVACY can allow you to set the MOSAIC function.

REA SEL	1/8
TOP	000
BOTTOM	000
LEFT	000
RIGHT	000
COLOR	1
TRANSP	0.00
MOSAIC	OFF
RETURN	

4.9 DAY/NIGHT

Set the DAY/NIGHT function. The default setting is AUTO. Move the joystick control LEFT or RIGHT to select the AUTO, COLOR, BW mode. Enter the AUTO submenu as shown in the figure below. Move the joystick control UP or DOWN to adjust the BURST value and set the time before the camera switches to DAY-> NIGHT mode or NIGHT->DAY mode.

When select Day->NIGHT level to set up switchover point of brightness from COLOR mode to B/W mode under different Lux levels.

When select NIGHT->DAY level to set up switchover point of brightness from B/W mode to COLOR mode under different Lux levels.

BURST	OFF
DELAY CNT	100
DAY->NIGHT	100
NIGHT->DAY	100
RETURN	

If you select COLOR mode, you can force the camera to stay in DAY (COLOR) mode.

If you select BW mode, you can force the camera to stay in BW (NIGHT) mode. The BW submenu allows you to select BURST to be ON or OFF.

4.10 NR

You can configure the 2D DNR (Digital Noise Reduction) settings and reduce noise on the screen. Enter the NR submenu as shown in the figure below. Move the joystick control UP or DOWN to set the NR MODE. When you enable the NR MODE to the Y (BRIGHT) / C (COLOR), C LEVEL or Y LEVEL mode, you can adjust Y LEVEL or C LEVEL depending on your environment condition.

NR MODE	Y/C
Y LEVEL	000
C LEVEL	000
RETURN	

NOTE: When the Y Level is higher the noise in dark areas decreases. Also, resolution will become lower. When it is lower, there is more noise in dark areas.

Menu Settings

When the C Level is higher the noise in dark areas becomes lessened. Also, resolution will become lower. When it is lower, there is more noise in dark areas.

In the dark environment, you can adjust the value higher of Y Level to reduce the dark noise; adjust the value higher of C Level to reduce the color noise.

4.11 CAMERA ID

CAMERA ID displays ON or OFF. The default setting is OFF. You can set the ON mode to add a camera title up to 26 characters with 2 lines and also select where the title appears on the monitor screen.

4.12 SYNC

The default setting is INT. This has no adjustment.

4.13 LANGUAGE

OSD supports 6 available languages. The default setting is English. Move the joystick control LEFT or RIGHT to select the ENGLISH / SPANISH / RUSSIAN / GERMAN / FRENCH / JAPANESE or PORTUGUESE.

4.14 CAMERA RESET

Move to the CAMERA RESET mode then Press the ENTER key to recall factory settings.

4.15 SAVE ALL

Save all settings and exit.

Specification

5. Specification

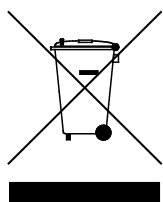
Camera System Type	C20-CH-6	C20-CH-6X	C20-CH-7X
Format	NTSC		PAL
Optical System			
Imager Size	1/3"		
Electric			
Sync System	Internal		
Lens Mount	CS		
Lens Drive	DC		
Horizontal Resolution	650 TV lines		
Sensitivity	f/1.2; 2,850°K; 30IRE Color (17 ms) 0.25 Lux Mono (17 ms) 0.25 Lux	f/1.2; 2,850°K; 30IRE Color (20 ms) 0.25 Lux Mono (20 ms) 0.25 Lux	
S/N Ratio	default 48dB >52dB by parameter adjustment		
Shutter	Auto: 1/60~1/10,000 Manual: 1/60~10,000	Auto: 1/50~1/10,000 Manual: 1/50~10,000	
AGC	Off/On 35dB		
Color Correction	With White Balance		
White Balance	ATW/Push Lock/Manual/Anti CR/User2/User/Push		
BLC	Off/ BLC/ HLC(High Light compensation) (selectable)		
WDR	On / Off (selectable, ATR)		
Noise Reduction-DNR	2D		
Motion Detection	Yes		
Privacy Zones	Yes		
CAMERA ID	Yes		
Connection/Termination	Terminal Strip - Removable		
Set Up/OSD Input Device	Input Buttons/5 Way Rocker		
Multi Language	English, Russian, German, French, Spanish, Japanese	English, Russian, German, French, Spanish, Portuguese	
UTP	Yes		
Power supply			
Power	18 to 32 VAC 50/60 Hz/12 VDC +10% to -15% (Revision A)		220VAC, +10/-15%
Power Consumption (Max)	3.5W		4W
Environment			
Operating Temperature Range	14°F (-10°C) Minimum, 122°F (50°C) Maximum		
Operating humidity	20~90% non-condensing		
Mechanism			
Construction	Diecast		
Dimension (L W H)	60mm X55mm X108mm		
Weight (unit)	300g		450g
Power LED	Red-Rear Panel		

Troubleshooting Information

Pelco Troubleshooting Contact Information

If the instructions provided fail to solve your problem, contact Pelco Product Support at 1-800-289-9100 (USA and Canada) or +1-559-292-1981 (international) for assistance. Be sure to have the serial number available when calling.

Do not try to repair the unit yourself. Leave maintenance and repairs to qualified technical personnel only.



This equipment contains electrical or electronic components that must be recycled properly to comply with Directive 2002/96/EC of the European Union regarding the disposal of waste electrical and electronic equipment (WEEE). Contact your local dealer for procedures for recycling this equipment.

REVISION HISTORY

Manual #	Date	Comments
C3902M	02/14	Original Version
C3981M-A	04/14	Revision A

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