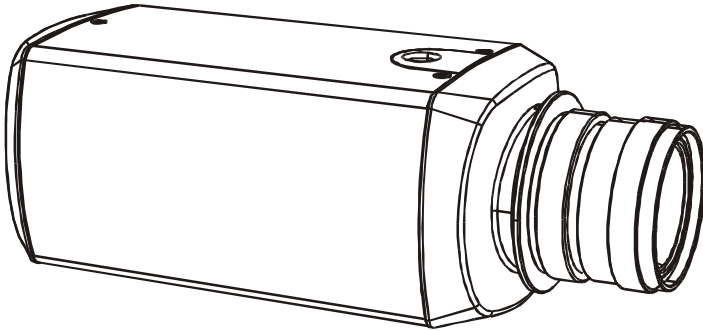


# INSTRUCTION MANUAL

## DSP COLOR CAMERA

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1/3" INTERLINE TRANSFER CCD  
STANDARD RESOLUTION  
HIGH RESOLUTION



*Please read this manual thoroughly before use, and keep it handy for future reference.*

ISSUE 1 – MAY 2001

## WARNINGS AND CAUTIONS

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

### CAUTION



### EXPLANATION OF GRAPHICAL SYMBOLS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the product.

## FCC COMPLIANCE STATEMENT

**INFORMATION TO THE USER:** THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR 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 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 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

**CAUTION:** CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

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.

# IMPORTANT SAFEGUARDS

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## 1. READ AND RETAIN INSTRUCTIONS

Read the instruction manual before operating the equipment. Retain the manual for future reference.

## 2. CLEANING

Turn the unit off and unplug from the power outlet before cleaning. Use a damp cloth for cleaning. Do not use harsh cleansers or aerosol cleaners.

## 3. ATTACHMENTS

Do not use attachments unless recommended by manufacturer as they may affect the functionality of the unit and result in the risk of fire, electric shock or injury.

## 4. MOISTURE

Do not use equipment near water or other liquids.

## 5. ACCESSORIES

Equipment should be installed in a safe, stable location. Any wall or shelf mounting accessory equipment should be installed using the manufacturer's instructions. Care should be used when moving heavy equipment. Quick stops, excessive force, and uneven surfaces may cause the equipment to fall causing serious injury to persons and objects.

## 6. VENTILATION

Openings in the equipment, if any, are provided for ventilation to ensure reliable operation of the unit and to protect it from overheating. These openings must not be blocked or covered

## 7. POWER SOURCES

The equipment 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 at the installation location, contact your dealer. For equipment designed to operate from battery power, refer to the operating instructions.

## 8. GROUNDING OR POLARIZATION

Equipment that is powered through a polarized plug (a plug with one blade wider

than the other) will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. Do not defeat the safety purpose of the polarized plug.

Alternate Warning: If the equipment is powered through a three-way grounding-type plug, a plug having a third (grounding) pin, the plug will only fit into a grounding-type power outlet. This is a safety feature. Do not defeat the safety purpose of the grounding-type plug. If your outlet does not have the grounding plug receptacle, contact your local electrician.

## 9. CORD AND CABLE PROTECTION

Route power cords and cables in a manner to protect them from damage by being walked on or pinched by items placed upon or against them.

## 10. LIGHTNING

For protection of the equipment during a lightning storm or when it is left unattended and unused for long periods of time, unplug the unit from the wall outlet. Disconnect any antennas or cable systems that may be connected to the equipment. This will prevent damage to the equipment due to lightning or power-line surges.

## 11. OVERLOADING

Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

## 12. SERVICING

Do not attempt to service the video monitor or equipment yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

**13. DAMAGE REQUIRING SERVICE**

Unplug the equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- A. When the power supply cord or the plug has been damaged.
- B. If liquid has spilled or objects have fallen into the unit.
- C. If the equipment has been exposed to water or other liquids.
- D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage to the unit.
- E. If the equipment has been dropped or the casing damaged.
- F. When the equipment exhibits a distinct change in performance.

**14. REPLACEMENT PARTS**

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

**15. SAFETY CHECK**

Upon completion of any service or repairs to the equipment, ask the service technician to perform safety checks to verify that the equipment is in proper operating condition.

**16. FIELD INSTALLATION**

The installation of equipment should be made by a qualified service person and should conform to all local codes.

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# ABOUT THE 1/3" DSP COLOR CAMERA

## INTRODUCTION

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The 1/3" DSP color security camera provides SONY, true-color images especially for closed-circuit television (CCTV) and security surveillance applications.

Features:

- High-performance 1/3" SONY DSP color CCD technology
- 330 lines of resolution (Standard);  
470 lines of resolution (High)
- 1 lux @ F1.4 sensitivity
- C/CS, backfocus cam for easy adjustment
- Auto electronic shutter [1/60(1/50) ~ 1/100,000] and manual electronic shutter modes
- Auto and manual white balance modes
- Compatible with video- or DC-type lenses with dip switch select
- Quick connect for video or DC lens with 4-pin connector
- Flicker less, BLC, Gamma, AGC, Sync adjustments
- 12V DC



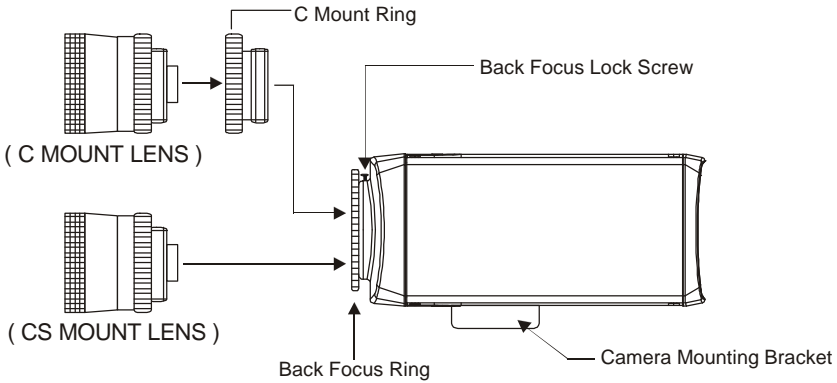
**IMPORTANT:** The user of this camera is responsible for checking and complying with local, state, and federal laws and statutes concerning the recording and monitoring of audio signals.

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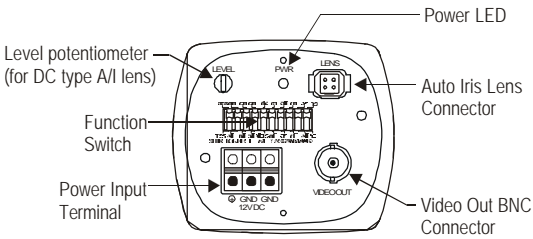
# CAMERA OVERVIEW

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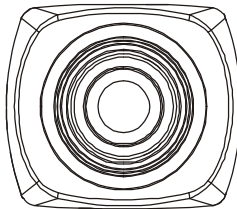
## SIDE VIEW



## BACK VIEW (12V DC)



## FRONT VIEW



1. **Back focus Lock Screw** – Allows the user to secure the backfocus setting.
2. **C/CS Back focus Adjust Ring** – Allows the user to adjust the back focal length or picture focus by rotating this ring clockwise for C-mount and counter-clockwise for CS-mount lenses.
3. **Mounting Bracket Hole** – This threaded  $\frac{1}{4}$ "-20 hole is used to mount the camera onto a mounting bracket or tripod.
4. **Iris Adjustment Pot (Potentiometer)** – This control allows the user to adjust the level of the auto iris when the A/I lens selection switch is set to DC and a DC lens is mounted on the camera. The switch should be in the video position when an auto iris video lens is mounted on the camera. If a video auto-iris lens is used, this control has no function.
5. **Power LED** – This green LED illuminates while power is supplied to the camera.
6. **Auto-iris Lens Connector** – This four-pin female connector supplies the power and either video signal or DC control signal to the auto-iris lens.
7. **Function Switches** – This compartment houses switches for camera operation. A switch is in the ON position if it is positioned toward the front of the camera. If the position is set toward the back of the camera, the switch is OFF. The switches include:

- **SHTR Switch (Aes/Mes)** – This switch allows the user to choose between auto exposure and manual exposure. Position the switch toward the front of the camera for auto exposure, whereby the exposure is performed by the electronic iris and AGC control. Position the switch toward the back of the camera for manual exposure, whereby the shutter speed can be set by the shutter adjust.

\*Manual Exposure (SW1= Manual Exposure)

Switch Position				Shutter Speed	Switch
SW1	SW2	SW3	SW4		SW1 2 3 4
MES	on	on	on	1/60(1/50)	
MES	off	on	on	1/100(1/120)	
MES	on	off	on	1/250	
MES	off	off	on	1/500	
MES	on	on	off	1/1000	
MES	off	on	off	1/2000	
MES	on	off	off	1/4000	
MES	off	off	off	1/10000	

- **Flickerless Switch (off/on)** – (SW1=Auto Exposure) This function is used for removing flicker, when camera signal format does not coincide with power source frequency being used.
- **BLC Switch (on/off)** – (SW1=Auto Exposure) This on/off switch controls backlight compensation. When set to ON, the camera will automatically try to maintain proper exposure in the specific area even if the lighting level changes.
- **E/I (on/off)** – (SW1=Auto Exposure)  
When set to the ON position, the electronic iris switch automatically varies the camera's shutter to mimic auto-iris control, allowing fixed or manual iris lenses to be used in a wider range. When this switch is set to ON, turn the F/F switch OFF.
- **A/I Switch (dc/video)** – The auto iris switch allows the user to select the supplied auto-iris control signal for the lens. Position the switch toward the front of the camera to choose DC when the auto-iris control lens requires DC control signal. Position the switch toward the back of the camera to choose Video when the auto-iris control lens requires video signal.






- **Gamma Switch (on/off)** – The gamma correction switch allows .45 correction for non-linearity gain response in the monitor when set to ON.  
When set to OFF, there is no gamma correction.
- **AGC Switch (off/on)** – The auto gain control switch allows the video signals to maintain a constant level. This switch is useful when using the camera at low-light levels and when lighting levels change over time. For best low light conditions, this switch should set to ON.
- **AWB1, AWB2 Switch (on/off)** – This camera have four white balance setting

**ATW (auto tracing white balance)** – The camera automatically aim to maintain white objects as white even if the light color changes.

**AWB (auto white balance)** – Quick ATW.

**Indoor** – improves the color balance in areas where a mixture of light sources exist.

**Outdoor** – Improves the color balance in arrears where day light is the main source of light.

Switch Position		Mode	Switch SW8 9 
SW8	SW9		
on	on	ATW	
on	off	AWB	
off	on	Indoor	
off	off	Outdoor	

8. **Power Input Terminal** – This terminal accepts a 12V DC power source from a 12V DC +/- 20% using a UL-listed Class 2 power supply only.
9. **Video Out BNC Connector** – This BNC connector provides a 1.0 V<sub>p</sub>-p/75 Ohms composite video signal.

## CONTENTS OF PACKAGE

---

Installation of the camera must be performed by qualified service personnel in accordance with all local and national electrical and mechanical codes.

Carefully remove the color camera and its accessories from the carton and verify that they were not damaged in shipment.

The contents of the package includes:

1. Color CCD camera
2. Mini-DIN connector (for video- or dc-type auto-iris lens)

## BASIC INSTALLATION

---

After unpacking and identifying the package contents, perform the following steps to connect the camera to an observation system.

1. Locate the following items, which may be needed during installation but are NOT supplied with the camera:
  - Camera lens
  - Video cable
  - Camera stand or mounting bracket
  - 12V DC power supply
  - Mounting hardware
  - Observation monitor
  - Welder's glass
  - Tools
2. Select a suitable location for the camera.



**IMPORTANT:** Contact your authorized Ultrak dealer/distributor to purchase cable which is available in various lengths according to the application.

---

3. Use a suitable fastener and necessary tools to mount the camera stand or mounting bracket to a structural object, such as a wall stud or ceiling rafter, that can support the weight of the camera and mount.



**IMPORTANT:** The minimum recommended load rating for the mounting bracket is 11 lbs (5Kg).

---

4. The observation camera has a ¼"-20 UNC mounting holes located at the top and the bottom of the camera housing to allow for top or bottom mounting. Mount the camera on the stand by threading the mounting bolt into either mounting hole on the camera.



**IMPORTANT:** Do not aim or point the camera towards the sun or into a strong light.

---

5. Install the lens. If a C- or CS-mount lens is used, adjust the back focal length or picture focus.
  - For C-mount lenses, rotate the focus adjust ring clockwise.
  - For CS-mount lenses, rotate the focus adjust ring counterclockwise.
6. If an auto-iris lens is used, connect the cable of the lens to the mini-DIN connector supplied with the camera. Insert the lens connector into the auto-iris connector on the camera.
7. Route the assembled cable from the monitor location to the camera location.



**WARNING:** Care should be taken when routing the cable from the monitor to the camera. Try not to put unnecessary strain on the cable or connectors. Do not place the cable next to fluorescent lights as interference may result. Do not use staples to support the cable as they may damage the cable. If the provided camera cable is not long enough, do not substitute a telephone cable as it could damage the camera and/or the monitor. Contact your authorized Ultrak dealer/ distributor to purchase longer cables.

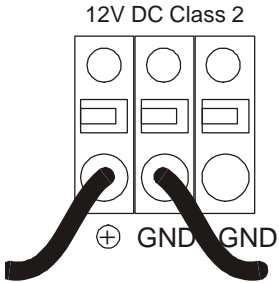
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8. Plug the cable into the BNC output port labeled VIDEO OUT located on the back of the camera.

9. Plug the other end of the cable into the corresponding camera input port on the back of the observation monitor.

**On 12V DC models :**

10. Connect a 2-conductor power cable to the 12V DC input port located on the back of the camera.



*Use a UL-listed Class 2 power transformer and a 12V DC power adapter. Use only a Class 2 power source.*

11. Apply 12V DC power to the camera.

## MANUAL IRIS LENS ADJUSTMENT

---

A manual iris lens is used in indoor applications where lighting from windows can considerably affect the light level of the room. When using the manual iris lens, perform the following:

1. Set the E/I switch to ON.
2. Turn the iris ring on the lens to the fully OPEN position.
3. Focus the lens to obtain optimum picture.
4. To increase the camera's depth of field, slightly close the manual iris by approximately five to ten percent.

## VIDEO-TYPE AUTO-IRIS LENS INSTALLATION AND ADJUSTMENT

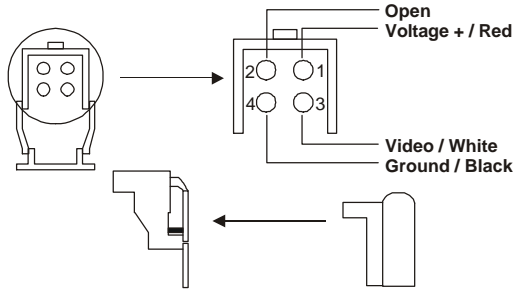
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The cameras support video-type auto-iris lenses to adjust for changing light levels. Perform the following steps to install and adjust a video-type auto-iris lens.

1. Thread the video-type auto-iris lens onto the lens mount on the front of the camera.
2. If necessary, solder the lens control wires to the connector supplied with the camera.

Use the following pin-out and wire color-coding chart as a guide:

PIN	NAME	WIRE COLOR
1	Voltage +	Red
2	Open	--
3	Video	White
4	Ground	Black



3. Plug the connector into the auto-iris lens jack on the top of the camera. The connector is keyed and can only be inserted into the jack one way.
4. Make sure that the E/I switch located on the back of the camera is set to OFF and the A/I switch is set to Video.
5. Apply power to the camera.
6. Adjust the focus ring on the lens for an optimum picture. If the picture is not visible, set the lens for proper exposure by adjusting the ALC (automatic level control) and level on the lens. The ALC setting can range between AVG (average) or PK (peak). An AVG setting is appropriate for most applications.

#### **For ALC adjustments:**

**AVG** To slow the reaction of the lens to changing light, set the range on the AVG setting to average the video level from the camera. Use this when there are bright spots in the picture, such as lights or glare from the sun.

**PK** To increase the speed of the lens reaction to the changing light, set the lens adjustment to PK so the lens will adjust to the brightest or peak object in the video. Use this setting if you want to see the brightest object and not the background objects.

#### **For Level adjustments:**

Adjust the Level control for the best picture during the day. A night adjustment may not provide the proper setting for controlling the light during the day.

7. Set the backfocus of the camera before the final adjustment of the video level. *See section 3.6 for further instructions.*
8. If the auto-iris has a gain adjustment:
  - If the lens oscillates between open and closed under bright lights, slowly turn the gain adjustment counter-clockwise until the oscillating stops.
  - Increase the light getting to the camera by adjusting the level control and readjusting the gain control as necessary.

## **DC-TYPE AUTO-IRIS LENS INSTALLATION AND ADJUSTMENT**

---

The cameras support DC-type auto-iris lenses.

Perform the following steps to install and adjust a DC-type auto-iris lens.

1. Thread the DC-type auto-iris lens onto the lens mount on the front of the camera.
2. If using an Ultrak lens, skip to step 3.

If using a non-Ultrak lens, use the manufacturer's instructions to solder the connector that comes supplied with the camera to the lens control wires. The pin-out and wire color-coding for DC-type auto-iris lenses can vary from one manufacturer to another.

3. Plug the connector into the dc iris jack on top of the camera. The connector is keyed and can only be inserted into the jack one way.
4. Make sure that the E/I switch located on the back of the camera is set to OFF and the A/I switch is in the DC position.
5. Apply power to the camera.
6. Adjust the DC-type auto-iris lens for an optimum picture using the IRIS LEVEL control on the back of the camera.

## **BACKFOCUS ADJUSTMENT**

---

Although the camera lens was backfocused by the manufacturer prior to shipping, it may be necessary to make modifications.

For best results, perform backfocus adjustments at night or while using a #6 or #8 welder's glass in front of the lens. The focus of the camera will change slightly if the camera iris was adjusted on a light scene and then changes to a dark scene. However, the camera will remain in focus if the iris was focused on a dark scene and the scene lightens.

To make backfocus adjustments, perform the following:

1. After mounting the lens on the camera, apply power.
2. If a picture is visible, focus on the scene. If a picture is not visible, open the iris on the lens. Open the lens as wide as possible by placing a welder's glass in front of the lens.
3. When the iris is open to the widest point, readjust the focus for a clear picture. If a clear picture is not visible, set the focus ring to midrange.
4. Loosen the backfocus lock screw.
5. Adjust the backfocus ring for a clear picture.
6. Tighten the backfocus lock screw.
7. Fine-tune the focus with the focus ring on the lens.
8. Remove the welder's glass from the front of the lens.
9. Adjust the iris of the lens for the best picture quality.

## ZOOM LENS BACKFOCUS ADJUSTMENT

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The objective of backfocusing a zoom lens is similar to that of a fixed focal length camera, except that the backfocus is also adjusted to maintain the focus when “zooming” the lens in and out of a scene.

For zoom lens backfocus adjustment, perform the following:

1. Choose an object at the farthest range that you wish to look at with a zoom lens.
2. Make sure that the iris of the lens is wide open.  
For best results, make the adjustment by using a #6 or #8 welder’s glass placed in front of the lens.
3. Adjust the focus on the lens to the far range.
4. Adjust the zoom on the lens to obtain the widest picture.
5. Loosen the backfocus lock screw.
6. Adjust the focus adjust ring for the clearest picture.
7. Adjust the zoom on the lens to the far telephoto position.
8. Adjust the backfocus ring for the clearest picture.
9. Adjust the zoom on the lens back to the widest picture.
10. Readjust the backfocus for the clearest picture.
11. Tighten the backfocus lock screw.



**IMPORTANT:** Verify that the camera remains in focus after tightening the lock screw. On occasion, tightening the lock screw can cause the camera to be slightly out of focus.

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12. Repeat the previous steps as many times as necessary to maintain a clear picture through the entire zoom range.

## TROUBLESHOOTING

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If problems occur, verify the installation of the camera with the instructions in this manual and with other operating equipment. Isolate the problem to the specific piece of equipment in the system and refer to the equipment manual for further information.

<b>PROBLEM</b>	<b>CHECK</b>
<b>NO POWER</b>	Make sure the system is plugged in.  Make sure the main power switch on the back of the observation monitor is in the ON position.  Check the outlet for power.
<b>POWER, BUT NO PICTURE</b>	Verify power to all pieces of equipment in the system (camera green LED on)  Verify that the video cables are connected correctly.  Verify that the lens cap has been removed from the lens or that the iris of the lens is open.
<b>VIDEO, BUT NO CONTROL</b>	Power down the system for one minute, then turn power back ON.
<b>DARK VIDEO</b>	Adjust iris. Check A/I connections.

## **PREVENTIVE MAINTENANCE**

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Following the preventive maintenance schedule allows detection and correction of minor faults before they become serious and cause equipment failure.

Every three months, perform the following:

- A. Inspect all connecting cables for deterioration or other damage.
- B. Clean components with a clean damp cloth.
- C. Verify that all mounting hardware is secure.

# SPECIFICATIONS

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## \* Standard Resolution DSP Color Camera \*

### Power

Power Source, Consumption :	12VDC +/-20%
	Max. 5.0 Watts.
Power Indicator :	Green LED

### Sensor Information and General

Processing Technology :	Sony DSP
Image Sensor :	1/3" interline transfer CCD (sony chip set)
Picture Element :	537(H) x 505(V), NTSC 537(H) x 597(V), PAL
Chip Size :	6.0mm(H) x 4.96mm(V)
Unit Cell Size :	9.6mm(H) x 7.5mm (V), NTSC 9.8mm(H) x 6.3mm (V), PAL
Scanning System :	2:1 Interlace
Scanning Frequency :	15.75KHz(H) x 60Hz(V), NTSC 15.625KHz(H) x 50Hz(V), PAL
Sync System :	Internal
Electronic Shutter :	1/60(1/50) ~ 1/100000 sec.
Operating Temperature / Humidity :	14°F to 122°F (-10°C to +50°C) / <96% (non-condensing)

### Video

Signal Format :	NTSC, 525 Lines PAL, 625 Lines
Resolution :	330TV Lines
Minimum Illumination:	1.0 Lux (F1.4)
Video Output:	1.0 Vp-p, 75 Ohms, unbalanced
Video Iris Output:	650mV at video out 1.0 Vp-p
S/N Ratio :	50dB(AGC Off)
BLC Size :	40% Center
Sync Level :	40 IRE, PAL 300mV
White Clip :	120 IRE, PAL 850mV

### **Function**

Auto/Man Shutter Control(E.S.) :	Auto(On), Man(Off) (Dip Switch)
Manual Shutter Control :	1/60(1/50), 1/100(1/120), 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10,000(Dip Switch)
Flickerless(F.F) :	ON/OFF (Dip Switch)
BLC :	ON/OFF (Dip Switch)
EI :	ON/OFF (Dip Switch)
Auto Iris Lens :	DC/Video (Dip Switch)
Gamma(g) :	ON/OFF (Dip Switch)
AGC :	ON/OFF (Dip Switch)
White Balance :	ON/OFF (Dip Switch) Auto, Quick, Indoor, Outdoor
DC Iris Level Adjust :	Adjustable (POT)

### **Connector and Mechanical**

Video Output :	BNC Connector
Power Input :	3-pin Terminal Block or Power Cord
AI/DC Output :	4-pin mini din jack (Standard Connection)
Lens Mount :	C/CS (Selected through back focus)
Mounting Hole :	1/4" UNC Top and Bottom
External Dimensions :	2.44W x 2.1H x 5.0D inch (62W x 54H x 127D mm)
Weight :	235g at 12V DC model

## \* High Resolution DSP Color Camera \*

### **Power**

Power Source, Consumption :	12VDC +/-20% Max. 5.0 Watts.
Power Indicator :	Green LED

### **Sensor Information and General**

Processing Technology :	Sony DSP
Image Sensor :	1/3" interline transfer CCD (sony chip set)
Picture Element :	811(H) x 508(V), NTSC 795(H) x 596(V), PAL
Chip Size :	6.0mm(H) x 4.96mm(V)
Unit Cell Size :	6.35mm(H) x 7.4mm (V), NTSC 6.5mm(H) x 6.25mm (V), PAL
Scanning System :	2:1 Interlace
Scanning Frequency :	15.75KHz(H) x 60Hz(V), NTSC 15.625KHz(H) x 50Hz(V), PAL
Sync System :	Internal
Electronic Shutter :	1/60(1/50) ~ 1/100,000 sec.
Operating Temperature / Humidity :	14°F to 122°F (-10°C to +50°C) / <96% (non-condensing)

### **Video**

Signal Format :	NTSC, 525 Lines PAL, 625 Lines
Resolution :	470 TV Lines
Minimum Illumination:	1.0 Lux (F1.4)
Video Output:	1.0 Vp-p, 75 Ohms, unbalanced
Video Iris Output:	650mV at video out 1.0 Vp-p
S/N Ratio :	50dB(AGC Off)
BLC Size :	40% Center
Sync Level :	40 IRE, PAL 300mV
White Clip :	120 IRE, PAL 850mV

### **Function**

Auto/Man Shutter Control(E.S.) :	Auto(On), Man(Off) (Dip Switch)
Manual Shutter Control :	1/60(1/50), 1/100(1/120), 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10,000(Dip Switch)
Flickerless(F.F) :	ON/OFF (Dip Switch)
BLC :	ON/OFF (Dip Switch)
EI :	ON/OFF (Dip Switch)
Auto Iris Lens :	DC/Video (Dip Switch)
Gamma(g) :	ON/OFF (Dip Switch)
AGC :	ON/OFF (Dip Switch)
White Balance :	ON/OFF (Dip Switch)
Auto, Quick, Indoor, Outdoor	
DC Iris Level Adjust :	Adjustable (POT)

### **Connector and Mechanical**

Video Output :	BNC Connector
Power Input :	3-pin Terminal Block or Power Cord
AI/DC Output :	4-pin mini din jack (Standard Connection)
Lens Mount :	C/CS (Selected through back focus)
Mounting Hole :	1/4" UNC Top and Bottom
External Dimensions :	2.4W x 2.1H x 5.0D inch (62W x 54H x 127D mm)
Weight :	235g at 12V DC model

## **DSP COLOR CAMERA**

1/3" INTERLINE TRANSFER CCD  
STANDARD RESOLUTION  
HIGH RESOLUTION

50301421A