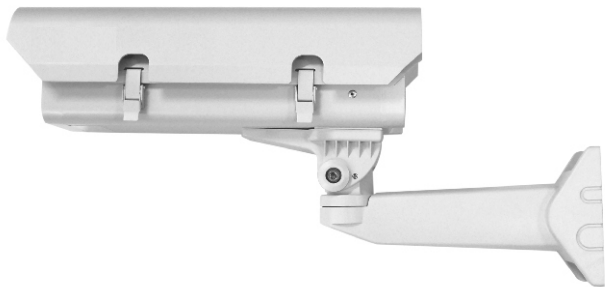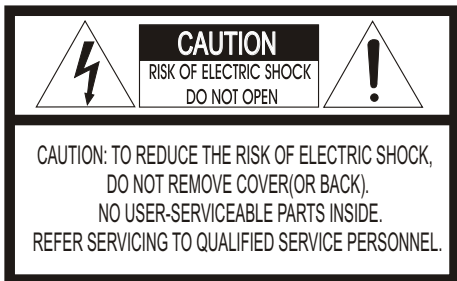# 540TV Lines Super High Resolution Color Camera

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

WARNINGS:

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:

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER(OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

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) instructions in the literature accompanying the product.

PRECAUTIONS

Safety --

Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by the qualified personnel before operating it any further.

Unplug the unit from the wall oulet if it is not going to be used for several days or more. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials(curtains, draperies) that may block the ventilation holes.

Height and vertical linearity controls located at the rear panel are for special adjustments by qualified personnel only.

Installation -----------------------------------

Do not install the unit in an extremely hot or humid place or in a place subject to excessive dust, mechanical vibration.

The unit is not designed to be waterproof. Exposure to rain or water may damage the unit.

Cleaning --------------------------------------

Clean the unit with a slightly damp soft cloth. Use a mild household detergent. Never use strong solvents such as thinner or benzine as they might damage the finish of the unit.

Retain the original carton and packing materials for safe transport of this unit in the future.

FCC COMPLIANCE STATEMENT

FCC INFORMATION : 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.

CAUTION : 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.

CE COMPLIANCE STATEMENT

WARNING
THIS IS A CLASS A PRODUCT. IN A DOMESTIC ENVIRONMENT THIS PRODUCT MAY CAUSE RADIO INTERFERENCE IN WHICH CASE THE USER MAY BE REQUIRED TO TAKE ADEQUATE MEASURES.

IMPORTANT SAFEGUARDS

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. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. 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.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. 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 moisture, does not operate normally, or has been dropped.

15. 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 QRE QUALIFIED TO DO SO.

16. Use Certified/Listed Class 2 power source only.

TABLE OF CONTENTS

INTRODUCTION

The camera provides high-quality images using SONY CCD technology especially designed for closed-circuit television (CCTV) and security
surveillance applications.

Features:
- High resolution and high performance 1/3" SONY Super HAD CCD technology
- Excellent picture quality
- 540 lines(Color) of resolution
- 0.25 Lux(Color) / 0.01 Lux(B/W) @ F1.2 Sensitivity (True D&N)
- 0.25 Lux(Color) @ F1.2 Sensitivity (Digital D/N)
- C/CS, backfocus cam for easy adjustment
- Auto electronic shutter [1/60(1/50) ~ 1/100,000] and manual electronic Shutter modes
- Auto Trace White balance modes
- Selectable BLC function
- Day & Night (True D&N / Digital D/N)
- AGC (Auto Gain Control)
- Video out(BNC)
- Quick connect for video or DC lens with 4-pin connector
- Operates in 12VDC or 24VAC
- Use Certified / Listed Class 2 power supply only.

⚠ **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.

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.
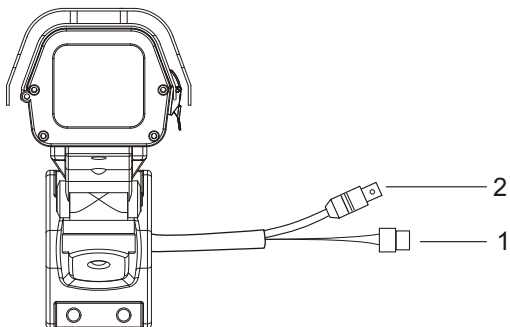
The contents of the package includes:

1. CAMERA HOUSING KIT

2. This manual

3. L-wrench (5mm) --------------- 1ea
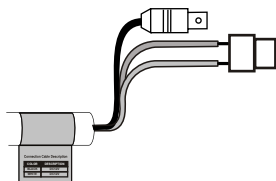   (2.5mm) ------------- 1ea

4. ANCHOR (5mm) --------------- 4ea

CAMERA CONNECTIONS

1. Color Lead Wire & Color Display Label

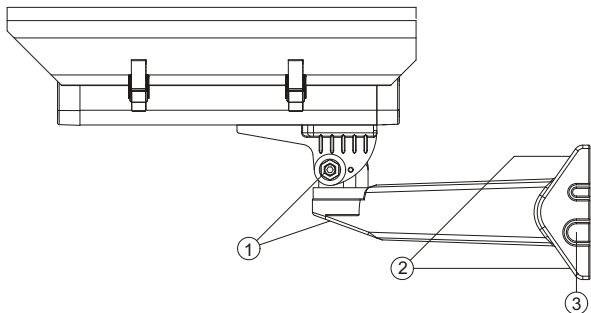| Connection Cable Description	
COLOR	**DESCRIPTION**
BLACK	AC24V
RED	AC24V

REMINDER:
Never aim the camera directly into the sun.

2. Video : BNC connector used to connect the camera to a monitor, switcher, etc.
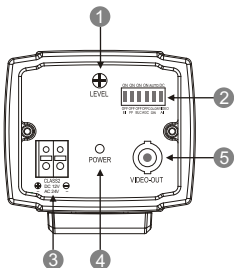
WALL BRACKET MOUNTING

1. Use fasteners of appropriate size and type to attach the bracket to the wall surface. Position the housing so that it allow for viewing of the selected area.

2. Adjust the movable arm of the wall bracket to attain the desired position. One it is in place,tighten the bolt located at the pivot point of the movable arm.

3. If you want to pull out the relevant cable, remove the knockout on the wall bracket mounting.

CAMERA OVERVIEW

1. IRIS LEVEL
2. FUNCTION SWITCH
3. POWER INPUT TERMINAL
4. POWER INDICATOR
5. VIDEO OUTPUT CONNECTOR

REAR VIEW

1) IRIS LEVEL
Adjust the DC-type auto iris lens for an optimum picture using this volume.

2) FUNCTION SWITCH

- E/I (on/off)
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.

- FF (on/off)
This function is used for removing flicker, when camera signal format does not coincide with power source frequency being used.

- BLC (on/off)
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.

- AGC (on/off)
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.

- Day/Night (Auto/Color)
Use this switch to set the camera Day/Night mode Auto(ON) or Color(OFF)
Auto : D/N mode converse automatically (AGC must set to ON)
Color : Only Color

- A/I (DC/VIDEO)
Use this switch to set the auto iris type.

3) POWER INPUT TERMINAL

4) POWER INDICATOR

5) VIDEO OUTPUT CONNECTOR

CONNECTIONS

1) POWER INPUT TERMINAL

- This terminal accepts a DC12V or AC24V power source from a DC12V or AC24V +/-10% 60/50Hz +/- 1Hz

- Use Certified / Listed Class 2 power supply only.

- In DC power, use the Adapter mode than DC 12V 500mA Capacity.
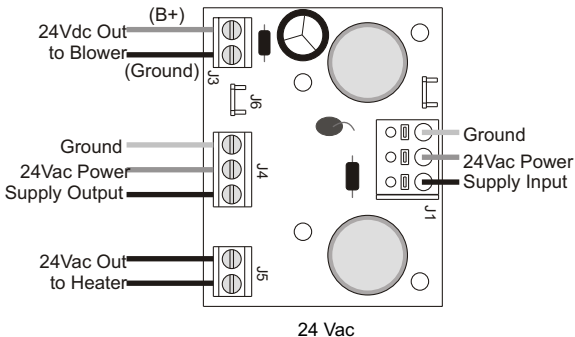
CLASS 2
+ DC 12V -
~AC 24V~

2) VIDEO OUT CONNECTOR

- **BNC** : This BNC connector provides a 1.0Vp-p/75 ohms composite video Signal.
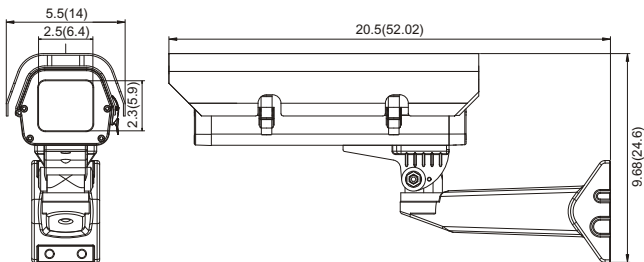
WIRING DIAGRAM

* **HEATER AND BLOWER**

24Vdc Out to Blower (B+) (Ground) J3

J6

Ground
24Vac Power Supply Output
J4

24Vac Out to Heater
J5

Ground
24Vac Power Supply Input
J1

24 Vac

HOUSING KIT SPECIFICATIONS

Camera Housing Window Size	2.5" W x 2.3" H (6.4cm x 5.9cm)
Camera Housing Construction	Die-cast, extruded, and sheet aluminum
Camera Housing Finish	Light-gray ployester powder coat
Wall Bracket Pan Adjustment	360°
Wall Bracket Tilt Adjustment	70°
Wall Bracket Locking Method	4 holes for fasteners of a suitable size & type. Mount to a secure solid surface.
Total Dimension(WxHxL)	5.5" W x 9.68" H x 20.5" D (14cm x 24.6cm x 52.02cm)
Total Weight	9.15lb(4.15kg)

Unit: inch(cm)

5.5(14)
2.5(6.4)
2.3(5.9)
20.5(52.02)
9.68(24.6)

SPECIFICATIONS

MODEL		True D&N		Digital D/N	
		(NTSC)	(PAL)	(NTSC)	(PAL)
Power	Power source	DC 12V / AC 24V±10%			
	Power consumption	5.2 Watts		4.0 Watts	
	Power input	2-Pin Terminal block			
General	Image sensor	1/3" SONY Super HAD CCD			
	Total pixels	NTSC : 811(H) x 508(V) / PAL : 795(H) x 596(V)			
	Scanning system	2:1 interlace			
	Scanning frequency	NTSC : 15.734KHz(H) x 59.94Hz(V) / PAL : 15.625KHz(H) x 50Hz(V)			
	Sync. system	Internal			
	Electronic shutter	NTSC : 1/60 ~ 1/100,000 sec. / PAL : 1/50 ~ 1/100,000 sec.			
	Resolution	540 TV Lines			
	Min. illumination	Color (0.25 Lux) / BW(0.01Lux) @ F1.2, 50 IRE		Color (0.25 Lux) @ F1.2, 50 IRE	
	Video output	1.0 Vp-p (75ohm, composite)			
	S/N ratio	More than 50dB (AGC OFF)			
	Camera Control	Dip switch			
	F U N C T I O N — E/I	ON / OFF			
	Flickerless	ON / OFF			
	BLC	ON / OFF			
	AGC	ON / OFF			
	Day/Night	Auto / Color Fix			
	Auto iris lens	DC / VIDEO			
	White Balance	ATW Fixed			
Connector & etc.	Video output	BNC connector			
	Auto iris output	4-Pin mini din jack (standard connection)			
	Lens mount	C/CS mount (Selected through back focus)			
	Mounting hole	1/4"-20 UNC (top or bottom)			
	Operating temperature	-10°C ~ +50°C			
	Operating humidity	0 ~ 96% (non-condensing)			

Blower		Heater	
Power Supply	24 Vac	Power Supply	24 Vac
Power Consumption	3.4W	Power Consumption	20W
Blower ON	t$^{\circ}$C > 35°C +/-3°C / T$^{\circ}$F > 95°F +/-5°F	Heater ON	t$^{\circ}$C < 5°C +/- 3°C / T$^{\circ}$F < 41°F +/- 5°F
Blower OFF	t$^{\circ}$C < 20°C +/-3°C	Heater OFF	t$^{\circ}$C > 15°C +/- 3°C

540TV Lines Super High Resolution Color Camera