INDUSTRIAL VIDEO PRODUCTS, INC.

VTC-C594DN

1/3" Hi-Res Day/Night Color CCD Camera

INSTRUCTION MANUAL

Warning: To prevent fire or electric shock hazard, do not expose the appliance to rain or moisture

1. General

This color video camera employs a 1/3" SONY solid-state, charge coupled imaging device, and is equipped with a newly developed DSP (Digital Signal Processor) for video signal processing to provide high color fidelity and a sharp, stable picture.

2. Features

1. Accepts IR illumination for surveillance in total darkness. Delivers color images in daylight and automatically switches to black-white images at night.
2. 420 lines of horizontal resolution and high quality video utilizing digital processing
3. 0.015lux (@ F0.75) Minimum illumination and signal-to-noise ratio of 48 dB is achieved by employing a highly sensitive image sensor with micro lenses and low noise circuit design.
4. High quality picture –A digital signal processor performs digital horizontal and vertical aperture enhancement to produce a high quality picture.
5. A newly developed intelligent wide range Auto Tracing White Balance (ATW) that automatically adjusts the tone according to the color temperature of the light source.
6. Smart digital control Auto BLC, the combination of Histogram equalizer and Central windows weighting BLC functions ensure for use against any unusual lighting conditions.
7. Advanced Auto Exposure System for both fixed iris and auto iris lenses controls the amount of light to ensure optimum video signal.
8. Internal or Line-lock external sync.

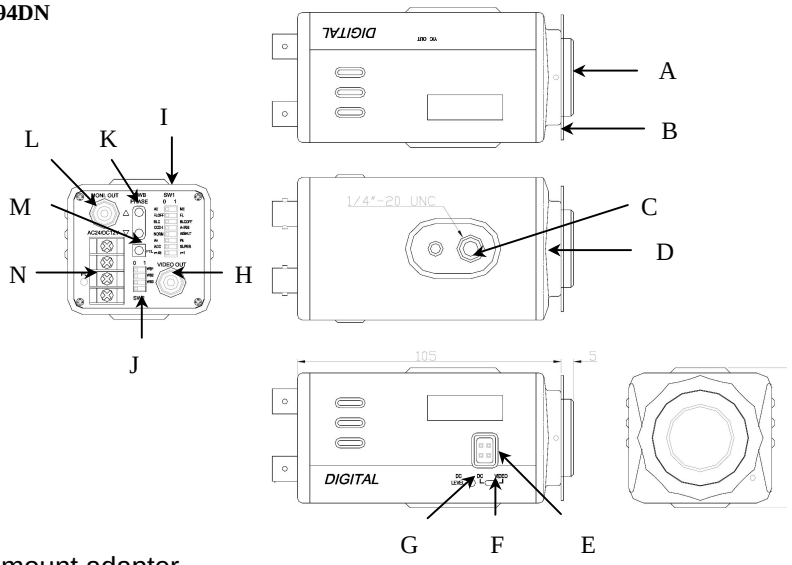
To prevent electric shock, do not remove screws or covers.

There are no user serviceable parts inside.

Contact a qualified service person if necessary.

3. Name of Parts and Functions

VTC-C594DN



A. C (CS) mount adapter

B. Flange focal distance adjustment-If back focus adjustment is necessary, unscrew the flange back lock screw; optimize the focus by turning this ring.

C. Mounting screw hole

Standard photographic pan-head screw size (1/4" – 20)

D. Flange focal lock screw

E. Auto iris lens connector (MINI JACK)

See 3.1 (Auto-iris connector)

F. Video/DC Auto-Iris Lens Selector.

VIDEO---For VIDEO Drive Lens

DC------- For DC or D/D Direct Drive Le

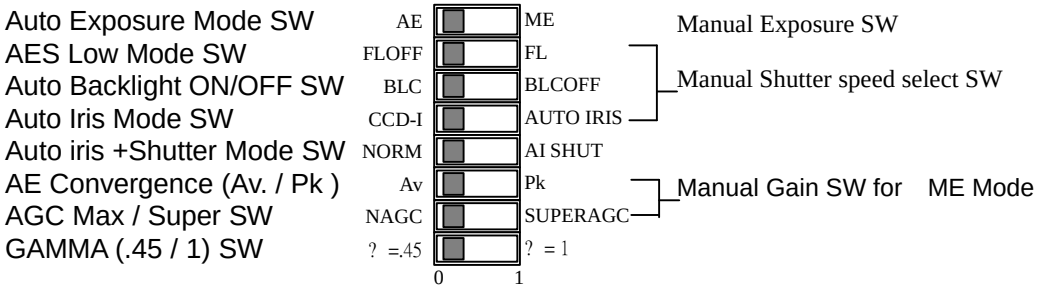
G. DC lever Adjuster (VR)

For DC D/D auto iris lens drive level adjustment for obtaining correct exposure to light.

H. Video output terminal (BNC)

This connector is used to connect to the VIDEO IN connector of a monitor or processor.

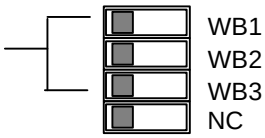
I.



FL=FLICKERLESS, CCD-I=CCD-IRIS, AI SHUT = AUTO IRIS + SHUTTER SPEED, Av = AVERAGE, Pk = PEAK, AGC=30dB, SUPER=36dB.

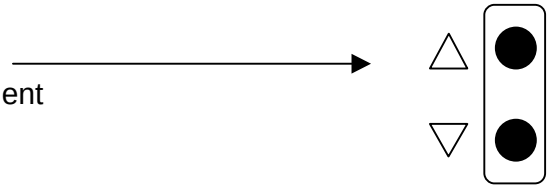
J. SW2

White Balance mode SW
Add. detail see AWB section
VBS in 75OHM ON/OFF SW
(For Gen-lock model)



K. MWB adjust button

Line-lock Phase Adjustment



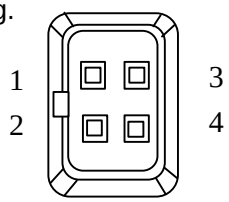
L. AWB push to lock button
Detail pls. See AWB section

M. Power pilot LED

N. AC24V / DC12V Block Terminal

1.1 Auto Iris Lens Connector

Use the accompanying auto iris lens control connector plug.
For auto iris lens with built-in EE amp. (VIDEO Type)
Set the lens selector switch to ”Video” position.
Connector cable leads
1.Red---- power 3.White-- video
2.NC 4.Black-- shielded



This is the external view of camera

For auto iris lens without EE amp. (DC Type)
Set the lens selector switch to “DC” position.
Connector cable leads

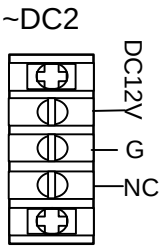
1. Damping coil (-)
2. Damping coil (+)
3. Driving coil (+)
4. Driving coil (-)

Connect the leads as shown above; refer to the instructions of the lens.

1.2 Power Terminal

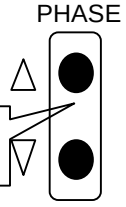
1.2.1 AC24V/DC12V model

This terminal accepts both AC 24V and DC 12V non-polarity



1.2.2 Line-Lock Phase Adjustment

The vertical phase of the camera video signal can be matched to the phase of the AC power line.
Using a dual-trace oscilloscope to observe the video output signal (V-rate) of the camera and adjust the Line-lock Phase control buttons to line up the phase of both signals



Caution: The adjustment must be made by qualified servicing person or system installer.

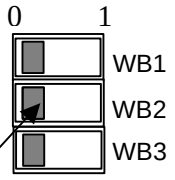
Phase adjusting Buttons for Line-lock model.

4. White Balance Adjustment

Mode selection for each operation as shown in the table below:
WB Control Mode Selection Table

Mode SW2	WB1	WB2	WB3
ATW	0	0	0
AWB(conventional)	0	1	0
PUSH TO LOCK	0	1	1
MWB	0	0	1
INDOOR	1	0	0
FLUORESCENT	1	0	1
FL 2	1	1	0
OUTDOOR	1	1	1

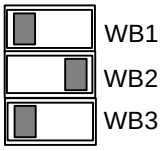
1.3 ATW mode---- Set the Dip SW. WB1, WB2, WB3 to "0" position,



In this mode, the color temperature is monitoring continuously, and the white balance is set automatically by internal microcontroller.
The operating color temperature range is from 2500°K to 9500°K (approximately.)
This mode is the default setting when shipped from the factory.

1.4 AWB mode—Conventional auto white balance

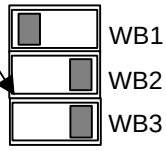
WB1=0, WB2=1 , WB3=1



1.5 Push to lock mode --- set the Dip SW. WB1=0, WB2=1 , WB3=1

If the camera is used in conditions as described below.

- o The subject is illuminated by several different light sources
- o A sodium lamp, mercury vapors lamp or special effects lamp is used.
- o The subject has a single color, like blue, red, etc.
- o A picture with proper tone may not be obtained, in such case please adjust the tone while observing the picture on a color monitor

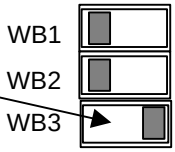


1.6 After setting the dip switches into "push to lock" mode, point the camera at a white object and bring it into focus.

Point at the subject to fulfill the TV screen.
Use a light to illuminate the subject.

1.6.1 Press the set button, to optimize the picture color.

1.7 Manual mode white balance - set the Dip SW. WB1=0, WB2=0, WB3=1

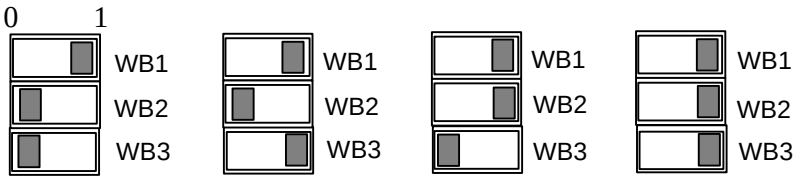


1.7.1 When the dip SW. setting is set to MWB, use the up/down SW. to adjust.

1.7.2 Press the up/down key simultaneously back to

preset white balance position.

1.8 Preset mode white balance



Indoor 3200˚k

Fluorescent 4200˚k 4700˚k

Outdoor 6300˚k

5. AE Setting

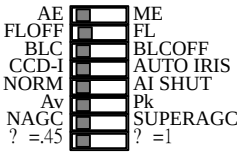
AE/ME Dip SW= 0 (AE position)

AE MODE CONTROL

MODE SW1	AE/ME			
CCD IRIS MODE (AES)	AE	FLOFF	BLC	CCD-I
CCD IRIS MODE BLC OFF	AE	FLOFF	BLCOFF	CCD-I
AES LOW MODE	AE	FL	BLC	CCD-I
AUTO IRIS MODE	AE	FLOFF	BLC	AUTO IRIS
AUTO IRIS MODE BLC OFF	AE	FLOFF	BLCOFF	AUTO IRIS

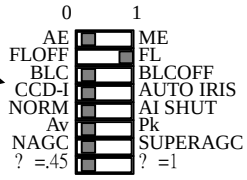
1.9 AES Mode(AE/ME=0, CCD-I=0,)
(CCD IRIS mode)

If you are using a fixed or manual iris lens, please select this mode to control the exposure with the electronic shutter. The range of the shutter speed is from 1/60 to 1/100,000 sec.



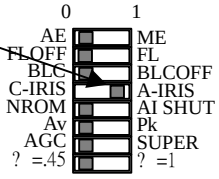
1.10 AES LOW Mode (AE/ME=AE, FLOFF/FL=FL position)

In order to reduce blurring under low light, in this mode, the shutter is set from 1/100 sec. NTSC to 100,000 sec continuously.



1.11 Auto Iris Mode (AE/ME=AE, CCD-I / AUTO IRIS = CCD-I position)

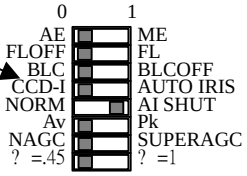
If you are using an auto iris lens, please select this mode, In this mode, the shutter speed is fixed to 1/60 sec. NTSC.



1.12 Auto iris With Shutter speed Mode (AE/ME=AE, AI SHUT at “1” position)

This mode has same function as auto iris mode, but with selectable shutter speed by user.

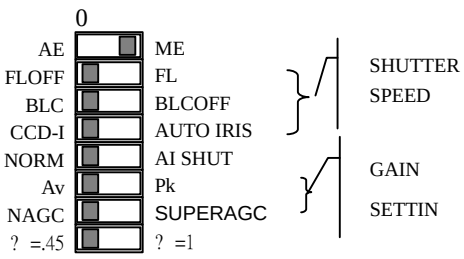
This mode is very useful for the application that allows capturing of fast moving objects with higher shutter speed and adequate depth of field. Please refer to table 1 in the ME section for shutter speed selection.



6. Me Setting

AE/ME DIP SW = ME

Dip SW “FL”, “BLC”, and “CCD-I” for setting the shutter speed from 1/60 to 1/10,000 sec. In addition, the GAIN can be selected from 0 to 18 dB by DIP SW of “Av/Pk” and “NAGC/SUPERAGC”.
For details, please refer to table 1 for Shutter speed and table 2 for Gain setting.



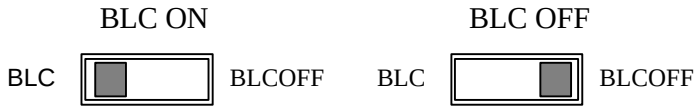
Shutter speed (table 1)

SHUTTER SPEED	**AE/ME**			
1/60 SEC	ME	FLOFF	BLC	CCD-I
1/100 SEC	ME	FL	BLC	CCD-I
1/250 SEC	ME	FLOFF	BLCOFF	CCD-I
1/500 SEC	ME	FL	BLC OFF	CCD-I
1/1000 SEC	ME	FLOFF	BLC	AUTO IRIS
1/2000 SEC	ME	FL	BLC	AUTO IRIS
1/4000 SEC	ME	FLOFF	BLC OFF	AUTO IRIS
1/10000 SEC	ME	FL	BLC OFF	AUTO IRIS

Gain control (Table 2)

GAIN	**AE/ME**		
0 dB	ME	Av	NAGC
6 dB	ME	Pk	NAGC
12dB	ME	Av	SUPERAGC
18dB	ME	Pk	SUPERAGC

7. Auto Back-light Compensation



This intelligent auto BLC is a newly developed digital light level control system, it is activated automatically by screen histogram (contrast) and 225 area window weighting integration to control iris gain and white balance simultaneously, so that the optimum object light level can be achieved.

1.13 Central Window Weighted average Backlight compensation

This method is best used in cases where the main subject is fixed within the screen.

1.14 Histogram Backlight compensation

This method is best used in cases where the main subject moves about within the screen image.

1.15 The combination of two types of Backlight makes it easier to arrange the compensation operation to match the imaging conditions and installation location.

Note: Compensation may be insufficient under extremely bright conditions.

8. Infra-Red projection

In a low light environment, a standard color camera cannot obtain a clear picture with an IR illuminator. This camera has been specially designed with the capability to accept most IR projection, delivering a clear black and white picture under absolute darkness.

The Infrared wavelength is from 800nm to 1000nm.

The focus may vary slightly with IR wavelength due to lens diffraction to long-wave. When installing the camera with an IR projector, please check the focus under IR illumination and normal light conditions, to find an adequate medium focusing position.

It is recommended to close the lens aperture one or two stops to increase the depth of field and compensate for the lens diffraction.

9. Specifications

Image device	1/3” interline transfer SONY Super HAD CCD
Signal system	NTSC standard
Picture Elements	537(H) x 505(V) STD
Scanning system	525 lines. 2:1 interlace
Sync system	DC 12V / AC 24V Line-lock
Horizontal resolution	420 TV lines
Minimum illumination	0.015 lux at F0.75 / 0 lux under Infra-red illumination
Infra-red wavelength	From 800nm to 1000nm
Aperture correction	H aperture and V aperture
Gain	Max. Gain 30dB; Super Gain 36 dB
S/N ratio	Better than 48dB
Auto exposure system	4 modes selectable by Dip-switch
AE CCD iris mode	1/60 sec. \ 1/100,000 sec.
AE AES low mode	1/100 sec. \ 1/100,000 sec.
AE Auto iris mode	1/60 sec.
AE Auto iris + shutter speed mode	1/60 \ 1/10,000 sec.
AE level	Average, Peak selectable
Manual exposure system	Shutter: 1/60, 100, 1/250, 1/1,000, 1/2,000, 1/ 4,000,1/10,000 sec. / Gain: 0,6,12,18dB
Auto iris lens	Accepts Video or DC servo iris lens
ATW	2500°K to 9500°K
AWB	Push To Lock and Conventional AWB
MWB	R Gain, B Gain
FWB	Indoor 3200°K , Fluorescent1 4200°K, Fluorescent2 4700°K, outdoor 6300°K.
Gamma	45 / 1
Backlight compensation	Auto Detect On/off; Histogram plus windows weight BLC
Video output signal	Composite: 1 V p-p at 75 Ohm
Lens mount	C & CS mount
Operating temperature	14°F to 122°F (-10°C to 50°C)
Power source	AC 24V /DC 12V (Non-polarity)
Power consumption	3.5W (DC type) / 5.5W (AC type)
Dimensions (W x H x D)	2.25” x 2.05” x 4.33” (57 x 52 x 110mm)

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