#### VCC-4594 (NTSC)

#### **Specifications**

Model   NTSC standard TV system (525 TV lines, 30 frames/sec.)	Specifications	•		
Image sensor	Model		VCC-4594	
Picture elements   Total: 811 (H) x 508 (V), Effective: 768 (H) x 494 (V)	Scanning system		NTSC standard TV system (525 TV lines, 30 frames/sec.)	
Minimum illumination	Image sensor		1/3" (approx. 4.8 x 3.6 mm) interline transfer method CCD	
Minimum illumination         Approx. 0.03 lx with a F 1.2 lens (B/W mode). Approx. 0.6 lx with a F 1.2 lens (color mode)           Video output level         1.0 Vip-pl/75 ohns composite)           Video S/N ratio         More than 48 dB           Backlight compensation         Manual ON/OFF switching. Multi-zone light measuring system / Center focus photometry—Slide SW (side) (Activated when auto iris lens used)           White balance         ATW/Manual switching—Slide SW (side)           Color adjust at manual         R, B — VR (side)           Gain control         Automatic           Light control         Automatic           Lens mount         CS mount (or C mount with the supplied adaptor)           Flange back         12.5 mm ±0.5 mm adjustment           Auto iris lens         DC: drive coil (+-). brake dump coil (+-)           Auto iris output         OC (Tripe Coil (+-).) brake dump coil (+-)           Auto iris output         Video: +12 V DC (max. 50 mA), video output (high-impedance)           Lens iris level         Level: 1 - H — VR (side)           Electronic iris         Box (F - 2 lide SW (side)           Synchronizing system         Internal sync, Line lock manually switchable — Slide SW (side)           Y phase adjustment         Internal sync, Line lock manually switchable — Slide SW (side)           Y phase adjustment         Internal sync, Line lock manually switchable — Slid	Picture elements		Total: 811 (H) x 508 (V), Effective: 768 (H) x 494 (V)	
Video output level         1.0 V(p-p) (75 ohms composite)           Video S/N ratio         More than 48 d8           Backlight compensation         Manual ON/OFF switching, Multi-zone light measuring system / Center focus photometry — Slide SW (side) (Activated when auto iris lens used)           White balance         ATW/Manual switching — Slide SW (side)           Color adjust at manual         R, B — VR (side)           Gain control         Automatic           Light control         Optical auto iris lens / Electronic iris (indoor use)           Lens mount         CS mount (or C mount with the supplied adaptor)           Flange back         2.5 mm ± 0.5 mm adjustment           Auto iris lens         DC / VIDEO — Slide SW (side)           Auto iris output         Video: ±12 V DC (max. 50 mA), video output (high-impedance)           Lens iris level         Level: 1. H — VR (side)           Electronic iris         ON / OFF — Slide SW (side)           Electronic iris range         0.6 ix to 35,000 ix (F 1.2 lens: color mode), 1.0 ix to 50,000 ix (F 1.4 lens: color mode)           Synchronizing system         Internal sync, line lock manually switchalable — Slide SW (side)           V phase adjustment         LINE PHASE — VR (rear)           Video signal Auto iris lens         LINE PHASE — VR (rear)           Power supply         24 V AC, GND — 3-pin (slide)           Pow	Horizontol resolution		520 TV lines	
More than 48 dB	Minimum illumination		Approx. 0.03 lx with a F 1.2 lens (B/W mode), Approx. 0.6 lx with a F 1.2 lens (color mode)	
Manual ON/OFF switching, Multi-zone light measuring system / Center focus photometry — Slide SW (side) (Activated when auto iris lens used)    White balance	Video output level		1.0 V(p-p) (75 ohms composite)	
Center focus photometry — Slide SW (side) (Activated when auto iris lens used)   White balance	Video S/N ratio		More than 48 dB	
Center focus photometry — Slide SW (side) (Activated when auto iris lens used)           White balance           Color adjust at manual         R, B — VR (side)           Gain control         Automatic           Light control         Optical auto iris lens / Electronic iris (indoor use)           Lens mount         CS mount (or C mount with the supplied adaptor)           Flange back         12.5 mm ± 0.5 mm adjustment           Auto iris lens         DC / VIDEO — Slide SW (side)           Auto iris output         DC drive coil (+,-), brake dump coil (+,-)           Auto iris level         Lens iris level           Lens iris level         Level: L - H — VR (side)           Electronic iris         ON / OFF — Slide SW (side)           Electronic iris range         0.6 k to 35,000 k (F 1.2 lens: color mode), 1.0 k to 50,000 k (F 1.4 lens: color mode)           Synchronizing system         Internal sync, Line lock manually switchable — Slide SW (side)           V phase adjustment         LINE PHASE — VR (rear)           Video signal         Video Signal         LENS — 4 pin (side)           Fower supply         24 V AC, GND — 3-pin terminal (rear)           Environmental conditions         Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Backlight compensation		Manual ON/OFF switching, Multi-zone light measuring system /	
Color adjust at manual         R, B — VR (side)           Gain control         Automatic           Light control         Optical auto iris lens / Electronic iris (indoor use)           Lens mount         CS mount (or C mount with the supplied adaptor)           Flange back         12.5 mm ± 0.5 mm adjustment           Auto iris lens         DC / VIDEO — Slide SW (side)           Auto iris level         DC / VIDEO — Slide SW (side)           Lens iris level         Level: L - H — VR (side)           Electronic iris         ON / OFF — Slide SW (side)           Electronic iris range         0.6 ix to 35,000 lx (F 1.2 lens: color mode), 1.0 lx to 50,000 lx (F 1.4 lens: color mode)           Synchronizing system         Internal sync, Line lock manually switchable — Slide SW (side)           V phase adjustment         LINE PHASE — VR (rear)           Video signal         VIDEO OUT — BNC (rear)           Sockets         Auto iris lens         Power supply         24 V AC, GND — 3-pin terminal (rear)           Environmental conditions         Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)			Center focus photometry —Slide SW (side) (Activated when auto iris lens used)	
Gain control       Automatic         Light control       Optical auto iris lens / Electronic iris (indoor use)         Lens mount       CS mount (or C mount with the supplied adaptor)         Flange back       12.5 mm ± 0.5 mm adjustment         Auto iris lens       DC / VIDEO — Slide SW (side)         Auto iris output         Lens iris level       Level: L - H — VR (side)         Level: L - H — VR (side)         Electronic iris       ON / OFF — Slide SW (side)         Electronic iris range       0.6 lx to 35,000 lx (F 1.2 lens: color mode), 1.0 lx to 50,000 lx (F 1.4 lens: color mode)         Synchronizing system       Internal sync, Line lock manually switchable — Slide SW (side)         V phase adjustment       LINE PHASE — VR (rear)         Video signal Auto iris lens       Video signal Auto iris lens       LENS — 4-pin (side)         Power supply       24 V AC, GND — 3-pin terminal (rear)         Environmental conditions       Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	White balance		ATW/Manual switching — Slide SW (side)	
Light control  Lens mount  CS mount (or C mount with the supplied adaptor)  Flange back  Auto iris lens  DC / VIDEO — Slide SW (side)  DC drive coil (+,-), brake dump coil (+,-)  Video: +12 V DC (max. 50 mA), video output (high-impedance)  Lens iris level  Lens iris level  Electronic iris  DN / OFF — Slide SW (side)  Level: L · H — VR (side)  Electronic iris range  DS dk to 35,000 k (F 1.2 lens: color mode), 1.0 k to 50,000 k (F 1.4 lens: color mode)  Synchronizing system  Video signal  Auto iris lens  Video signal  Auto iris lens  Power supply  Environmental conditions  Optical auto iris lens / Electronic iris (indoor use)  Dptical auto iris lens / Electronic iris (indoor use)  12.5 mm ± 0.5 mm adjustment  DC / VIDEO — Slide SW (side)  12.5 mm ± 0.5 mm adjustment  Video: 12.5 mm ± 0.5 mm adjustment  DC / VIDEO — Slide SW (side)  Level: L · H — VR (side)  ON / OFF — Slide SW (side)  Electronic iris range  O.6 k to 35,000 k (F 1.2 lens: color mode), 1.0 k to 50,000 k (F 1.4 lens: color mode)  Synchronizing system  UINE PHASE — VR (rear)  Video signal  Auto iris lens  Power supply  Environmental conditions  Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Color adjust at manual		R, B — VR (side)	
CS mount (or C mount with the supplied adaptor)   Flange back	Gain control		Automatic	
Flange back Auto iris lens  DC / VIDEO — Slide SW (side)  DC drive coil (+,-), brake dump coil (+,-)  Auto iris output  Lens iris level  Lens iris level  Electronic iris  DN / OFF — Slide SW (side)  Electronic iris range  ON / OFF — Slide SW (side)  Electronic iris range  ON / OFF — Slide SW (side)  Electronic iris range  ON / OFF — Slide SW (side)  Electronic iris range  ON / OFF — Slide SW (side)  Electronic iris range  Under the side of the s	Light control		Optical auto iris lens / Electronic iris (indoor use)	
Auto iris lens         DC / VIDEO — Slide SW (side)           Auto iris output         DC / VIDEO — Slide SW (side)           DC drive coil (+,-), brake dump coil (+,-)           Video: +12 V DC (max. 50 mA), video output (high-impedance)           Level: L + H — VR (side)           Electronic iris range         O.6 lx to 35,000 lx (F 1.2 lens: color mode), 1.0 lx to 50,000 lx (F 1.4 lens: color mode)           Synchronizing system         Internal sync, Line lock manually switchable — Slide SW (side)           V phase adjustment         LINE PHASE — VR (rear)           Video signal Auto iris lens         Video signal Auto iris lens         LENS — 4-pin (side)           Power supply         LENS — 4-pin (side)           Fnvironmental conditions         Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Lens mount		CS mount (or C mount with the supplied adaptor)	
Auto iris output         DC: drive coil (+,-), brake dump coil (+,-)           Video: +12 V DC (max. 50 mA), video output (high-impedance)           Lens iris level         Level: L - H — VR (side)           Electronic iris         O.6 lx to 35,000 lx (F 1.2 lens: color mode). 1.0 lx to 50,000 lx (F 1.4 lens: color mode)           Section in iris range         O.6 lx to 35,000 lx (F 1.2 lens: color mode). 1.0 lx to 50,000 lx (F 1.4 lens: color mode)           Synchronizing system         Internal sync, Line lock manually switchable — Slide SW (side)           V phase adjustment         LINE PHASE — VR (rear)           Video signal         Video JUT — BNC (rear)           Auto iris lens         LENS — 4-pin (side)           Power supply         24 V AC, GND — 3-pin terminal (rear)           Environmental conditions         Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Flange back		12.5 mm $\pm$ 0.5 mm adjustment	
Auto iris output         Video: +12 V DC (max. 50 mA), video output (high-impedance)           Lens iris level         Level: L - H — VR (side)           Electronic iris         O.6 lx to 35,000 lx (F 1.2 lens: color mode), 1.0 lx to 50,000 lx (F 1.4 lens: color mode)           Synchronizing system         Internal sync, Line lock manually switchable — Slide SW (side)           V phase adjustment         LINE PHASE — VR (rear)           Yideo signal Auto iris lens         Video signal Auto iris lens         LENS — 4-pin (side)           Power supply         24 V AC, GND — 3-pin terminal (rear)           Environmental conditions         Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Auto iris lens		DC / VIDEO — Slide SW (side)	
Video: +12 V DC (max. 50 mA), video output (high-impedance)   Level: L - H — VR (side)	Auto irie output		DC: drive coil (+,-), brake dump coil (+,-)	
Electronic iris	Auto iris output			
Electronic iris range	Lens iris level		Level: L - H — VR (side)	
Synchronizing system         Internal sync, Line lock manually switchable — Slide SW (side)           V phase adjustment         LINE PHASE — VR (rear)           Video signal         VIDEO OUT — BNC (rear)           Sockets         Auto iris lens         LENS — 4-pin (side)           Power supply         24 V AC, GND — 3-pin terminal (rear)           Environmental conditions         Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Electronic iris		ON / OFF — Slide SW (side)	
V phase adjustment         LINE PHASE—VR (rear)           Voldeo signal         VIDEO OUT — BNC (rear)           Sockets         Auto iris lens         LENS — 4-pin (side)           Power supply         24 V AC, GND — 3-pin terminal (rear)           Environmental conditions         Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Electronic iris range			
Sockets         Video signal Auto iris lens         LENS — 4-pin (side)           Power supply         24 V AC, GND — 3-pin terminal (rear)           Environmental conditions         Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Synchronizing system		Internal sync, Line lock manually switchable — Slide SW (side)	
Auto iris lens         LENS — 4-pin (side)           Power supply         24 V AC, GND — 3-pin terminal (rear)           Environmental conditions         Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	V phase adjustment		LINE PHASE — VR (rear)	
Power supply 24 V AC, GND — 3-pin terminal (rear)  Environmental conditions Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Vid	deo signal	VIDEO OUT — BNC (rear)	
Environmental conditions Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	Sockets Au	ıto iris lens	LENS — 4-pin (side)	
	Pov	wer supply	24 V AC, GND — 3-pin terminal (rear)	
Power requirement 24 V AC / 60 Hz			Temperature: -10°C to +50°C Humidity: less than 90% (no condensation)	
	Power requirement		24 V AC / 60 Hz	
Power compsumption (approx.) 3.8 W (with auto iris lens), 2.9 W (without auto iris lens)	Power compsumption (approx.)		3.8 W (with auto iris lens), 2.9 W (without auto iris lens)	
Camera mount 1/4" — 20 UNC (top / bottom) selectable	Camera mount		1/4" — 20 UNC (top / bottom) selectable	
Dimensions (approx.) 67 (W) x 54 (H) x 126.5 (D) mm [2.64 (W) x 2.13 (H) x 4.98 (D) in.] (w/o camera & lens mounts)	Dimensions (approx.)			
Weight (approx.)         450 g (15.9 oz.) without lens	Weight (approx.)		450 g (15.9 oz.) without lens	

Note: Specifications subject to change without notice.

#### Realization of high-resolution surveillance systems for the future

By using high-resolution versions of multiplexers, DVRs, and monitors, it is possible to record and reproduce superior pictures captured by the VCC-4594. These are advanced surveillance solutions from SANYO.



1/3" Color CCD DSP Day/Night Camera VCC-4594



1/3" Color CCD DSP

OFCERTA PARTY 520 TV lines



9-Channel Duplex Multiplexer MPX-CD92



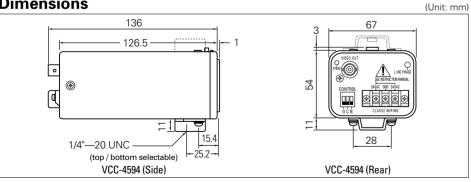
Digital Real Time VCR DTL-4800

More than 520 TV lines



\*More models to be introduced soon.

#### **Dimensions**



Caution: Please consult the instruction manual to ensure safe and proper operation of the product.



SANYO Electric Co., Ltd. Video Imaging Systems Division SMS-009

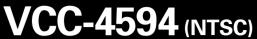


# **Day/Night CCD Camera**

- Super high-resolution of 520 horizontal TV lines
- Intelligent backlight compensation

C 1.1 18. 2 120mm

- High performance with minimum required illumination of 0.03 lx (F 1.2 lens in B/W mode)
- Digital signal processing (DSP) for sharper, clearer color images











520 TV lines

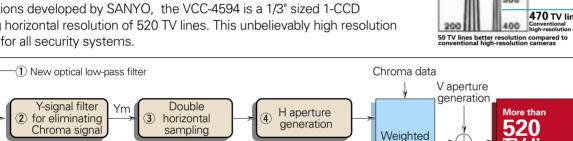
**TV** lines

**520** Horizontal TV lines

## The super high-resolution camera

#### Precision surveillance with 520 horizontal TV lines of high resolution

With four innovations developed by SANYO, the VCC-4594 is a 1/3" sized 1-CCD camera achieving horizontal resolution of 520 TV lines. This unbelievably high resolution opens a new era for all security systems.



H aperture

generation

1) New optical low-pass filter 2) All new Y/C (luminance/chrominance) separation circuitry

Double

horizonta

sampling

3 Double horizontal sampling 4 Chroma-regulated horizontal aperture generation

### The new DSP circuitry further improves picture quality

#### A clear view of off-center objects Intelligent backlight compensation

CCD

Lens

The screen is divided into 64 small areas in which luminous intensity is measured separately to determine the lighting conditions of all objects within the frame. This new method provides a clear view of off-center and moving objects that was not possible with conventional backlight compensation.

New broad-

band pass

Y-signal filter

# **Backlight compensation**

#### **Superior color reproduction** and aperture compensation

The new DSP (digital signal processing) circuitry comes with the latest algorithm to reproduce natural colors. At the same time, digital processing of the video signal reduces color smudges and produces sharp, crisp pictures.

addition



# DAY / NIGHT

## Both day and night use in the same camera

#### Proprietary auto-switching infrared cut filter

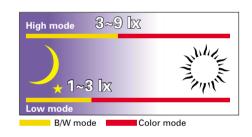
As the camera senses the amount of light in the viewing area, it automatically turns the IR CUT FILTER on and off as required. As more precise color reproduction is essential in the color operation mode, the filter is turned on. In the B/W mode, clear, bright images (to a minimum required illumination of 0.03 lx) are produced by switching the filter off and increasing light sensitivity.

#### Intelligent 2-mode switching for color to B/W as well as manual switching

The camera's sensitivity to exposed light allows it to automatically switch from color to B/W mode. And the user is also able to easily switch modes as required for specific applications.

Mode switching can instantly be accomplished using the two push locking switches which provide manual selection over mode selection and auto operation. Full control is also available for setting the brightness range from 1-3 or 3-9 lx as the switchover point for high (color) to low (B/W) mode. Effectively engineering all the capabilities of two CCD cameras into one, the NTSC system VCC-4594 is the ideal "all-in-one" cost-effective solution for all surveillance needs.

# Color mode IR cut filter ON Time →





# **0.03** IX Minimum required illumination

#### Higher sensitivity and lower smear effect than that of previous models

Utilization of an enhanced high-sensitivity CCD sensor (an improvement of 7 dB) enables superior surveillance capabilities under conditions of minimum illumination as low as 0.03 lx (compared to that of 0.07 lx for previous models). Added to this are anti-smear characteristics that have been cut by 20 dB to drastically reduce smear effects such as those caused by headlights during shooting at night to augment the effectiveness of nighttime image production.

#### Comparison of VCC-4594 with prior SANYO models

Minimum illumination (F1.2 lens)	B/W mode	Color mode
VCC-4594	0.03 lx	0.6 lx
Previous models	0.07 lx	1.4 lx

