

# CCTV (1)

CCTV

\_\_\_\_\_: CCTV

CCTV

2003/2/28

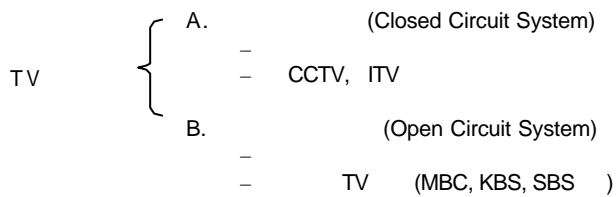
CCTV 가?

CCTV(Closed Circuit Television)

(ITV)

. Vision Hi-tech

\*TV



**CCTV**

가?

CCTV

3가

3가

가

CCTV

1) (Vision Hi-Tech 가 .)

TV

(Bracket),

(Housing)

가

가?'

가?'

CCTV

2)

CCTV

가

(Base Band)

, PCM

3)

가 , ,

4)

CCTV

가

가 가

(Alarm

System)

CCTV

## Catalog

CCTV

Specification

( 5 1/3" CCD Color C/CS mount camera )

**Image Sensor:** STD: High resolution 1/3" DSP Color CCD, Sony  
Option: 1/3" Ex-view HAD CCD, Sony

### 1. Image Sensor( ) 가?

Image Sensor( ) (檢知) ( )  
( ) . CCD(charge coupled device: )  
가  
CCD image sensor CMOS . CCD CCTV  
SONY가 SuperHAD Ex-view . Panasonic, Samsung Sharp  
CCD sensor . SONY, SHARP  
가 (不可視像) 가

Spec SONY CCD

\*\* CCD

CCTV  $\frac{1/3}{가}$  ,  $\frac{1/2}{가}$  ,  $\frac{2/3}{가}$  ,  $\frac{1/4}{가}$  . 24 가

\*\* CCD chip (Unit:mm)

CCD			
1 "	12.7	9.5	15.9
2/3 "	8.8	6.6	11
1/2 "	6.4	4.8	8
1/3 "	4.8	3.6	6
1/4 "	3.6	2.7	4.5

\* Sensor

- a. (Tube Camera or Camera tube)
- b. (Solid state sensor) } XY

{ BBD  
CCD, CID, MOS, ICCD

\* (Tube Camera or Camera tube):

(被寫體) (光學像)  
(管頂部) , (光電物質)  
(結像)  
(走査) ( )  
(Image Orthicon), (Vidicon), (Plumbicon)

\*\* (Solid state sensor), (攝像板): 가 2 (畫素群:  
(光電變換) (電荷)

1 ) (電荷像) (走査機能)  
 가  
 가  
 1960  
 XY (型) : ( 가 )  
 가  
 (X) 가 (畫素數) , (Y) (X)×(Y) (X)×(Y)  
 (電荷轉送型) : ( ) 가  
 CCD(charge coupled device) BBD(bucket brigade device)  
 . CCD BBD 가  
 가  
 (MOS), CCD (CCD)  
 -  
 -

\*\* MOS - type Image Sensor : PN  
 (MOS) , MOS  
 (LSI)  
 가

\* CID (charge injection device) sensor  
 CID GE 가 /  
 , CID  
 , CCD

\* : SIT (Silicon Intensified Target), ISIT(Intensified SIT), ICCD(Intensified CCD)

**Effective Pixels :** . NTSC: 512(H)x492(V), PAL: 500(H)x582(V)

**2. Effective Pixels** 가?

Numbers of Effective Pixels( ) (CCD)  
 .  
 CCD 25 ~40 가  
 (Numbers of Effective Pixels:NEP)가 . NEP CCD 가  
 가

Specification NTSC PAL NEP  
 TV

\*\*\* NTSC (National Television System Committee: )  
 NTSC  
 R, G, B (Y) 2 (I, Q)  
 2 3.58MHz  
 . 525 625 PAL , SECAM (Y)가  
 3 1953  
 , , , 가 가 가 ,

Rf. PAL ( Phase Alternation by Line system)  
 . NTSC I, Q 180°  
 가

가 , 1 (64s)

Rf. SECAM (Sequential couleur a memoire color television system)

(FM)  
(interleave) 가

가 가

\*\* 3

	NTSC	PAL	SECAM
	525 TV Lines	625 TV Lines	625 TV Lines
	30/sec	25/sec	25/sec
	60Hz	50Hz	50Hz
	2:1	2:1	2:1
	3:4	3:4	3:4
	4.2MHz	5.5MHz	5.5MHz
	6MHz	7MHz	8MHz

\*\* CCIR ( International Radio Consultative Committee:

CCIR가

Line 625 TV Line

. EIA

TV

1

25

TV

\*\* EIA (Electronic Industries Association:

EIA가

TV

1

30

)

TV Line

525 TV Line

**H.Resolution: 380 TV Lines**

**3. H.Resolution (Horizontal Resolution: ) 가?**

가

가

1mm

1

2

가

가

가

\*\* Resolution ( )

가

**Synchronizing system : Internal / Line Lock**

**4. Synchronizing system ( ) 가?**

. Synchronism.

가 1

30

1

CCTV

가

(Line Lock), HD/VD

(Internal),

(External),

가

가

가

가 roll

Free running(                    /                    )

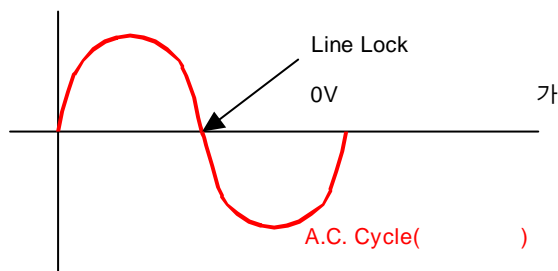
LINE LOCK

Internal

Dip switch                    .)

1)                    (Line Lock):

가  
가 AC  
가 0V  
가  
AC  
,  
Line Lock  
(Phase)



\* Note:

2)                    (Internal):

(Oscillator)

DC

가 60Hz

가

, PAL

50Hz  
"Line Lock"

(Flicker) 가

Rf. Flicker(                    )

가

. NTSC

60Hz  
1/100

50Hz

10Hz

CCTV

3)                    (External – Generator Locking) :

. CCD

(VBS),  
가  
(BB)가

(VS),  
가

가  
Video generator

Scanning system : NTSC 525 Lines, PAL: 625 Lines 2:1 Interlaced

5. Scanning system(                    ) 가?

\*\*\* Interlaced Scanning:

가 가 . ,  
 1 ( )  
 2 ( )  
 2:1  
 (flicker)

TV

\* Progress Scanning:

Video output: 1.0Vp-p Composite, 75 Ohms

**6. Video output( ) 가?**  
 → 75Ohms 1.0Vp-p 가 .

- 1.0Vp-p Composite Video via 75 Ohms  
 Composite Video Signal ( ) : (CRT)  
 (image)

S/N ratio ( Signal to Noise ratio: ) : More than 50 dB (AGC off)

**7. S/N ratio ( Signal to Noise ratio: ) 가?**  
 → AGC Off 50dB 가 .

(數).

dB( ) 가 S/N .

\* DB(Decibel): . . ( ) (量)  
 ( ) 1( )  
 가 . (B) 0.1 1 (dB) .

\* AGC (Automatic Gain Control: )

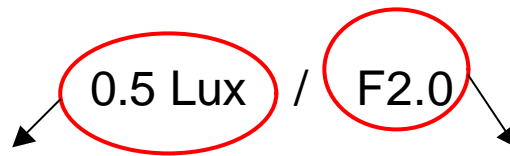
Min. Illumination : STD : 0.5Lux/F2.0 or 0.1Lux/F1.4  
 Option : 0.1 Lux/F2.0 or 0.02Lux at F1.4 (EX-View HAD CCD Version)

**8. Min. Illumination ( ) 가?**  
 F2.0 0.5Lux 가 F1.4 0.1Lux  
 EX-View HAD CCD Version F2.0 0.1Lux, F1.4 0.02Lux가

Lx(Lux)

10 가

e.g.)



( Aperture: Lens F )

(Aperture) F2.0 0.5Lux 가

\*\* Aperture -

. F 가 가 (F1.4, F1.8, F2.8 )

\*\*\* F-number

가 0.5 a  $1/(2n' \sin a)$  n'  
 가 (f/d) F No. = D( ) F No.  
 가 F No. 가 F No가 가 F No가  
 35mm film 가 0.7 F No. 2.8 4 가  
 1.4 가 F No. 2.8 가

\* F- Stop

. F- 가

\* (illumination)

lx . 1m<sup>2</sup> 1lm( ) (m<sup>2</sup>) (lm) 1cd( )  
 1m 가 1lx

\*

Lux

	Lux Level
	100,000
	70,000
	20,000
/	100~1,000
/	500
가	1~10
	4
	0.2
	0.02
	0.007
	0.001
	0.0007
	0.00005

**BLC: ON/OFF by Dip Switch**

**9. BLC(Back Light Compensation: ) 가?**

가 가 , ( )

BLC , 가

가

BLC

BLC ON/OFF



Fig.1 BLC OFF

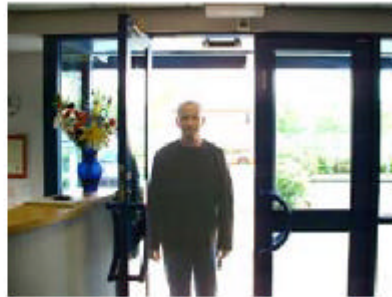


Fig.2 BLC ON



Fig. 3. Fixed BLC window

가

BLC

“ ”

“ ”

“ ”

가

” White Out(

가

)”

Fig.2.

**Shutter Speed:** NTSC: 1/60 ~1/100,000 sec PAL: 1/50 ~1/100,000 sec

## 10. Shutter Speed 가?

가 CCD

가

가



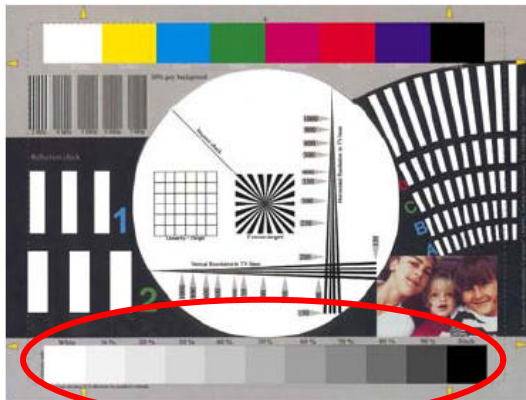
\* Electronic shutter ( )  
CCD 가

**Gamma correction :** Standard =0.45, Switchable =1.0 by Dip Switch

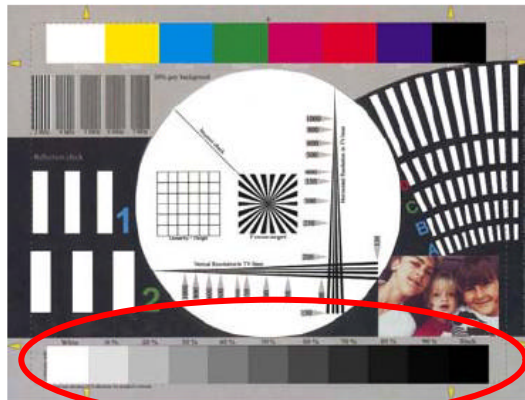


## 11. Gamma correction ( ) 가?

$\gamma = 2.2$  가  
 R,G,B , 가  
 → . CCD ,  
 Gamma 가  
 가 가 Standard 가  
 $\gamma = 0.45$ ,  $\gamma = 1.0$  Dip Switch 가  
 가 ( )가 ,  
 Standard가 ( )



Standard  $\gamma = 0.45$



Switchable  $\gamma = 1.0$

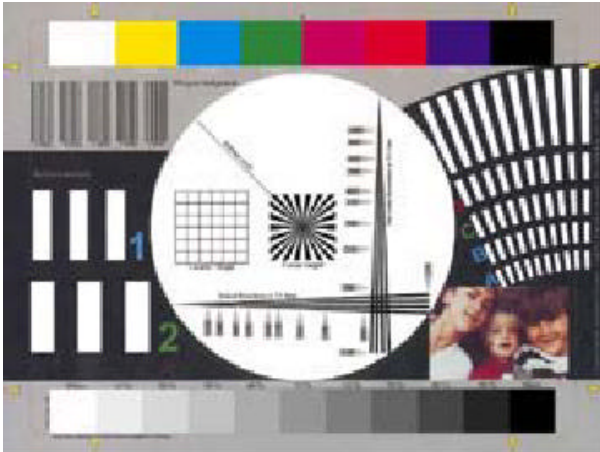
\*\* Gamma - 가 . X ,

**White Balance:** Standard 2100 ° K~8200K Auto  
 Manual setting by Dip S/W & UP/Down by Push BTN

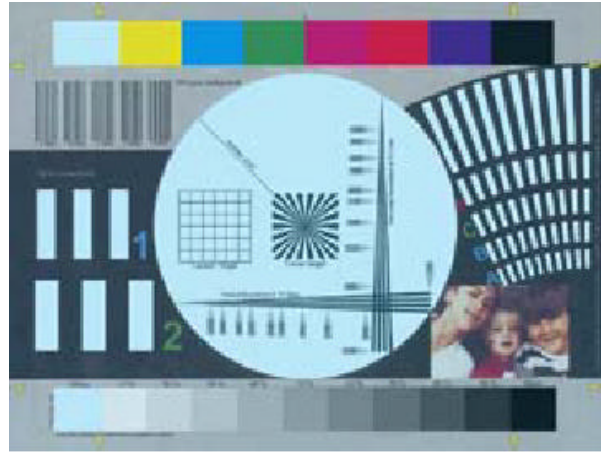
## 12. White Balance 가?

TV “ ”  
 , K(Kelvin: ) 가  
 TV 가 ,

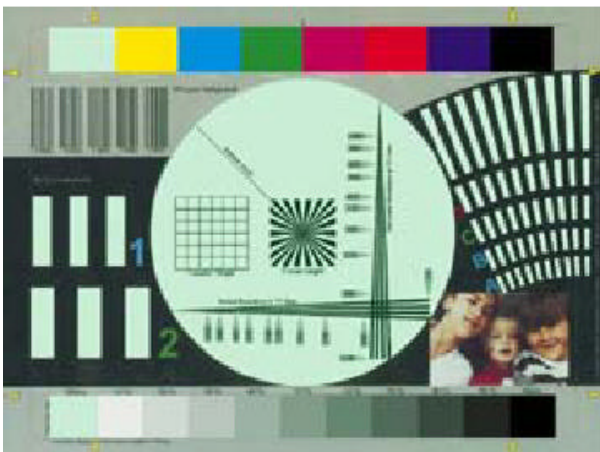
가 가 , . 가  
 가 가 .  
 . 가 RGB ( . . )  
 (VTR)



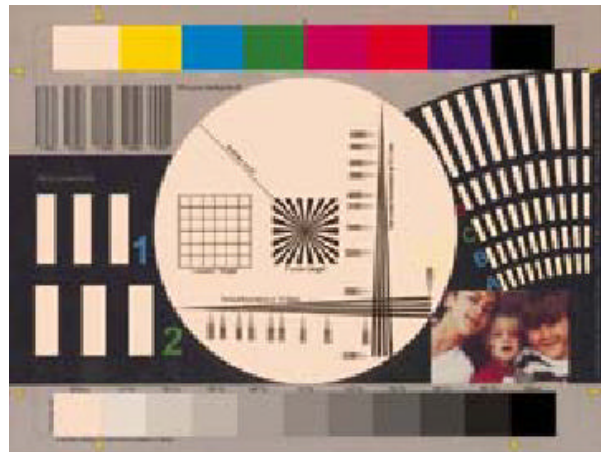
Auto White Balance



Outdoor lighting



Fluorescent lighting



Tungsten Lighting

**Gain Control** : Standard: 8dB ~ 30dB Auto Maximum by Dip Switch

### 13. Gain Control ( ) 가?

가 GAIN( : )

AGC(Automatic Gain Control) 가 가

가 .

Smear Effect: 0.05%

14. Smear Effect( ) 가?

가 Potential barrier( ) 가

MTBF: 80,000 hours

15. MTBF(mean time between failure: ) 가?

, 가 ,

$$MTBF = (T_1 + T_2 + \dots T_n)/n$$

$T_i$ :가 , n:

Power source: DC12V(Tolerance: 9V~40V) or DC12V~AC24V Dynamic or AC230V(± 30V)

16. Power source( ) ?

Power source: DC12V(Tolerance: 9V~40V) or DC12V~AC24V Dynamic or AC230V(± 30V)

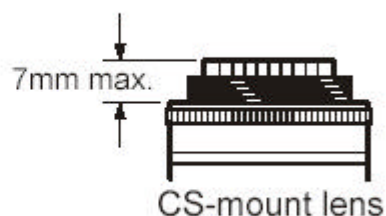
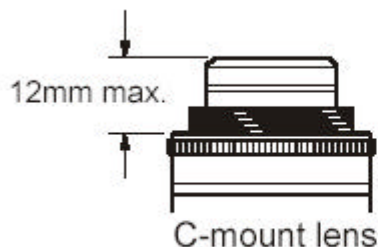
17. Operating current( ) 가?

가 가 .

Lens Mount Dynamic Range : CS-Mount (12mm flange back)  
C-Mount(17.5mm Flange back) & Fine focus ± 1.0mm

18. Lens Mount Dynamic Range 가?

5mm 가 1/2', 1/3' C-mount CS-mount Mounting ( )  
Vision CCD C-mount CS-mount  
Mount Adjustment Lever Lens



\*\* Flange Back ( )  
( ) 가 )

**Iris Control :** Video Iris/ESC/DC Iris

**19. Iris Control ( ) 가?**

Automatic Iris (AI: )  
CCD CCD Peak  
가

\* ESC (Electronic Shutter Control : )

\* DC Iris – Drive Damping( )  
가 Drive  
“ ”

가

\* (damping) 가

**Operating Temperature :** 14 ~ 122 (-10 ~ + 50 )

**20. Operating Temperature 가?**

**Humidity:** Within 90% RH

**21. Humidity( ) 가?**

(Relative Humidity: RH)

가

( ) ,

$$R = \frac{f}{F} \times 100 (\%)$$

, ( , f가 ) 가 F가 R가  
가

F

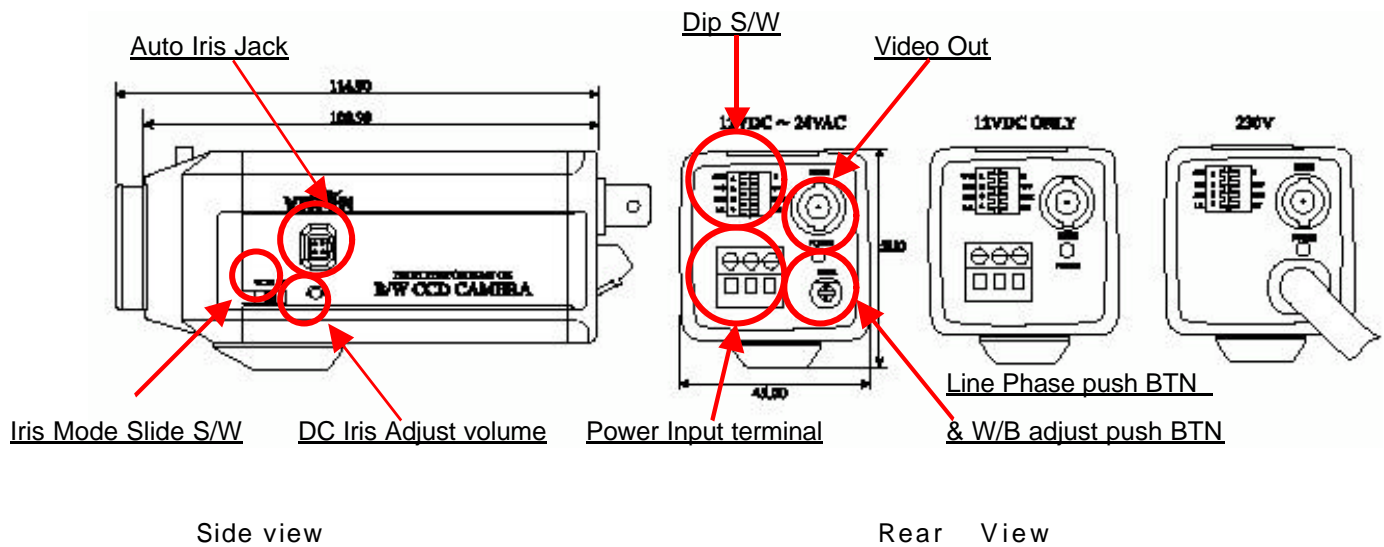
**22. Measurement: Various**

**23. Weight (Approx.g) : Various**

**24. Operational Features ( ) 가**

IR sensitivity	Yes
Audio	Yes
Dual Power DC12~AC24V	12V only non Polarity
Line Lock	X or Yes

**25.**



### 1. Dip S/W control

BLC	On/Off
Flickerless	On/Off
AGC	STD/MAX
Gamma	0.45/1.0
White Balance 1	Manu/Auto
White Balance 2	
Line Lock	On/Off

\* Flickerless

AC Speed가 가 Flicker ( ... ) Flickerless Shutter (PAL 1/120 , NTSC 1/100 ).

### 2. Rear Panel

Video Out	BNC - BNC connector
Power Indicator	Red LED
Line phase push BTN	Screw Joint B/W - Color Up/Down
W/B adjust push BTN	Up/Down
Dip Switch	6 Pin Side – Dip S/W control 6

\*BNC (Bayonet Neill Concellman ) – 1940

BNC connector (Shield)

\*Dip Switch (Dual In-line Pin Switch) –

( , On, Off) 가

### 3. Side Panel

Auto Iris Jack	4Pin terminal - Auto Iris Lens
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