

SAMSUNG TECHWIN

Super High Resolution UTP Dome Camera

User Manual

SUD-2081



Super High Resolution UTP Dome Camera

User Manual

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Warranty

If the product does not operate properly in normal conditions, please let us know. Samsung Techwin will resolve the problem for free of charge. The warranty period is 3 years. However, the followings are excluded:

- If the system behaves abnormally because you run a program irrelevant to the system operation.
- Deteriorated performance or natural worn-out in process of time

*Design and specifications are subject to change without prior notice.

Before operating the camera, confirm the camera model and correct input power voltage.
To help you understand this manual thoroughly, we'll introduce our model description.

■ SUD-2081 SERIES

- NTSC MODEL
SUD-2081N
- PAL MODEL
SUD-2081P

■ MODEL DESCRIPTION

- SUD-2081X



- SIGNAL SYSTEM
N → NTSC MODEL
P → PAL MODEL

safety information



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.



This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.



This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

- To prevent damage which may result in fire or electric shock hazard, do not expose this appliance to rain or moisture.
- To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.

WARNING

1. Be sure to use only the standard adapter that is specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product.
2. Incorrectly connecting the power supply or replacing battery may cause explosion, fire, electric shock, or damage to the product.
3. Do not connect multiple cameras to a single adapter. Exceeding the capacity may cause abnormal heat generation or fire.
4. Securely plug the power cord into the power receptacle. insecure connection may cause fire.
5. When installing the camera, fasten it securely and firmly. The fall of camera may cause personal injury.

6. Do not place conductive objects (e.g. screwdrivers, coins, metal parts, etc.) or containers filled with water on top of the camera. doing so may cause personal injury due to fire, electric shock, or falling objects.
7. Do not install the unit in humid, dusty, or sooty locations. doing so may cause fire or electric shock.
8. If any unusual smells or smoke come from the unit, stop using the product. in such case, immediately disconnect the power source and contact the service center. continued use in such a condition may cause fire or electric shock.
9. If this product fails to operate normally, contact the nearest service center. never disassemble or modify this product in any way. (samsung is not liable for problems caused by unauthorized modifications or attempted repair.)
10. When cleaning, do not spray water directly onto parts of the product. doing so may cause fire or electric shock.

CAUTION

1. Do not drop objects on the product or apply strong shock to it. Keep away from a location subject to excessive vibration or magnetic interference.
2. Do not install in a location subject to high temperature (over 55°C), low temperature (below -10°C), or high humidity. Doing so may cause fire or electric shock.
3. If you want to relocate the already installed product, be sure to turn off the power and then move or reinstall it.
4. Remove the power plug from the outlet when there is a lightning. Neglecting to do so may cause fire or damage to the product.
5. Keep out of direct sunlight and heat radiation sources. It may cause fire.
6. Install it in a place with good ventilation.
7. Avoid aiming the camera directly towards extremely bright objects such as sun, as this may damage the CCD image sensor.
8. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
9. The Mains plug is used as a disconnect device and shall stay readily operable at any time.
10. Do not expose the camera to radioactivity. Radioactivity exposure may damage the CCD.

safety information

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions :

- 1) This device may not cause harmful interference, and
- 2) This device must accept any interference received including interference that may cause undesired operation.

CAUTION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of 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.



IC Compliance Notice

This Class A digital apparatus meets all requirements of the Canadian Interference.-Causing Equipment Regulations of ICES-003.



Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.



Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems.)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

important safety instructions

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, 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 is 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 cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.
13. Unplug this apparatus when a card is used. Use caution when moving the cart/ apparatus combination to avoid injury from tip-over.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as powersupply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus



Samsung Techwin cares for the environment at all product manufacturing stages to preserve the environment, and is taking a number of steps to provide customers with more environment-friendly products. The Eco mark represents Samsung Techwin's will to create environment-friendly products, and indicates that the product satisfies the EU RoHS Directive.

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FEATURES

- **High Resolution**

By adopting a diagonal 6mm(1/3") 410,000 (NTSC) pixel, 470,000(PAL) pixel SONY CCD, the camera produces clear picture quality with a horizontal resolution of 600 TV lines in color and a horizontal resolution of 700 TV lines in B/W mode.

- **Excellent Sensitivity**

The built-in high sensitivity COLOR CCD produces a clear image.

- Color : 0.15Lux(50IRE, @F1.2), 0.0003LUX (SENS-UP, x512)

- B/W : 0.001Lux(50IRE, @F1.2), 0.000002LUX (SENS-UP, x512)

- **SSNR3 (Samsung Super Noise Reduction) Function**

The high-performance W-V DSP chip effectively removes low-light gain noise and afterimage to provide clear images even in dark environments.

- **DAY&NIGHT(ICR)**

This camera has a function that automatically selects the mode that is appropriate for daytime or night-time conditions.

The COLOR mode operates in daytime conditions to provide optimum colors, and B/W mode operates in night-time conditions to enhance the definition of the image.

- **Motion Detection**

Since the camera detects motion without any additional external sensor, you can monitor activity more efficient.

- **UTP TX**

One UTP cable transmits power for the camera, video signals and RS-485 data; installation is easy and clean. (TIA/EIA-568B)

- **SSDR (Samsung Super Dynamic Range)**

For images with high contrast between bright and dark areas from difficult lighting conditions such as backlighting, this camera selectively illuminates darker areas while retaining the same light level for brighter areas to even out the overall brightness.

- **DIS (Digital Image Stabilizer)**

The DIS function compensates for any camera movement, to produce more stable pictures.

- **Communication supported.**

RS-485 and Coaxial communication methods are supported.

- RS-485 Communications : SAMSUNG-T, SAMSUNG-E, PELCO-D, PELCO-P, BOSCH, HONEYWELL, VICON, PANASONIC.

- Coaxial Communications : Pelco Coaxitron

introduction

- **Miscellaneous Functions**

HLC(High Light Compensation), SENS-UP, FLIP (H/V-REV), D-ZOOM, SHARPNESS and PRIVACY functions are provided.

- **OSD**

The camera control is convenient by using 18 different foreign language O.S.D.

- NTSC : English, Korean, Japanese, Spanish, French, Portuguese, Taiwanese

- PAL : English, Chinese, German, Italian, French, Spanish, Russian, Czech, Polish, Romanian, Serbian, Swedish, Danish, Turkish, Portuguese

WHAT'S INCLUDED

Check if the following items are included in the product package.



SUD-2081



Quick Manual



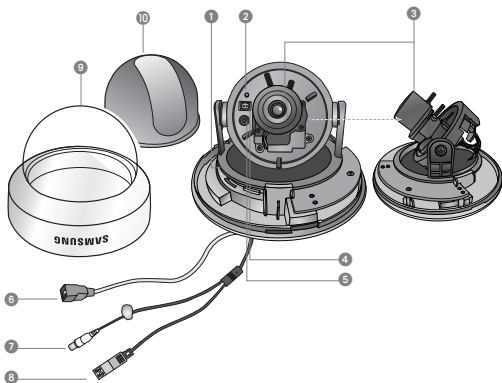
M4 Tapping Screw 3EA



Installation Video
Output Cable

COMPONENT NAMES AND FUNCTIONS

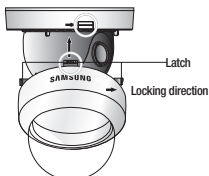
Front



- ① **Pan Bracket** : Control panning angle of camera.
- ② **Rotate Body** : Control rotating angle of camera.
- ③ **x3.6 Vari-focal Lens Module** : 2.8 ~ 10.0mm(F1.2).
- ④ **Video Output Terminal to Monitor**
- ⑤ **Function Setup switch** : Display the menu on the screen and move the cursor to four directions to confirm status or after changing a selected item.
- ⑥ **UTP Cable** : For supplying AC 24V / AC28V power to the camera and transmitting video signals.
- ⑦ **Video Output Jack** : Video signals are output through this port. Connect this port to the Video IN port of a monitor.
- ⑧ **Power input terminal** : If the UTP cable cannot be connected for power supply (distance over 300m(1000ft), for example), this cable is used instead for connecting DC 12V / AC 24V power to the camera.
- ⑨ **Dome Cover**
- ⑩ **Shield Case**

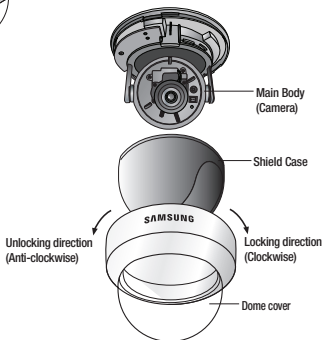
INSTALLATION

1. Separate the dome cover by turning anti-clockwise.
2. Separate the shield case by pulling from the camera body.

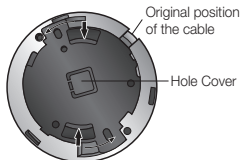


[Figure 1]

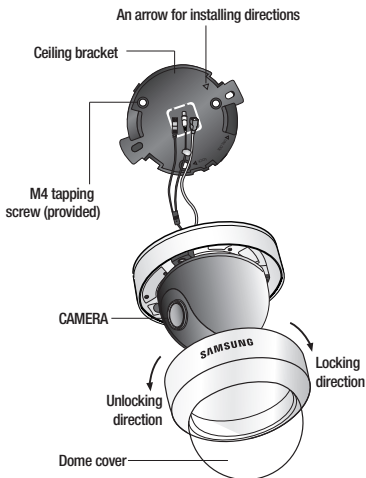
* To install the dome cover on the camera body, turn the latches in locking direction as shown in the [Figure-1].



- The installation should be done by qualified service personnel or system installers.
- If the ceiling material is not strong enough to hold the installation screws, the camera may fall off. Reinforce the ceiling as needed.
- To change the position of the cable, take away the Hole Cover and pass the cable through.

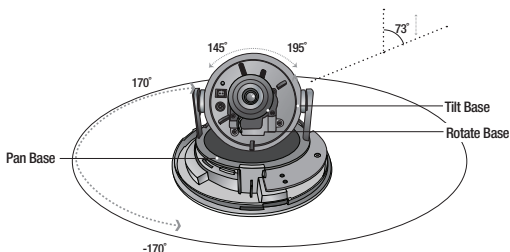


WHEN USING THE CEILING BRACKET



1. Hold down the lock lever on the bottom of the camera in the UNLOCK position and turn it counter clockwise with the other hand to remove the ceiling bracket from the main body.
2. Place the separated ceiling bracket so that the "Front" side faces the area to be monitored and install it with the M4 tapping screws.
3. To combine the main body with the ceiling bracket, make sure that the Pan Base fixing screw face the opposite side of the "Front" side of the ceiling bracket and rotate it clockwise.
4. Adjust the camera lens to face the area to be monitored and fix the main body and the dome cover by aligning the grooves and rotating the body clockwise.

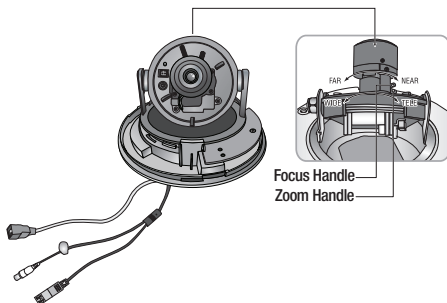
ADJUST THE PANNING, TILTING AND ROTATE MECHANISM WHILE CHECKING THE POSITION ON THE MONITOR



1. You can adjust camera to any direction by using Pan, Tilt, Rotate mechanism.
 - Pan Bracket moves by 170° in each direction or 340° on the whole.
 - Tilt Body covers 73° in each direction or 146° in total.
 - The angle range of the Rotate Body is the same as that of the Pan Bracket. But one direction range is 195° and another is 145°
2. Methods of adjustment
 - Installing the dome on a wall
 - ① After mounting the camera on a wall, adjusting the panning angle so that the camera can face the direction to monitor when tilted.
 - ② Adjust the tilting angle by rotating the tilt base.
 - ③ Loosen the rotate base hold screw and adjust rotate base for the best view.
 - ④ Tighten the rotate base hold screw.
 - Installing the dome on a ceiling
 - ① After mounting the camera on a ceiling, adjusting the panning angle to the correct viewing position by rotating the pan base.
 - ② Adjust the tilting angle by rotating the tilt base.
 - ③ Loosen the rotate base hold screw and adjust rotate base for the best view.
 - ④ Tighten the rotate base hold screw.

ADJUSTING VARIFOCAL LENS ZOOM AND FOCUS

1. Unlock the zoom(focus) handle by turning anti-clockwise.
2. Adjust the zoom(focus) by moving the handle to WIDE(FAR) or TELE(NEAR).
3. After adjustment, tighten the zoom(or the focus) handle, taking care that the adjusted position does not change.

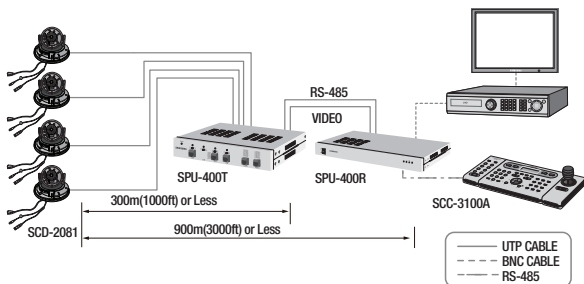


SYSTEM DIAGRAM

UTP Power Supply Link Setup

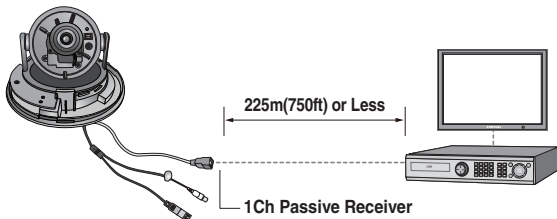
1. SUD-2081 → 4Ch Power Supply → 4Ch Receiver → DVR/Monitor/Controller

The maximum power transmission distance for the camera is 300m(1000ft), and the distance between the camera and the 4ch Receiver cannot exceed 900m(3000ft).



2. UTP Receiver Link Setup(Additional Power input is needed)

SUD-2081 → 1Ch Passive Receiver → DVR → Monitor





- Using the product with third-party UTP peripherals may result in degradation of product function and performance.
- Attenuation and distortion in signal may occur if the maximum transmission distance is exceeded. Please note that depending on the installation environment/condition, the signal may become attenuated and distorted and cause the camera to function incorrectly even when the transmission distance is within the maximum.
- If using RS-485 communication please use the SAMSUNG-T, SAMSUNG-E, PELCO-D, PELCO-P, BOSCH, HONEYWELL, VICON and PANASONIC Protocol.
- If you are using the 1Ch Passive Receiver system setup, please connect the adapter (AC 24V or DC 12V) directly to the camera.

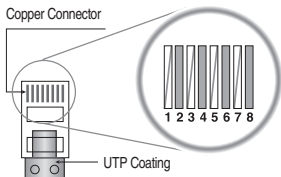
UTP CABLE

The camera uses UTP cable for transmitting video signals, power and transferring RS-485 control data.(TIA/EIA-568B)

No.	Line Color	Camera to Power Supply	Power Supply to Receiver	
1	White+Orange	VIDEO (+)	CH1	VIDEO (+) / RS-485 (+)
2	Orange	VIDEO (-)		VIDEO (-) / RS-485 (-)
3	White+Green	RS485 (+)	CH2	VIDEO (+) / RS-485 (+)
4	Blue	POWER (-)		VIDEO (-) / RS-485 (-)
5	White+Blue	POWER (+)	CH3	VIDEO (+) / RS-485 (+)
6	Green	RS485 (-)		VIDEO (-) / RS-485 (-)
7	White+Brown	POWER (+)	CH4	VIDEO (+) / RS-485 (+)
8	Brown	POWER (-)		VIDEO (-) / RS-485 (-)



RJ-45 CONNECTOR SCHEMATIC DIAGRAM



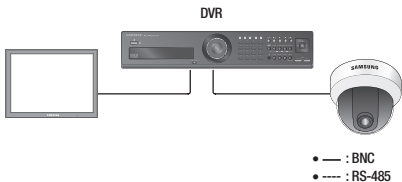
No.	Line Color	Camera to Power Supply	Power Supply to Receiver	
1	White+Orange	VIDEO (+)	CH1	VIDEO (+) / RS-485 (+)
2	Orange	VIDEO (-)		VIDEO (-) / RS-485 (-)
3	White+Green	RS485 (+)	CH2	VIDEO (+) / RS-485 (+)
4	Blue	POWER (-)		VIDEO (-) / RS-485 (-)
5	White+Blue	POWER (+)	CH3	VIDEO (+) / RS-485 (+)
6	Green	RS485 (-)		VIDEO (-) / RS-485 (-)
7	White+Brown	POWER (+)	CH4	VIDEO (+) / RS-485 (+)
8	Brown	POWER (-)		VIDEO (-) / RS-485 (-)

The SUD-2081 uses UTP cable to receive its power (AC24V/AC28V) from the Power Supply. Therefore, a separate adapter is not required. Please refer to the RJ-45 Connector Schematic Diagram.

USING COAXIAL COMMUNICATIONS

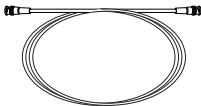
- Coaxial Communications System
- OSD Control method

CAMERA	DVR	CONTROLLER
SET	MENU/ENTER	OSD KEY
UP	UP KEY	JOYSTICK UP
DOWN	DOWN KEY	JOYSTICK DOWN
LEFT	LEFT KEY	JOYSTICK LEFT
RIGHT	RIGHT KEY	JOYSTICK RIGHT



- Video Cable

The camera's video output port is connected to the monitor with a BNC coaxial cable, shown below : If the distance between the camera and the monitor exceeds the recommended maximum, please use an auxiliary video amp.



Distance	Recommended Cable Specification
300m	3C2V(RG-59/U)
450m	5C2V(RG-6/U)
600m	7C2V(RG-11/U)



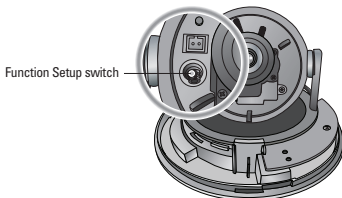
- If the camera is controlled through coaxial communication, please use a video amp intended for coaxial communications. Regular video amps do not transfer coaxial signals.

MENU CONFIGURATION

MAIN SETUP			
LENS	● DC		
EXPOSURE	● BRIGHTNESS ● SENS-UP	● SHUTTER ● RETURN	● AGC
WHITE BAL	● ATW ● MANUAL	● OUTDOOR ● AWC→SET	● INDOOR
SSDR	● OFF	● ON	
BACKLIGHT	● OFF	● BLC	● HLC
SSNR3	● ON	● OFF	
DAY/NIGHT	● AUTO	● COLOR	● B/W
SPECIAL	● IMAGE ADJ ● SYNC ● COMM ADJ	● MONITOR ● MOTION DET ● LANGUAGE	● CAM TITLE ● PRIVACY ● RETURN
EXIT	● SAVE	● NOT SAVE	● RESET

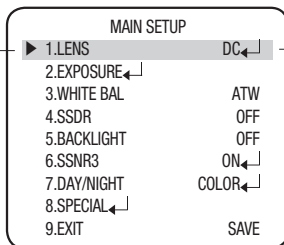
MENU SETUP

Use the Function Setup switch within the camera.



1. Press the Function Setup switch.
 - Main setup menu is displayed on the monitor screen.

Select the function using the Function Setup switch.



Change the status using the Function Setup switch.

2. Select a desired function using the Function Setup switch.
 - Place the cursor over a desired item.
3. Set up a selected item by using the Function Setup switch.
4. To finish the setting, select 'EXIT' and press the Function Setup switch.

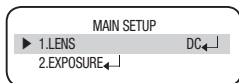


- An item with the ◀ icon also has sub menus. To select a sub menu, select an item with the icon and press the Function Setup switch.
- An item with the - - - icon is unavailable due to function settings.

LENS

Using this function, you can control the screen brightness.

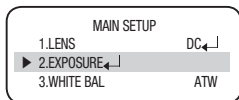
1. When the SETUP menu screen is displayed, select 'LENS' by using the Function Setup switch so that the arrow indicates 'LENS'.
2. The Lens mode has a sub menu, shown below.



- BRIGHTNESS : Adjusts the video brightness.
- FOCUS ADJ : To adjust the lens focus correctly, you must activate the Focus Settings mode. To activate the Focus Settings mode, adjust the lens focus, and then deactivate the settings mode.
 - You can adjust the shutter value of ESC shutter mode.

EXPOSURE

1. When the SETUP menu screen is displayed, select EXPOSURE by using the Function Setup switch so that the arrow indicates 'EXPOSURE'.
2. Select a desired mode using the Function Setup switch.



- **BRIGHTNESS** : Adjusts the video brightness.
- **SHUTTER** : You can select the shutter.
 - --- : Shutter speed is fixed at 1/60sec(1/50sec).
 - **ESC** : Select this to control the shutter speed automatically. If ESC is selected, the shutter speed is automatically controlled depending on the ambient illumination of the subject.
 - **MANUAL** : You can control shutter speed manually.
(NTSC MODEL : 1/60~1/120,000 sec, PAL MODEL : 1/50~1/120,000 sec)
 - **A.FLK** : Select this when you experience picture flicker, which can happen when there is a clash with the frequency of the installed lighting.

EXPOSURE SETUP	
▶ 1.BRIGHTNESS	* 25
2.SHUTTER	---
3.AGC	HIGH
4.SENS-UP	OFF
5.RETURN	↩



- Set the shutter mode to --- if color rolling occurs.
- When the SHUTTER is set to ESC after selecting the Internal Synchronization Type, the picture may become unstable if the camera faces a bright fluorescent light. Therefore, take care when choosing the installation position.
- When the SHUTTER is set to MANUAL or A.FLK mode, SENS-UP will be disabled.
- **AGC (AUTO GAIN CONTROL)** :
The higher the gain level, the brighter the screen- but the higher the noise.
 - **HIGH** : Allows automatic gain control from 5.3dB to 37dB.
 - **OFF** : Deactivates the AGC function.
 - **LOW** : Allows automatic gain control from 5.3dB to 32dB.
- **SENS-UP** : When it is night or dark, the camera automatically detects the light level and maintains a clear picture if this mode is activated.
 - **OFF** : Deactivates the SENS-UP function.
 - **AUTO** : Activates the SENS-UP function.

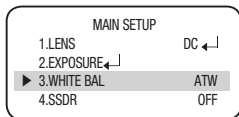


- If you press the Function Setup switch in 'AUTO' mode, You can adjust brightness by adjusting the SENS-UP level. (x2 ~ x512)
- Note that the higher the SENS-UP level, the brighter the screen, but the more likely it is that an after-image will appear.
- Although Noise, Spots, and Whitish symptoms may occur in SENS-UP operation when the sens-up level is increased, this is normal.
- **RETURN** : Select this to save the changes in the EXPOSURE menu and return to the SETUP menu.

WHITE BAL (WHITE BALANCE)

Use the White Balance function to adjust the screen color.

1. When the SETUP menu screen is displayed, select 'White Bal' by using the Function Setup switch so that the arrow indicates 'White Bal'.
2. Select a desired mode using the Function Setup switch.



※ Select one of the following 5 modes, as appropriate for your purpose.

- **ATW** : Select this when the color temperature is between 1,700°K and 11,000°K.
- **OUTDOOR** : Select this when the color temperature is between 1,700°K and 11,000°K.(sodium light inclusion)
- **INDOOR** : Select this when the color temperature is between 4,500°K and 8,500°K.
- **MANUAL** : Select this to fine-tune White Balance manually. Set White Balance first by using the ATW or AWC mode. After that switch to MANUAL mode, fine-tune the White Balance and then press the Function Setup switch.
- **AWC→SET** : To find the optimal luminance level for the current environment, point the camera towards a sheet of white paper and press the Function Setup switch. If the environment changes, readjust it.



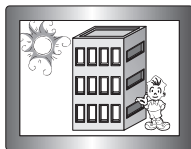
- White Balance may not work properly under the following conditions. In this case select the AWC mode.
 - ① When the color temperature of the environment surrounding the subject is out of the control range (e.g. clear sky or sunset).
 - ② When the ambient illumination of the subject is dim.
 - ③ If the camera is directed towards a fluorescent light or is installed in a place where illumination changes dramatically, the White Balance operation may become unstable.

SSDR (SAMSUNG SUPER DYNAMIC RANGE)

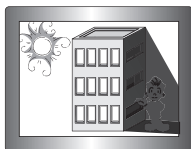
SSDR illuminates darker areas of an image while retaining the same light level for brighter areas to even out the overall brightness of images with high contrast between bright and dark areas.

1. When the SETUP menu screen is displayed, select 'SSDR' by using the Function Setup switch so that the arrow indicates 'SSDR'.
2. Use the Function Setup switch to change the SSDR level in the sub menu according to the contrast between bright and dark areas.

MAIN SETUP	
1.LENS	DC
2.EXPOSURE	←
3.WHITE BAL	ATW
▶ 4.SSDR	OFF
5.BACKLIGHT	OFF



SSDR ON



SSDR OFF

BACKLIGHT

The SUD-2081 is designed so that it delivers a distinctive subject and background at the same time, even when the subject is in backlight, by adopting a function of the proprietary W-V DSP chip.

1. When the SETUP menu screen is displayed, select 'BACKLIGHT' by using the Function Setup switch so that the arrow indicates BACKLIGHT.
2. Select a desired mode using the Function Setup switch depending on the camera purpose.

MAIN SETUP	
1.LENS	DC
2.EXPOSURE	←
3.WHITE BAL	ATW
4.SSDR	OFF
▶ 5.BACKLIGHT	OFF
6.SSNR3	ON

- **OFF** : Not being used
- **BLC** : Enables a user to directly select a desired area from a picture and to view the area more clearly.
 - **LEVEL** : Adjusts the brightness level of a monitoring area.
 - **TOP/BOTTOM/LEFT/RIGHT** : Adjust the area to be enhanced.

BLC SETUP			
▶ LEVEL		MIDDLE	
TOP	*	38	
BOTTOM	*	109	
LEFT	*	54	
RIGHT	*	121	
Press SET to Return			

- **HLC (High Light Compensation)** :
This function masks any areas of peak white light, this minimizes whiteout due to over exposure and thus preserve much of the on-screen details that are within the camera view.
 - **LEVEL** : Adjusts the brightness level of a monitoring area.
 - **LIMIT** : Enable to change the operating condition.
 - **MASK COLOR/TONE** :
Change the color / brightness of the masking area. (Black, Red, Blue, Cyan, Magenta)
 - **TOP/BOTTOM/LEFT/RIGHT** :
Adjust the area to be enhanced.

HLC SETUP			
▶ LEVEL		MIDDLE	
LIMIT		NIGHT ONLY	
MASK COLOR		BLACK	
MASK TONE	*	1	
TOP	*	5	
BOTTOM	*	120	
LEFT	*	5	
RIGHT	*	172	
Press SET to Return			

3. Select a desired mode using the Function Setup switch and press the switch.



- Because there can be a difference in the effectiveness of HLC according to the amount of light area in the screen, optimize the installation angle for the best HLC performance.
- When dark, the HLC is only activated when a bright light exceeding a specific size. (In NIGHT ONLY mode.)
- The HLC is not activated in day light or when bright light is not present at night. (In NIGHT ONLY mode.)

SSNR3

This function reduces the background noise in a low luminance environment.

1. When the SETUP menu screen is displayed, select 'SSNR3' by using the Function Setup switch so that the arrow indicates 'SSNR3'.

2. Select a desired mode using the Function Setup switch.

- **ON** : Activates SSNR3 so that noise is reduced.
- **OFF** : Deactivates SSNR3. Noise is not reduced.

3. Set the SSNR3 mode to 'ON' and press the Function Setup switch. Then you can adjust the noise reduction level.

MAIN SETUP	
1.LENS	DC ◀
2.EXPOSURE ◀	
3.WHITE BAL	ATW
4.SSDR	OFF
5.BACKLIGHT	OFF
▶ 6.SSNR3	ON ◀
7.DAY/NIGHT	AUTO ◀



- You cannot set the SSNR3 to 'ON' or 'OFF' when the AGC mode of the EXPOSURE menu is 'OFF'.
- When adjusting the noise reduction level of the SSNR3 mode, remember that the higher the level set, the more the noise level will be reduced but that after image may also occur.

DAY/NIGHT

You can display pictures in color or black and white.

1. When the SETUP menu screen is displayed, select 'DAY/NIGHT' by using the Up and Down buttons so that the arrow indicates 'DAY/NIGHT'.

2. Select a desired mode using the Left and Right buttons according to the picture display you want.

MAIN SETUP	
1.LENS	DC ◀
2.EXPOSURE ◀	
3.WHITE BAL	ATW
4.SSDR	OFF
5.BACKLIGHT	OFF
6.SSNR3	ON ◀
▶ 7.DAY/NIGHT	AUTO ◀
8.SPECIAL ◀	

- **AUTO** : The mode is switched to 'Color' in a normal environment, but switches to 'B/W' mode when ambient illumination is low. To set up the switching time for AUTO mode, press the Function Setup switch. You can turn on or off the burst signal on B/W mode.

AUTO SETUP	
▶ 1.BURST MODE	ON
2.COLOR→B/W	
DURATION	FAST
DWELL TIME	3 SEC
3.B/W→COLOR	
DURATION	FAST
DWELL TIME	10 SEC
4.RETURN←	

- **DURATION** : You can select brightness of illumination about changing the day/night mode.
- **DWELL TIME** :
You can select the duration time about changing the day/night mode.
→3s, 5s, 7s, 10s, 15s, 20s, 30s, 40s, 60s

- **COLOR** : The picture is always displayed in color.
- **B/W** : The picture is always displayed in black and white.
You can turn on or off the burst signal on B/W mode.



- When AGC in the EXPOSURE menu is 'OFF', AUTO mode is not available to select.

SPECIAL

1. When the SETUP menu screen is displayed, select 'SPECIAL' by using the Function Setup switch so that the arrow indicates 'SPECIAL'.
2. Select a desired mode using the Function Setup switch.

MAIN SETUP	
1.LENS	DC←
2.EXPOSURE←	
3.WHITE BAL	ATW
4.SSDR	OFF
5.BACKLIGHT	OFF
6.SSNR3	ON←
7.DAY/NIGHT	COLOR←
▶ 8.SPECIAL←	
9.EXIT	SAVE

• IMAGE ADJ :

1) When the SPECIAL menu screen is displayed, select 'IMAGE ADJ' by using the Function Setup switch so that the arrow indicates 'IMAGE ADJ'.

2) Select a desired mode using the Function Setup switch.

- V-REV : You can flip the picture vertically on the screen.

- H-REV : You can flip the picture horizontally on the screen.

- D-ZOOM : You can use a digital zoom of x1~x16.

- DIS (Digital Image Stabilizer) : This function mitigates any picture movement due to external factors such as wind.

- FONT COLOR : You can change the OSD font color. (White, Yellow, Green, Red, Blue)

- SHARPNESS : As you increase this value, the picture outline becomes stronger and clearer. Adjust this value appropriately depending on the sharpness of the picture.

- RETURN : Select this to save the settings for the IMAGE ADJ menu and to return to the SPECIAL menu.

SPECIAL	
► 1.IMAGE ADJ◀	
2.MONITOR	LCD◀
3.CAM TITLE	OFF
4.SYNC	INT
5.MOTION DET	OFF
6.PRIVACY	OFF
7.COMM ADJ◀	
8.LANGUAGE	ENGLISH
9.RETURN◀	

IMAGE SETUP	
► 1.V-REV	OFF
2.H-REV	OFF
3.D-ZOOM	OFF
4.DIS	OFF
5.FONT COLOR	WHITE
6.SHARPNESS	ON◀
7.RETURN◀	



- When the V-REV or H-REV mode is enabled, the text on the screen does not flip.
- If you increase the SHARPNESS level too high, the picture may become distorted or noise may appear.
- As the DIS function uses the digital zoom, the camera's resolution will decrease.
- DIS doesn't operate when background illumination is too low.
- DIS doesn't operate when object pattern is monotonic as like sky or white wall.

• Monitor : Please change the settings value of video appropriate to your monitor.

- LCD : Please select this menu item when using an LCD monitor.
You can change the gamma, PED level and color gain in the sub menus.

- USER : Please use this menu item when using a monitor other than standard ones. You can change the gamma, PED level and color gain in the sub menus.

- CRT : Please select this menu item when using a CRT monitor. You can change the PED level, color gain in the sub menus.

LCD MONITOR	
► GAMMA	0.55
PED LEVEL	■■■■■■■■■■ 17
COLOR GAIN	■■■■■■■■■■ 50
RESET	
Press SET to Return	

● **CAM TITLE :**

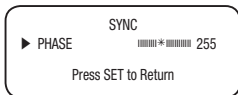
If you enter a title, the title will appear on the monitor.

- ① If the SPECIAL menu screen is displayed, use the Function Setup switch so that the arrow indicates 'CAM TITLE'.
- ② Set it to 'ON' by using the Function Setup switch.
- ③ Press the Function Setup switch.
- ④ Use the Function Setup switch to move to a desired letter and select the letter by pressing the switch. Repeat this to enter multiple letters. You can enter up to 15 letters.
- ⑤ Enter a title, move the cursor to 'POS' and press the Function Setup switch. The entered title appears on the screen. Select the position to display the title on the screen by using the Function Setup switch and press. When the position is determined, select 'END' and press the Function Setup switch to return to the SPECIAL menu.



- When the CAM TITLE menu is 'OFF', no title will be displayed on the monitor screen even if you enter one.
- Only English is available in this mode.
- If you move the cursor to CLR and press the Function Setup switch, all the letters are deleted. To edit a letter, change the cursor to the bottom left arrow and press the Function Setup switch. Move the cursor over the letter to be edited, move the cursor to the letter to be inserted and then press the Function Setup switch.

- **SYNC :** In areas where the supply is at 60Hz(NTSC), 50Hz(PAL), you can synchronize the output phase of multiple cameras using the power synchronization function (Line-Lock) without using a synchronization signal generator.



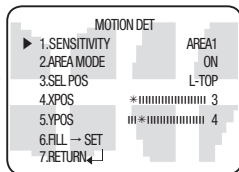
- INT : Internal Synchronization Type
- L/L : Power Synchronization Type, Line-lock
 - Press the Function Setup switch.
 - You can select a desired phase from 0 to 359 when select 'phase'.



- When using AC power at 60Hz(NTSC), 50Hz(PAL) frequency, you can use the L/L type synchronization.
- When the power is DC 12V, the SYNC menu is fixed to the 'INT' mode.
- When using RJ-45 Connector, you can't use the L/L type synchronization.

• MOTION DET :

This product has a feature that allows you to observe movement of objects in 8 different areas on the screen, and the words 'MOTION DETECTED' appear on the screen when movement is detected. You can monitor activity more efficient.



- ① When the SPECIAL menu screen is displayed, press the Function Setup switch so that the arrow indicates 'MOTION DET'.

- ② Set up the mode using the Function Setup switch.

- **SENSITIVITY** : You can select up to 8 MD areas. When SENSITIVITY number is high, motion detection sensitivity is increased to recognize even small movement.
- **AREA MODE** : Determines whether to use the MD area selected in SENSITIVITY.
- **SEL POS** : Determines which of the 4 vertices of each MD area is to be used.
- **XPOS** : Determines the coordinate of the horizontal axis for SEL POS.
- **YPOS** : Determines the coordinate of the vertical axis for SEL POS.
- **FILL → SET** : Fills in a selected MD area. The color of filling is sequentially selected as brown, orange, blue, cyan, yellowish green, yellow, magenta and red.
- **RETURN** : Select this to save the MOTION DET menu settings and return to the SPECIAL menu.

- **PRIVACY** : Mask an area you want to hide on the screen,

① When the SPECIAL menu screen is displayed, press the Function Setup switch so that the arrow indicates 'PRIVACY'.

② Set up the mode using the Function Setup switch.

- **AREA** : You can select up to 12 PRIVACY areas.
- **MODE** : Determines whether to use the area selected.
- **MASK COLOR** : Determine area color. You can select GREEN, RED, BLUE, BLACK, WHITE and GRAY.
- **MASK TONE** : Adjust the brightness of MASK COLOR.
- **TOP/BOTTOM/LEFT/RIGHT** : Adjust the size and position of the selected area.
- **RETURN** : Select this to save the PRIVACY menu settings and return to the SPECIAL menu.

PRIVACY AREA SETUP		
▶ 1.AREA		AREA1
2.MODE		OFF
3.MASK COLOR		GREEN
4.MASK TONE	*■■■■■■■■	1
5.TOP	■■■■■■■■	39
6.BOTTOM	■■■■■■■■	79
7.LEFT	*■■■■■■■■	13
8.RIGHT	■■■■■■■■	52
9.RETURN	↵	

- **COMM ADJ (Communication Adjustment)** :

This function sets up the camera communication status when controlling the camera through an external control device.

① When the SPECIAL menu screen is displayed, press the Function Setup switch so that the arrow indicates 'COMM ADJ'.

② Set up the mode using the Function Setup switch.

- **CAM ID** : Determines the camera's identification number (between 0 and 255).
- **BAUD RATE** : You can select 2400/4800/9600/19200/38400/57600 bps.
- **UART MODE** : You can select NONE, EVEN or ODD for the parity bits.
- **RET PKT** : Determines whether to send a command back to the controller device when a communication control command is sent to the camera.
- **DISP ID** : Display camera title on top left corner of the screen.
- **PROTOCOL** : Select the communication PROTOCOL.
(SAMSUNG-T, SAMSUNG-E, PELCO-D, PELCO-P, BOSCH, HONEYWELL, VICON and PANASONIC)

COMM SETUP		
▶ 1.CAM ID	*■■■■■■■■	1
2.BAUD RATE		9600
3.UART MODE		8-N-1
4.RET PKT		ENABLE
5.DISP ID		OFF
6.PROTOCOL		STW1
7.RETURN	↵	

- **RETURN** : Select this to save the PRIVACY menu settings and return to the SPECIAL menu.

* Initial value of communication adjustment

Item	Camera ID	BAUD RATE	UART MODE	PET PKT
Initial value	1	9600	8-NONE-1	ENABLE



- As below, the names of protocol have been changed.

- STW(SPD) → SAMSUNG-T
- SEC → SAMSUNG-E

- **LANGUAGE** : You can select the menu language according to your requirements.
- **RETURN** : Select this to save the SPECIAL menu settings and return to the MAIN SETUP menu.

EXIT

Select a desired EXIT mode using the Function Setup switch depending on the camera purpose.

- **SAVE** : Save the current settings and exit the MAIN SETUP menu.
- **NOT SAVE** : Do not save the current settings and exit the MAIN SETUP menu.
- **RESET**: Resets the camera settings to the factory defaults.
Language and Monitor settings are not initialized.

TROUBLESHOOTING

If you have trouble operating your camera, refer to the following table. If the guidelines do not enable you to solve the problem, contact an authorized technician.

PROBLEM	SOLUTION
Nothing appears on the screen.	▶ Check that the power cord and line connection between the camera and monitor are properly connected. ▶ Check that you have properly connected UTP cable or BNC cable to the camera. ▶ Check the pin arrangement for the UTP cable. (TIA/EIA-568B)
The image on the screen is dim.	▶ Is lens stained with dirt? Clean your lens with soft, clean cloth. ▶ Set the monitor to the proper condition. ▶ If the camera is exposed to very strong light, change the camera position.
The image on the screen is dark.	▶ Adjust the contrast feature of the monitor. ▶ If you have an intermediate device, set the 75Ω / Hi-z properly.
The camera is not working properly, and the surface of the camera is hot.	▶ Check that you have properly connected the camera to an appropriate power source.
The SENS-UP function does not work.	▶ Check that AGC of EXPOSURE SETUP menu is 'OFF'. ▶ Check that SHUTTER of EXPOSURE SETUP menu is 'A.FLK' or 'MANUAL'.
The Motion Detection function does not work.	▶ Check that MOTION DEF of SPECIAL SETUP menu is 'OFF'.
Color is not correct.	▶ Check the setting of WHITE BAL SETUP menu .
The screen flickers continually.	▶ Check that the camera is not pointing at the sun.
When coaxial communication is not available	▶ Make sure that the camera and monitor are installed within the recommended distance. ▶ Use the video amplifier equivalent to coaxitron if the recommended installation distance is exceeded.
Picture is distorted.	▶ Check the length of the UTP cable (900m(3000ft) or less).
The camera does not work, and the video feed from the camera is not being received.	▶ Check the Power Supply to see whether the connection status and pin arrangement for the camera's UTP cable and the Camera Input UTP cable are normal.

specifications

SPECIFICATIONS

	SUD-2081N	SUD-2081P
Video		
Imaging Device	1/3 inch, Diagonal 6mm Super HAD CCD	
Total Pixels	811(H) x 508(V)	795(H) x 596(V)
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Scanning System	2:1 Interlace	
Synchronization	Internal / Line-Lock	
Frequency	H : 15.734KHz V:59.94Hz	H: 15.625KHz V: 50.00Hz
Horizontal Resolution	COLOR : 600TVL, B/W : 700TVL	
Min. Illumination	COLOR : 0.15 Lux (50IRE, @F1.2), 0.0003Lux (SENS-UP, x512) B/W : 0.001Lux (50IRE, @F1.2), 0.000002Lux (SENS-UP, x512)	
S/N (Y Signal)	52dB (Weight On, AGC Off)	
Video Output	CVBS : 1.0Vp-p, 75Ω composite	
UTP	Built-in UTP TX (Maximum transmission length 900m(3000ft)) : Balanced differential signal 100Ω	
Lens Type		
Focal Length (Zoom Ratio)	2.8 ~ 10mm (3.6x)	
Max. Aperture Ratio	1:1.2(Wide) ~ 2.8(Tele)	
Angular Field of View	H: 94.4°(Wide) ~ 28°(Tele) / V: 69.2°(Wide) ~ 21°(Tele)	
Min. Object Distance	0.2m	
Lens Type	DC Auto Iris	
Mount Type	Board Type	
Pan / Tilt		
Pan Range	0° ~ 352°	
Tilt Range	0° ~ 73°	
Rotate Range	0° ~ 348°	
Operational		
ON Screen Display	NTSC : English, Korean, Japanese, Spanish, French, Portuguese, Taiwanese PAL : English, Chinese, German, Italian, French, Spanish, Russian, Czech, Polish, Romanian, Serbian, Swedish, Danish, Turkish, Portuguese	

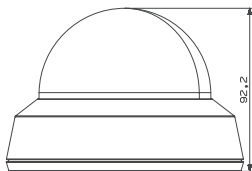
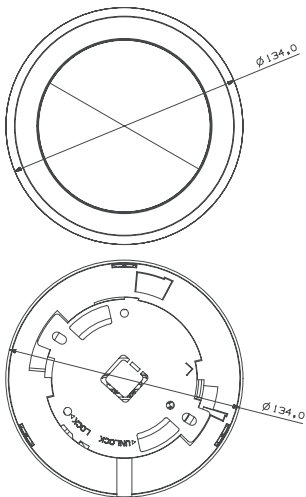
	SUD-2081N	SUD-2081P
Camera Title	Off / On (Displayed 15 characters)	
Day & Night	Auto (ICR) / Color / B/W	
Backlight Compensation	BLC / HLC / Off	
Contrast Enhancement	SSDR (Off/On)	
Digital Noise Reduction	SSNR _{III} (Off/On)	
Digital Image Stabilization	Off / On	
Motion Detection	Off / On (8 programmable zones)	
Privacy Masking	Off / On (12 programmable zones)	
Sens-up (Frame Integration)	2x ~ 512x	
Gain Control	Off / Low / High	
White Balance	ATW / Outdoor / Indoor / Manual / AWC (1,700K° ~ 11,000K°)	
Electronic Shutter Speed	1/60 ~ 1/120,000 sec	
Digital Zoom	Off / On (1x ~ 16x)	
Reverse	H-Rev (Off/On), V-Rev (Off/On)	
Communication	RS-485, Coaxial Control (SPC-300 Compatible)	
Protocol	Coax : Pelco-C (Coaxitron) RS-485 : Samsung-T, Samsung-E, Pelco-D, Pelco-P, Panasonic, Bosch, Honeywell, Vicon	
ENVIRONMENTAL		
Operating Temperature/Humidity	-10℃ ~ +55℃ (+14°F ~ +131°F) / Less than 90% RH	
ELECTRICAL		
Input Voltage	28VAC ±10%, 24VAC±10% & 12VDC±10%	
Power Consumption	Max 3.5W	
MECHANICAL		
Color / Material	Ivory, Plastic (Dome Cover : Clear)	
Dimension (WxH)	Ø 134 x 92 mm	
Weight	375 g	

- ※ The specification for this product may change without prior notice for product improvement.
- ※ This specification is based on a transmission distance of 500 meters; in cases of long-distance transmissions, some degradation in picture quality may occur depending on the operating environment.

specifications

DIMENSION

Unit : mm (Inches)



MEMO

MEMO

MEMO



SALES NETWORK

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