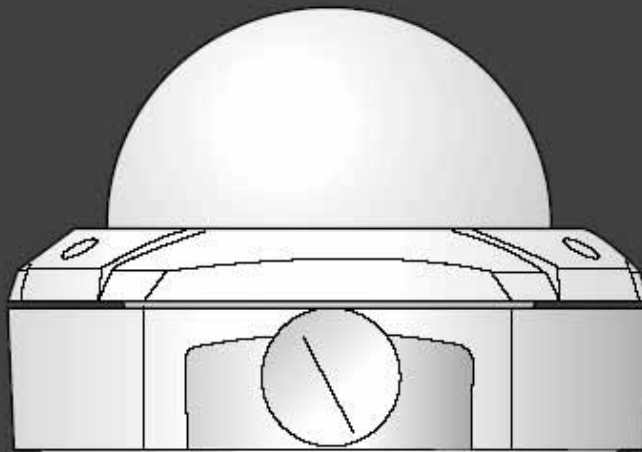




Super Wide Dynamic Range
Vandal Dome Color Camera

MANUAL

DWC-540DV





The lightning flash with an arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING - Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.







CAUTION : To prevent electric shock and risk of fire hazards:

Do NOT use power sources other than that specified.

Do NOT expose this appliance to rain or moisture.

This installation should be made by a qualified service person and should conform to all local codes

■ Warning

-  **The camera needs periodic inspection.**
Contact an authorized technician for inspection.
-  **Stop using your camera when you find a malfunction.**
If you use your camera around smoke or unusual heat for a long time, fire may be caused.
-  **Do not install the camera on a surface that can not support it.**
Unless the surface is suitable, it could cause falling or other hazards.
-  **Do not hold plug with wet hands.**
It could cause an electric shock.
-  **Do not disassemble the camera.**
It may result in fire, electric shock or other hazards.
-  **Do not use the camera close to a gas or oil leak.**
It may result in fire or other hazards.

■ Contents

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1. Features

😊 **High resolution color for crisp, clear video**

- Progressive image capture
- 540 HTVL equivalent

😊 **High sensitivity for low-light images**

- Advanced noise reduction technology

😊 **Wide Dynamic Range provides excellent quality in high-contrast environments**

- 120dB maximum dynamic range

😊 **Optimum Exposure Mode presets**

- Best pictures in a variety of applications

😊 **EDNR (Electronic Digital Noise Reduction)**

- The amount of low illuminance noise has been significantly reduced, and the signal-to-noise ratio (S/N ratio) as well as horizontal resolution have been improved, resulting in a clear and sharp image display even in the dark.

😊 **Controlled by OSD Menu**

- The camera can be controlled by selecting text displayed on the monitor screen.

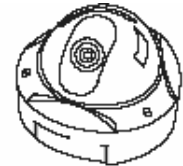
😊 **Additional Functions**

- Automatic White Balance
- Backlight Compensation
- Automatic Gain Control
- Activity / Motion detection
- Digital Pan / Tilt / Zoom
- Day / Night

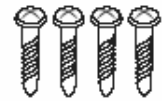
2. Components and Cable Connection

1) Components

1) COLOR DOME CAMERA



2) SCREWS



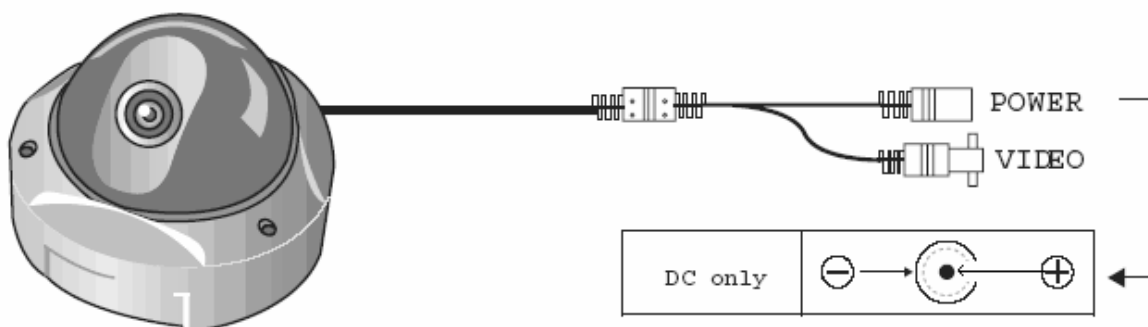
3) WRENCH



4) MANUAL

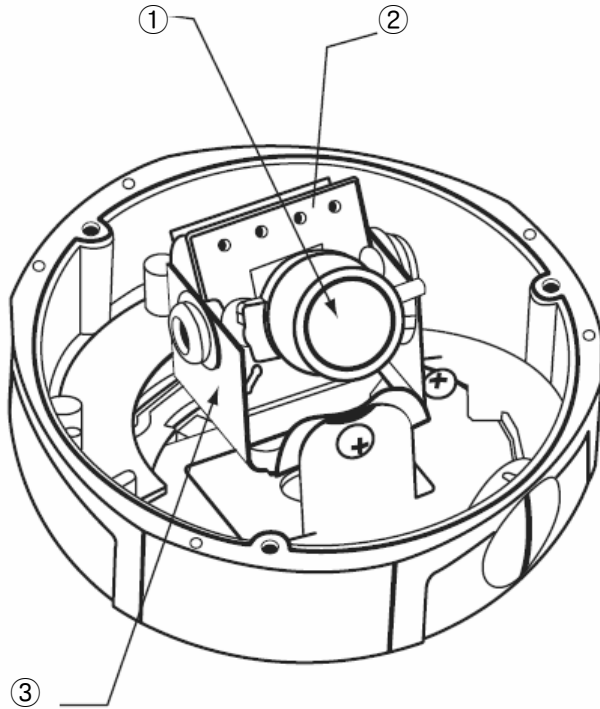


2) Cable Connection



3. Names and Functions of Parts

1) Names and functions of parts



① **Lens : Vari-Focal Auto Iris Lens (2.9mm ~10.0mm / F1.2)**

② **OSD PCB**

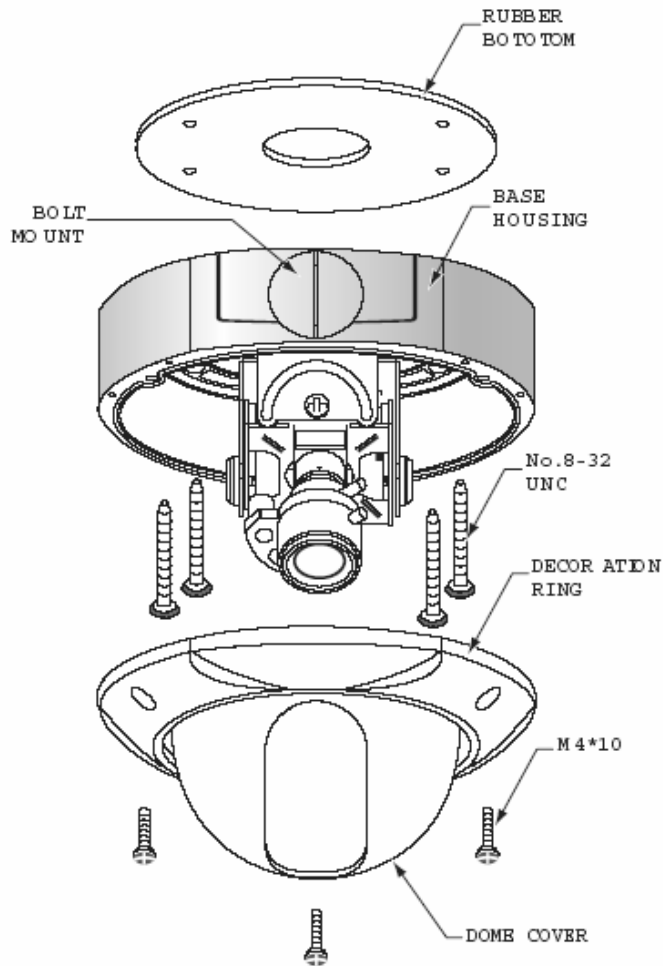
- **Setup button** : Used for the menu display. This button can be used to confirm settings after changing the value of the selected function or current conditions.
- **Up & Down buttons** : Used for selecting items by moving the cursor up or down on the menu screen.
- **Left & Right buttons** : Used when changing item values, by moving the cursor to the left or right on the menu screen.

③ **3 Axis bracket**

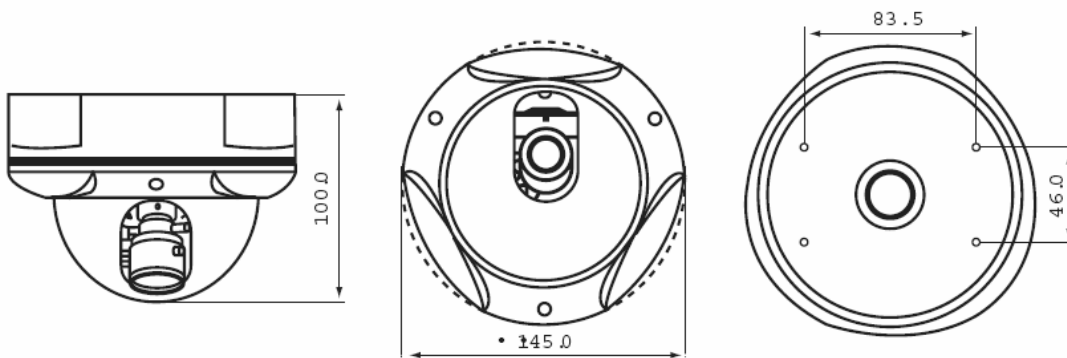
- Please loosen screws and fix tilted and panned position.

4. Installation & Dimensions

1) Installation



2) Dimensions



5. Menu Flow

1) Setup Page Menu

SETUP PAGE		
LENS & VIDEO I/O SETUP	LENS	DC VIDEO MANUAL
	VIDEO	NTSC PAL
RESOLUTION	HIGH NORMAL	
WDR	AUTO HIGH CUSTOM LOW	
WB CONTROL	AUTO ATWDes AWC MANUAL	SAVE AWC & ALL CHNGS ADJ MODE KELVIN
AGC	AUTO OFF LOW HIGH HIGHER HI'EST	
DNR	AUTO OFF	
SENS & MOTION-UP	PRESETS CONTROL DSS CONTROL 2FIELDS~32FIELDS WHITE BALANCE SPEED EXPOSURE SPEED DYNAMIC RANGE SPEED	
SPECIAL PAGE EXIT		

2) Special Page 1 Menu

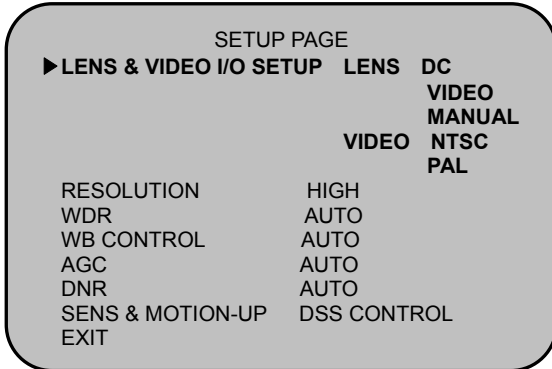
SPECIAL PAGE 1			
CAMERA ID	OFF ON	CAMERA ID POSITION	UP-DOWN UP-CENTER UP-RIGHT DOWN-LEFT DOWN-CENTER DOWN-RIGHT
DAY&NIGHT	OFF AUTO ON		
SYNC	INT EXT		
MOTION DETECTION	OFF ON		
ZOOM PT	OFF ON		
BACKLIGHT	OFF ON		
AE PREFERENCE	LIGHTS SHADOW		
SAVE & RETURN PAGE 2			

3) Special Page 2 Menu

SPECIAL PAGE 2	
MIRROR	OFF ON
FREEZE	OFF 15 Frms SET FREEZE
SHARPNESS	- 8 ----- 8
FLICKERNESS	OFF ON
FLUORESCENT LIGHT	ON OFF
FACTORY RESET	
SYSTEM INFORMATION	FW Rev
SAVE & RETURN PAGE 1	

6. SETUP PAGE MENU

1. LENS & VIDEO I/O SET



- Lens

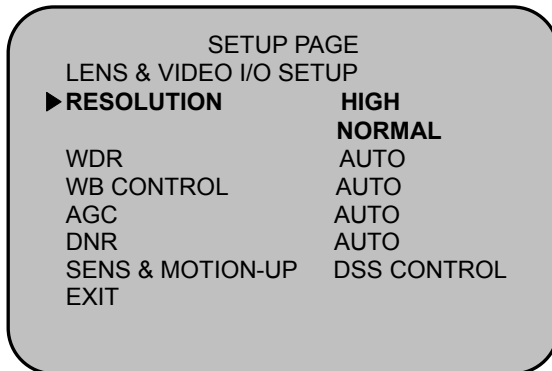
Choose the lens type DC, Video and manual lens by using the selector button.

- Video I/O

Choose video system between PAL and NTSC by moving the selector.

2. RESOLUTION

Choose resolution between high and normal with the selector (right/left).

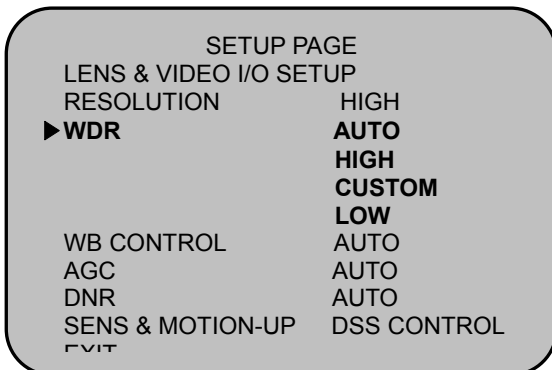


- The high resolution supports Progressive Rate video up to 540 TV Line and the normal resolution supports 480 TV Line.

3. WDR

Wide Dynamic Range is essential for capturing the images at all light levels.

The main function of the WDR is to accumulate the scope of contrast between the brightest and darkest points in the picture. With the AUTO option, the distribution of brightness values is automatically adapted to the recording scenario.

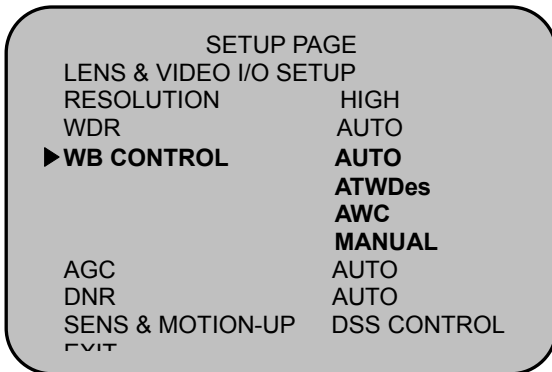


- User can select the desired level HIGH, CUSTOM & LOW, in addition to automatic adaptation (Auto), by moving the selector button.

4. WB CONTROL (White Balance Modes)

White Balance is a function which compensates different colors of light being emitted from different light sources.

Users can select the above levels as they desire according to the environment.



- **AUTO (Auto Tracking White Balance)**
The Auto Tracking White Balance (ATW) mode continuously monitors color temperature. With WB Control set to ATW, color temperature & White balance can be automatically adjusted accordingly.

- **ATWDesat (ATW Desaturating)**

When WB is set to ATWDesat, the Extended Color temperature is desaturated i.e when there is a excess of light temperature , ATWDesat Function is used as well as it reduces the Noise. The limits of the color temperature setting remain 2000K and 11,000K.

- **AWC (Auto White Balance)**

When set to AWC, Color temperature of the Light is automatically adjusted.

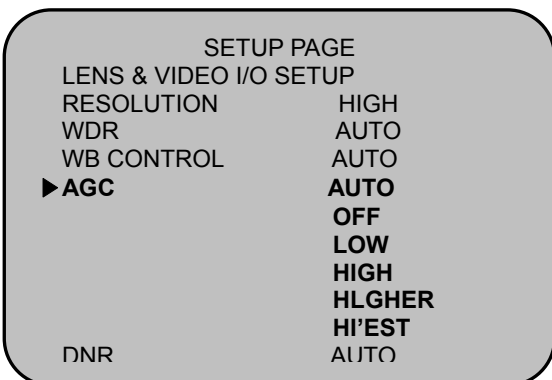
- **Manual (Manual White Balance)**

Manual White Balance (MWB) Mode is used when other White Balance Options are failed.

5. AGC

Automatic Gain Control is a feature which adjust automatically according to the incoming Signal.

By positioning the arrow to 'AGC' on the SETUP menu with the help of UP and DOWN buttons ,you can select the Mode you wish to go



- **AUTO:** The Sensitivity increases automatically when the light is low.
- **OFF :** A Low Noise Picture is obtained under a low light.
- **As the level of gain increases, the screen gets brighter and the level of noise also increases.**

6. DNR

DNR is Digital Noise Reduction System with a maximum gain of 24 DB.

SETUP PAGE	
LENS & VIDEO I/O SETUP	
RESOLUTION	HIGH
WDR	AUTO
WB CONTROL	AUTO
AGC	AUTO
▶ DNR	AUTO
	OFF
SENS & MOTION-UP	DSS CONTROL
EXIT	

- By Setting it to AUTO Mode, Noise Will be Little & OFF Mode Vice versa.

7. SENS & MOTION-UP

You can control DSS levels and speed levels of camera to optimize the camera condition in this mode.

SETUP PAGE	
LENS & VIDEO I/O SETUP	
RESOLUTION	HIGH
WDR	AUTO
WB CONTROL	AUTO
AGC	AUTO
DNR	AUTO
▶ SENS & MOTION-UP	PRESETS CONTROL
	DSS CONTROL
	WHITE BLANCE SPEED
	EXPOSURE SPEED
	DYNAMIC RANGE SPEED

- **PRESETS CONTROL**

This feature automatically processes the viewed image to retain color balance over a color temperature range.

User can select one of the 5 modes according to the environment.
(NORMAL / INDOOR / OUTDOOR / FLOURESENT / CUSTOM)

- **DSS CONTROL (DIGITAL SLOW SHUTTER)**

The Levels of Fields are ranged from 2X ~32X.

User can set slow shutter limit from 2x ~ 32x and select COLOR or B/W image when slow shutter is operated by setting SS PROTERTY.

When DSS is set OFF, it operates with AGC in low light condition to keep the color image.

When DSS is set "ON" ,the camera will merge into the slow shutter mode in low light condition.

The default SLOW SHUTTER setting is OFF.

- WHITE BALANCE SPEED

- ① ATW Slew

ATW slew controls the rate of change when transitioning from one color temperature to another,

An example of this would be panning the camera from an indoor fluorescent scene of 4000K out a window to a daylight scene of 6500K.

The slew property tells the camera how fast to make the adjustment from 4000K to 6500K. The property itself is a value from 1 to 100, with 1 being the fastest slew and 100 being the slowest.

- ② HYST

White balance auto hysteresis sets a threshold around the current color temperature reading.

The measured color temperature must exceed this threshold before the current white balance setting will change.

The purpose of hysteresis is to insure that the camera does not dither back and forth between two different modes of operation when the meter readings are near a boundary between the two modes.

However, making the hysteresis threshold too high will make the camera appear unresponsive.

- 4) EXPOSURE & Dynamic range speed

- ① Filter

The first step in processing camera response and transition rates is to apply a low-pass filter to incoming exposure readings. This filter can be set to prevent the camera from responding to very fast transient changes in meter readings.

The typical use of the filter is to keep the camera output stable when monitoring a high activity scene.

- ② HYST

The filter block is followed by the hysteresis block. It requires the filtered exposure readings to exceed a programmable threshold before the camera will respond.

This can prevent the camera from dithering back and forth between two different modes of operation when the meter readings are near a boundary between the two modes.

However setting the hysteresis parameters too high can make the camera appear unresponsive..

The filter and hysteresis blocks effectively control what scene changes the camera will respond to. They can be set to make the camera effectively ignore changes that are too

fast or too small. If a change in meter reading is substantially enough to pass through these two blocks, the camera will respond. Then it's a question of how quickly the camera will respond—which is the purpose of the next block.

③ Trans

The role of the transition block is to control the rate of the transition from old to new camera settings.

They control how big a transition can be made from the current setting to the target setting at each step.

Set to their maximum values, the camera can make the transition from old to new setting in one step.

Though the transition is as fast as possible, it can appear very rough.

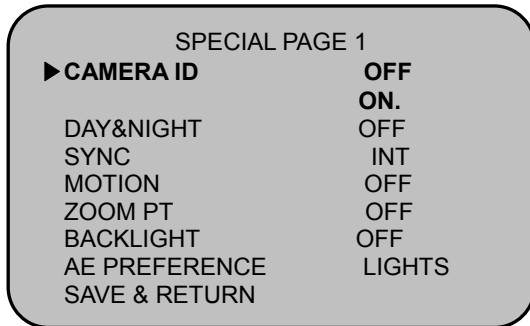
Smaller values for the transition properties make the transitions smoother but slower.

7. SPECIAL PAGE 1 MENU

1. CAMERA ID

User can enter a unique name for the respective camera.

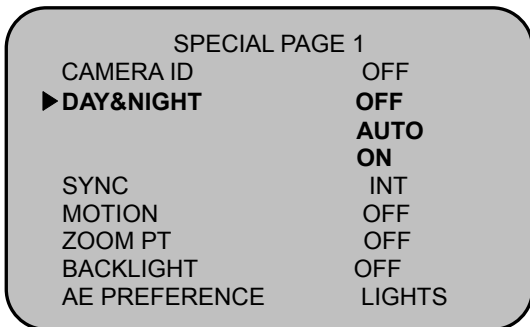
The maximum length of the ID is eight characters.



- You can choose the ON and OFF with the selector. If you select ON, the entered camera ID is displayed at the selected position in the video picture (normal operation).
- Please select the setup button while in ON mode.
- Select the desired position with the selector.

2. DAY&NIGHT

Day/Night mode helps increase of the camera sensitivity in very dark situations



- When Day&Night is OFF, Day& Night is inactivated.
- When Day& Night is ON , it comes into effect.
- When Day & Night is AUTO, it produces monochrome light automatically .

3. SYNC

“ Sync “ mode is fixed to INT in DC12V input power

4. MOTION DETECTION

This product has a feature that allows you to observe movements of objects in 4 different areas on the screen, and the words 'MOTION DETECTED' appear on the screen when movement is detected; hence a single individual can conduct supervision efficiently. The camera detects an object's movement by sensing disparity of outline, and level of brightness and color.

SPECIAL PAGE 1	
CAMERA ID	OFF
DAY&NIGHT	OFF
SYNC	INT
▶ MOTION DETECTION	OFF ON
ZOOM PT	OFF
BACKLIGHT	OFF
AE PREFERENCE	LIGHTS
SAVE & RETURN	

- Off : Motion detection mode is cancelled.
- On : Any motion in the selected areas is observed.

- Please select the setup button while in ON mode.

MOTION DETECTION	
ACTIVITY THRES	0 ----- 100
DIGITAL ZOOM	1-----4
DIGITAL PAN	-100-----100
DIGITAL TILT	-100-----100
SETUP MOTION DETECTION ZONE	
PREVIOUS PAGE	

User can setup camera position and motion detection zone, when the camera detects motion.

5. ZOOM PT ON/OFF

Digital P/T/Z are used to create a zoom lens effect. Zoom Factor (1x to 4x)

Pan ($\pm 100\%$, center of image can be moved to left and right edges of screen)

Tilt ($\pm 100\%$, center of image can be moved to top and bottom edges of screen)

SPECIAL PAGE 1	
CAMERA ID	OFF
DAY&NIGHT	OFF
SYNC	INT
MOTION	OFF
▶ ZOOM PT	OFF ON
BACKLIGHT	OFF
AE PREFERENCE	LIGHTS
SAVE & RETURN	

- By Selecting ON , Zoom PT is enabled.
- By Selecting OFF, Zoom PT is disabled.

6. BACKLIGHT ON/OFF

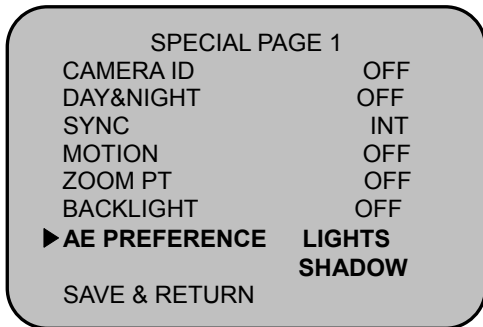
Backlight is feature of a Camera which compensates when there is a large amount of background light.

SPECIAL PAGE 1	
CAMERA ID	OFF
DAY&NIGHT	OFF
SYNC	INT
MOTION	OFF
ZOOM PT	OFF
▶ BACKLIGHT	OFF ON
AE PREFERENCE	LIGHTS
SAVE & RETURN	

- When Backlight is ON, Back Light gets activated.
- When Backlight is OFF, it is inactivated.

7. AE PREFERENCE

The camera user has a choice to optimize the scene when high dynamic range lighting is detected by setting the Automatic Exposure Preference.



- SHADOW

When AE Preference is set to shadow, the camera will adjust the exposure so that dark parts of the image are most visible; bright parts of the image may saturate.

- LIGHTS

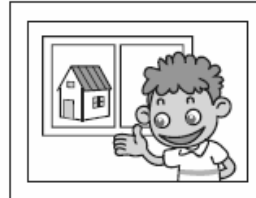
When AE Preference is set to highlights, the camera will adjust the exposure so that bright parts of the image are most visible; dark parts of the image may go into black.

8. SPECIAL PAGE 2 MENU

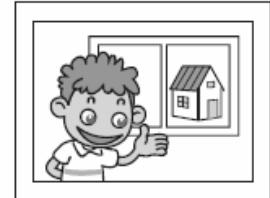
1. MIRROR

Select “OFF” to show the image as normal. Select “ON” to reflect image horizontally.

SPECIAL PAGE 2	
▶ MIRROR	OFF
	ON
FREEZE	OFF
SHARPNESS	- 8 --- 8
FLICKERNESS	OFF
FLUORESCENT LIGHT	ON
FACTORY RESET	
SYSTEM INFORMATION	FW Rev
SAVE & RETURN	



MIRROR ON



MIRROR OFF

2. FREEZE

When frame repeat count is set to 0, the same image continues to repeat until the property value is changed. This has the effect of a “freeze frame.”

Note: If frame repeat count is set to 0 (Freeze), the user should NOT be allowed to do a save user settings, as this will cause an inconsistent state with no loaded image at boot/reset.

SPECIAL PAGE 2	
MIRROR	OFF
	ON
▶ FREEZE	OFF
	15 Frms
	SET
SHARPNESS	- 8 --- 8
FLICKERNESS	OFF
FLUORESCENT LIGHT	ON
FACTORY RESET	

3. SHARPNESS

The outline of the video image becomes cleaner and more distinctive as the level of SHARPNESS increases. If the level goes up excessively, however, it may affect the video image and generate noise.

SPECIAL PAGE 2	
MIRROR	OFF
	ON
FREEZE	OFF
▶ SHARPNESS	- 8 --- 8
FLICKERNESS	OFF
FLUORESCENT LIGHT	ON
FACTORY RESET	
SYSTEM INFORMATION	FW Rev
SAVE & RETURN	

•The available range of level is -8 ~ 8.

4. FLICKERNESS ON/OFF

The slow shutter mode can be used manually to reduce flicker caused from fluorescent lights when line lock synchronization is not available.

SPECIAL PAGE 2	
MIRROR	OFF ON
FREEZE	OFF
SHARPNESS	- 8 ---- 8
► FLICKERNESS	OFF ON
FLUORESCENT LIGHT	ON
FACTORY RESET	
SYSTEM INFORMATION	FW Rev

- When Flickerness set to OFF, trembling is reduced (Default).
- When Flickerness set to ON, trembling is increased

5. FLUORESCENT LIGHT

SPECIAL PAGE 2	
MIRROR	OFF ON
FREEZE	OFF
SHARPNESS	- 8 ---- 8
FLICKERNESS	OFF ON
► FLUORESCENT LIGHT	ON
FACTORY RESET	
SYSTEM INFORMATION	FW Rev

- On : Reduces color rolling that may occur under some types of fluorescent lighting.
For best results, line lock synchronisation is recommended. If line lock synchronisation is not possible, an auto-iris lens should be used.
- Off (default) : The default setting maximises dynamic range

6. FACTORY RESET

Restores the camera to the factory defaults.

6. SYSTEM INFORMATION

Displays the camera firmware version - This may be required during any call to Dongyang Unitech Technical Support.

9. SPECIFICATIONS

MODEL	DWC-540DV
Image Sensor	1/3" DPS ORCA
Effective Pixels	720(h) x 540 (v)
Horizontal Resolution	Max 540 TV Lines
Scanning Frequency	15.734KHz(H), 59.944(V)
Video Io Select	NTSC / PAL
Min. Illumination	Color : 0.4 Lux (F:1.2), (Sense-up 32x : 0.08Lux)
Day & Night	D&N Function by Digital Change : Auto/Off
White Balance	Auto /AWB / Manual
DSS	Off / 2 fields ~ 32 fields
DNR	Auto / High / Low
Lens	2.9mm~10mm DC auto iris lens
AGC	Low / Auto / High / Off
Wide Dynamic Range	Max 120dB /17 -bit
Camera ID	On / Off
S/N Ratio	More than 50dB
Video Output	Composite video output 75 ohm terminated
OSD	Built-in
Sync. System	Internal
Operating Humidity	30 % ~ 90 % RH
Operating Temp.	- 10°C to 50°
Dimension	145(D)X103(H)mm
Weight	About 1.2Kg
Material	Aluminum body, PC bubble(100mm)
Power Consumption	250mA
Power Supply	DC 12 V(10.2V~14.5 V) AC 24V (Option)

(Design and product specifications subject to change without notice.)







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