

Feature 1

- 1/3" Progressive Scan Color CMOS Sensor
- DNR (2DNR/3DNR & SMART NR)
- ACCE (Adaptive Color&Contrast Enhancement)
- Digital Zoom / PIP
- ICR Mechanical Filter(OPTION)



Specification

Item	2.1M
Imaging Sensor	1/3" 2.1Megapixel COMS
Scanning System	Progressive Scan
Number of active pixels	1944(H) X 1092(V) = 2,122,848(pixel)
Total number of pixels	2010(H) X 1108(V) = 2,227,080(pixel)
S/N Ratio	More than 50dB (AGC Off)
Video Output Mode	1080P(1920 X 1080) 25P/30P
Video Output Level	HD-SDI / 1.0 Vp-p (75Ω, Composite) NTSC/PAL(Selectable)
Lens	C / CS MOUNT
Min. Illumination	0.1Lux(Color) , 0.05Lux(BW) 0.01Lux(Sens-up x60)
O.S.D	Built-in
Electronic Shutter Speed	Auto / Fik 1/25,30sec ~ 1/50,000sec
White Balance	AWB / AWC-SET / MANUAL / INDOOR / OUTDOOR
Backlight Compensation	BLC / HSBLCL / Off
ACCE(Adaptive Color&Contrast Enhanc	Low / Middle / High / Off
AGC	Low / Middle / High
Adjust	SHARPNESS / MONITOR / LSC / NTSC/PAL
Language	English
Day & Night	Auto / B.W / Color / EXT (Selectable)
2D/3D-NR	2DNR / 3DNR / SMART NR
Digital Zoom / PIP	On / Off(x2 ~ x64)
Privacy Masking	On / Off (8 Zone Selectable)
Motion Detection	On / Off (3 Zone Selectable)
Defect	LIVE DPC / STATIC DPC
Defog	Low / Middle / High / Off
D - EFFECT	Freeze / Mirror / D-Zoom / NEG.IMAGE
Protocol	Pelco - D
Communication	RS - 485[Baud Rate : 2400 ~ 57600]
Supplied Voltage	DC12 ±10%
Power Consumption	Max. 2.0W[180mA]
Dimension(WxHxD)	65(W)*60(H)*119.6(D)mm

Set up and Function 2



- ① Function Set Up Button
 - SET Button : Displays the menu on the screen. Press the button to confirm status or after changing a selected item.
 - Up and Down Button : Used to move the cursor up or down in the menu screen to select a desired menu item.
 - Left and Right Button : Used to move the cursor left or right in the menu screen or to change the value of the selected item.
- ② Day & Night Input Port
 - You can switch to Day & Night mode by connecting an external signal to this port.
- ③ Motion Detection Output port
 - Motion Detection signals are output through this port
- ④ ⑤ Power Led And Power
 - When power is properly connected, this LED comes on. / Connect the power as specified for each model.
- ⑥ CVBS Out Put(Analog)
 - Connect this connector to a device such as a DVR or monitor with a VIDEO IN connector.
- ⑦ Auto Iris Lens Connector
 - Used to connect Auto Iris Lens Plug. You can change the Lens type (DC / Video) on OSD Menu
- ⑧ HD - SDI Out Put
 - Connect this connector to a device such as a DVR or monitor with a HD Video function.
- ⑨ RS-485 Control Port
 - You can control SETUP Menu through this port by using external controllers like a remote

RS-485 Interface

The camera can be controlled by using external controllers like a reomote controller.

1. To control by PC
 - Connect the RS-485 control port of the camera and the serial cable through an RS-485 converter EX) PC Serial Port (COM1)→Serial Cable→RS-485 Converter→Camera RS-485 Converter Port
2. To Control by DVR or System Controller
 - Connect the RS-485 cable(TRX+, TRX-) to the port of RS-485 control board that is connected with DVR or System controller

485 Control Board Connection Port	RS-485 Control Port
(+) CONNCTION TERMINAL (TRX+)	485 +
(-) CONNCTION TERMINAL (TRX-)	485 -

* RS-485 Communication establishment initial value

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

Notes
 ○ To control the camera by constructing an additional controller, use Pelco-D protocol.

Function Menu Structure

Function Menu				
LENS	■ DC	■ VIDEO	■ MANUAL	
EXPOSURE	■ SHUTTER	■ AGC	■ SENS-UP	■ BRIGHTNESS
	■ ACCE	■ DEFOG	■ BACKLIGHT	
WHITE BAL	■ ATW	■ AWC→SET	■ MANUAL	
	■ INDOOR	■ OUTDOOR		
DAY & NIGHT	■ COLOR	■ AUTO	■ EXT	■ B/W
NR	■ 2DNR	■ 3DNR	■ SMART NR	
SPECIAL	■ CAM TITLE	■ D-EFFECT	■ MOTION	■ PRIVACY
	■ LANGUAGE	■ DEFECT	■ RS485	
ADJUST	■ SHARPNESS	■ MONITOR	■ OSD	■ LSC
	■ NTSC/PAL			
RESET	■ FACTORY			
EXIT				

How to use the camera

Notes
 ○ An item with the ↓ icon, you can move to sub menu pressing SET button
 ○ An item with the --- icon is unavailable due to function settings.

LENS

- Using this function, you can control screen brightness
- 1. When the SETUP menu screen is displayed, select 'LENS' by using the Up and Down buttons so that the arrow indicates 'LENS'.
- ▶ DC/VIDEO : Select Auto Iris Lens
- ▶ MANUAL : Select Manual Lens

EXPOSURE

- 1. When the SETUP menu screen is displayed, select 'LENS' by using the Up and Down buttons so that the arrow indicates 'LENS'.
- ▶ SHUTTER : Auto / Manual
- ※ Out Door : Auto
- ※ In door :
- PAL : , 2.1M→1/25

4

- FLK : Select this when you experience picture flicker
- AUTO : Select this mode to control the shutter speed automatically. Shutter speed is automatically controlled depending on the brightness of the screen.
- ▶ AGC : You can adjust it Low, Middle and High level. The higher the gain level, the brighter the screen but the higher the noise.
- ▶ SENSE-UP : When it is night of dark, the camera automatically detects the light level and maintains a clear picture.

Notes
 This function Deactivates when the AGC "OFF", DAY&NIGHT "OFF"
 OFF : Deactivates the Sense-up function.
 AUTO : You can adjust brightness by increasing or decreasing the shutter speed -x2 - x60
 * Note that the higher the zoom 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 zoom

- ▶ BRIGHTNESS : You can control the brightness by using the Left and Right button in Manual Lens mode.
- ▶ ACCE : If there are bright area and dark area on the screen at the same time, this function makes both areas to be in clear image OFF, LOW, MIDDLE, HIGH 4step



- ▶ DEFOG : Carry out defog function OFF, LOW, MIDDLE, HIGH 4Step
- ▶ BLC : This function allows you to get a clear pictures of objects even the objects in strong backlight.
 - BLC : Enables a user to directly select a desired area from a picture, and to view the area more clearly.
 - GAIN : LOW, MIDDLE, HIGH
 - AREA : Area Set(Size & Position)
 - DEFAULT : Factory reset
- ▶ SENSE-UP : When it is night of dark, the camera automatically detects the light level and maintains a clear picture.
 - SELECT : AREA1, AREA2, AREA3, AREA4
 - DISPLAY : SELECT AREA ON/OFF
 - LEVEL : Masking Level Set
 - MODE : DAY and NIGHT
 - BLACK MASK : Mask OFF
 - DEFAULT : Factory reset



※ AREA Set
 - Use Narrow Button to set Size and Position

WHITE BALANCE (White Bal.)

5

- When SETUP menu screen is displayed, select 'White Bal.' by using Up and Down buttons so that the arrow indicates White Bal.
 - ※ Select one of the following 6 modes, as appropriate for your purpose
 - ▶ AWB : Select this when the color temperature is between 2,400°K and 11,000°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.
Adjust the [BLUE] and [RED], according to the changing of color on the screen
 - ▶ OUTDOOR : Select this when the color temperature is around 5,100°K.
 - ▶ INDOOR : Select this when the color temperature is around 3,100°K.
 - ▶ AWC-> SET : To find the optimal setting for the current luminance environment in this mode, set the point the camera towards a sheet of white paper and press the SET button. If the environment changes, readjust it.

Notes

- White balance may not work properly under the following conditions.
In this case, select the AWC mode.
- When color temperature of environment surrounding the subject is out of the control range

DAY&NIGHT

- You can display pictures in Color or Black and White.
- When the SETUP menu screen is displayed, select 'DAY/NIGHT' by using the Up and Down buttons so that the arrow indicates 'DAY/NIGHT'
 - ▶ COLOR : The picture is always displayed in color.
 - ▶ 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 or speed for auto mode, press the SET button
 - Delay : You can select the duration time about changing the day/night mode.
 - ▶ EXT : This mode allows you to apply a desired filter to external signals.(ICR Type - OPTION)
 - ▶ BW : The picture is always displayed in B/W.

NR

- This function reduces the background noise in a low luminance environment
- When the SETUP menu screen is displayed, select NR by using the Up and Down buttons so that the arrow indicates NR.
 - Select a desired mode using the Left and Right buttons.
 - ▶ OFF : Deactivates NR. Noise is not reduced.
 - ▶ ON : Activates NR so that noise is reduced.
 - Set the NR mode to 'ON' and press the SET button. Then you can adjust the Noise reduction level.

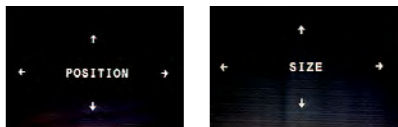
SPECIAL

6

- When the SETUP menu screen is displayed, select 'SPECIAL' by using Up and Down buttons so that the arrow indicates 'SPECIAL'
- Select a desired mode using the Up and Down buttons
 - ▶ CAM TITLE : If you enter a title, the title will be appear on the monitor.
 - ① If the SPECIAL menu screen is displayed, use the Up and Down buttons so that the arrow indicates 'CAM TITLE'
 - Notes
 - When the CAM TITLE menu is 'OFF', no title will be displayed on the monitor screen even if you enter one.
 - ② Set it to 'On' by using Left and Right buttons.
 - ③ Use the 4 direction buttons to move to a desired letter and select the letter by pressing the SET button. Repeat this to enter multiple letters. You can enter up 15 letters.
 - Notes
 - If you entered wrong letter.....
If you move the cursor to CLR and press the SET button, all the letters are deleted. To edit a letter, change the cursor to the bottom left arrow and press the SET button. Move the cursor over the letter to be edited, move the cursor to the letter to be inserted and then press SET button.
 - ④ Enter a title, move the cursor to 'POS' and press the SET button. The entered title appears on the screen. Select the position to display the title on the screen by using the 4 direction buttons and press the SET button. When the position is determined, select 'END' and press the SET button to return to the SPECIAL menu.
- ▶ D-EFFECT
 - * Freeze : You can stop the image or reactivate it.
 - * MIRROR
 - Mirror : you can flip the image vertically on the screen.
 - V-Flip : you can flip the image vertically and horizontally both.
 - Rotate : you can flip the image horizontally on the screen.
 - * D-ZOOM
 - PIP : PIP DISPLAY ON/OFF
 - D-ZOOM :
x2.0 ~ x32.0
 - PAN&TILT : SET to change PIP Position
Press SET button 2 times to move the position
 - DEFAULT : Factory Reset
 - * NEG IMAGE : you can flip the color on screen.
- ▶ MOTION : If you connect an alarm device to this camera, you can monitor activity because a signal is generated by the camera whenever motion is detected. The motion detection signal is output through the MD OUT port.

* DISPLAY : SELECT AREA ON/OFF

Use Narrow Button to set Size and Position



7

- * Sensitivity : When sensitivity number is high, motion detection sensitivity is increased to recognize even small movement
- * DEFAULT : Factory Reset

- ▶ PRIVACY : Hide an area you want to hide on the screen.
 - * SELECT : AREA1~8
 - * DISPLAY : SELECT AREA ON/OFF, SET Size and Position
 - * COLOR : 0 ~ 15 Color Step
 - * DEFAULT : Factory Reset
- ▶ Language : You can select the menu language according to your requirement.
 - It can be changes 5sec. later.
 - Supplied Language : English
- ▶ Defect CMOS correction to compensate for defects that can occur at the low light conditions.
 - * LIVE DPC : Auto Defect
 - * LEVEL : Level of Auto Defect
 - * STATIC DPC : Manual Defect
 - * START : Start Defect
(Close the lens to shield the light, Select the START and press the SET button twice)
 - * LEVEL : Manual Defect Value
 - * SENS-UP : Defect Sens up Value
- ▶ RS485 : This function sets up the camera communication status when controlling the camera through an external device.
 - * You can control SETUP Menu through this port by using external controllers like a remote controller that RS-485 Communication is supported
- ▶ VERSION : Ver. of Camera

ADJUST

- When the SETUP menu screen is displayed, select ADJUST by using Up and Down buttons so that arrow indicates ADJUST.
- Select a mode by using Up and Down buttons.
 - ▶ Sharpness : As you increase this value, the picture outline becomes stronger and clearer
Adjust this value appropriately depending on the sharpness of the picture.
 - * RESOLUTION : RESOLUTION ON/OFF

▶ MONITOR

8

- * CRT : CRT Monitor
- * LCD : LCD Monitor
 - Set : GAMMA, BLACK LEVEL, BLUE GAIN, RED GAIN
- ▶ OSD
 - * TEXT COLOR : OSD Font & Color adjustable
8 step of Color
 - * OUTLINE : OSD Out Line
 - ▶ LSC : Lens shading compensation
 - ▶ NTSC/PAL : Select NTSC / PAL

RESET

- When the SETUP menu screen is displayed, select RESET by using Up and Down buttons so that arrow indicates RESET.
- Select a mode by using Up and Down buttons.
 - ▶ FACTORY : Resets the camera settings to the factory defaults.
Language and Communication status is not initialized

EXIT

Press the SET button in the Exit menu to save the current settings and exit the Main SETUP menu.

MEMO