Thank you for choosing our high quality camera. Before attempting to connect or operate, please read and follow these instructions.

About this Instructions
Before installing and using the Camera, please read this manual carefully. Be sure to keep it handy for later reference.
Contents

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2. Key Buttons 4
3. OSD SETUP Menu for Quick Reference 4
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1. Function Features

**Advanced DNR Function**
3D Filtering of the Video Signal
Optimizes the Signal to Noise ratio, giving vast improved low light visibility and powerful Sens-Up function (up to 258 times magnification)

![3D-DNR OFF](image1) ![3D-DNR ON](image2)

**High Resolution 550TV Lines**
550TV Lines horizontal resolution in color mode and 600TV Lines horizontal resolution in BW mode

![Standard Camera](image3) ![550TV Lines Camera](image4)

**WDR (Wide Dynamic Range)**
Capturers cleaner and superior high resolution pictures even where images appear dark because there is a strong back light present.

![WDR OFF](image5) ![WDR ON](image6)

**HSBLC (Backlight Compensation)**
High spotlight BLC is especially effective to read the number plate of the vehicles in the street or parking lot at night time. Especially users can adjust and select the special requirement area to observe the target object under the strong spots of light exist.

![BLC OFF](image7) ![BLC ON](image8)

**Illumination (0.00001 Lux)**
With an incredibly minimum illumination of amazing 0.00001Lux can capture good images even in extremely low light conditions

![Standard Image](image9) ![Min. Illumination Image](image10)
2. Key Buttons

Pressing the “SETUP” button prompts the main setup menu.

“PUSH” button: To access the main setup menu
“U” button: Manu item UP selection
“D” button: Manu item DOWN selection
“L” button: To change data to down
“R” button: To change data to up

3. OSD SETUP Menu for Quick Reference

<table>
<thead>
<tr>
<th>SETUP Menu</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. LENS</td>
<td>DC : Brightness 50</td>
<td>Manual, DC : Brightness Range : 0~100</td>
</tr>
<tr>
<td>2. EXPOSURE</td>
<td></td>
<td>EXPOSURE Sub-Menu</td>
</tr>
<tr>
<td>SHUTTER</td>
<td>NTSC : 1/60 (PAL : 1/50)</td>
<td>1/60 (PAL : 1/50),FLK. 1/250,1/500,1/500,1/2000,1/5000 1/10000, 1/100000</td>
</tr>
<tr>
<td>BRIGHTNESS</td>
<td>--------------</td>
<td>No Operation</td>
</tr>
<tr>
<td>AGC</td>
<td>MIDDLE</td>
<td>Adjusts the Maximum Gain Mode OFF,LOW,MIDDLE,HIGH</td>
</tr>
<tr>
<td>SENSE-UP</td>
<td>AUTO(X32)</td>
<td>OFF,AUTO (Range : x2~x258)</td>
</tr>
<tr>
<td>BLC</td>
<td>OFF</td>
<td>OFF,BLC (BLC Sub-menu) HSBLC (HSBLC Sub-menu)</td>
</tr>
<tr>
<td>BLC</td>
<td>GAIN LOW</td>
<td>LOW,MIDDLE,HIGH</td>
</tr>
<tr>
<td>DEFAULT</td>
<td></td>
<td>Initializes the changed category in BLC menu</td>
</tr>
<tr>
<td>LEFT/RIGHT</td>
<td>2</td>
<td>Range : 0~7</td>
</tr>
<tr>
<td>WIDTH</td>
<td>4</td>
<td>Range : 0~8</td>
</tr>
<tr>
<td>TOP/BOTTOM</td>
<td>3</td>
<td>Range : 0~7</td>
</tr>
<tr>
<td>HEIGHT</td>
<td>3</td>
<td>Range : 0~8</td>
</tr>
<tr>
<td>RETURN</td>
<td></td>
<td>Return to EXPOSURE Sub-menu</td>
</tr>
<tr>
<td>HSBLC</td>
<td>LEVEL 5</td>
<td>Range : 0~8</td>
</tr>
<tr>
<td>DEFAULT</td>
<td></td>
<td>Initializes the changed category in HSBLC menu</td>
</tr>
<tr>
<td>LEFT/RIGHT</td>
<td>2</td>
<td>Range : 0~7</td>
</tr>
<tr>
<td>WIDTH</td>
<td>4</td>
<td>Range : 0~8</td>
</tr>
<tr>
<td>TOP/BOTTOM</td>
<td>3</td>
<td>Range : 0~7</td>
</tr>
<tr>
<td>HEIGHT</td>
<td>3</td>
<td>Range : 0~8</td>
</tr>
<tr>
<td>RETURN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SETUP Menu</td>
<td>Default Value</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>D-WDR</td>
<td>OFF</td>
<td>OFF : Disable the Wide Dynamic Range Function. Indoor, Outdoor</td>
</tr>
<tr>
<td>RETURN</td>
<td></td>
<td>Return to SETUP menu</td>
</tr>
<tr>
<td>3. WHITE BAL</td>
<td>ATW</td>
<td>ATW : Auto Trace WB mode. AWB : Wide Range Trace Mode. AWC -&gt; SETUP Manual (Blue Gain &amp; Red Gain Range: 0~100)</td>
</tr>
<tr>
<td>4. DAY NIGHT</td>
<td>COLOR</td>
<td>COLOR/BW, AUTO : Delay (0<del>63) / S-LEVEL (0</del>100)/ E-LEVEL(0~100), RESET</td>
</tr>
<tr>
<td>5. 3DNR</td>
<td>ON : Level 50</td>
<td>OFF, ON (Level Range: 0~100)</td>
</tr>
<tr>
<td>6. SPECIAL</td>
<td></td>
<td>SPECIAL Sub-menu</td>
</tr>
<tr>
<td>1) CAM TITLE</td>
<td>OFF</td>
<td>Title (Max.15 Character), This position is adjustable</td>
</tr>
<tr>
<td>2) D-EFFECT</td>
<td></td>
<td>D-EFFECT Sub – menu.</td>
</tr>
<tr>
<td>FREEZE</td>
<td>OFF</td>
<td>OFF, ON</td>
</tr>
<tr>
<td>MIRROR</td>
<td>OFF</td>
<td>OFF, MIRROR, V-FLIP, ROTATE</td>
</tr>
<tr>
<td>D-ZOOM</td>
<td>OFF</td>
<td>D-ZOOM Range: x1.0~x32.0 PAN Range: -100 ~ 100 TILT Range: -100 ~ 100 RETURN: Return to E-EFFECT Sub-menu</td>
</tr>
<tr>
<td>GAMMA</td>
<td>0.45</td>
<td>Range: 0.05~1.00</td>
</tr>
<tr>
<td>NEG.IMAGE</td>
<td>OFF</td>
<td>OFF, ON</td>
</tr>
<tr>
<td>RETURN</td>
<td></td>
<td>RETURN: Return to SPECIAL Sub-menu</td>
</tr>
<tr>
<td>3) MOTION</td>
<td>OFF</td>
<td>Area Select: AREA1<del>AREA4 Area Display: OFF, ON LEFT/RIGHT Range: 0</del>100 WIDTH Range: 0<del>100 TOP/BOTTOM Range: 0</del>100 HIGH Range: 0<del>100 SENSITIVITY Range: 0</del>40 RETURN: Return to SPECIAL Sub-menu</td>
</tr>
<tr>
<td>4) PRIVACY</td>
<td>OFF</td>
<td>Area Select: AREA1<del>AREA8 Area Display: OFF, ON LEFT/RIGHT Range: 0</del>100 WIDTH Range: 0<del>100 TOP/BOTTOM Range: 0</del>100 HIGH Range: 0<del>100 SENSITIVITY Range: 0</del>40 RETURN: Return to SPECIAL Sub-menu</td>
</tr>
<tr>
<td>5) SYNC</td>
<td>INT</td>
<td>Initializes the changed category in SPECIAL menu</td>
</tr>
<tr>
<td>6) RETURN</td>
<td></td>
<td>Return to SETUP menu</td>
</tr>
<tr>
<td>SETUP Menu</td>
<td>Default Value</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>7. ADJUST</strong></td>
<td></td>
<td>ADJUST Sub-menu</td>
</tr>
</tbody>
</table>
| MOTION | OFF | Area Select : AREA1~AREA4  
Area Display : OFF, ON  
LEFT/RIGHT Range : 0~100  
WIDTH Range : 0~100  
TOP/BOTTOM Range : 0~100  
HIGH Range : 0~100  
SENSITIVITY Range : 0~40  
RETURN : Return to SPECIAL Sub-menu |
| PRIVACY | OFF | Area Select : AREA1~AREA8  
Area Display : OFF, ON  
LEFT/RIGHT Range : 0~100  
WIDTH Range : 0~100  
TOP/BOTTOM Range : 0~100  
HIGH Range : 0~100  
SENSITIVITY Range : 0~40  
RETURN : Return to SPECIAL Sub-menu |
| SYNC | INT | Initializes the changed category in SPECIAL menu |
| RETURN | | Return to SETUP menu |
| **8. RESET** | | Initializes the changed category in SPECIAL menu |
| **9. EXIT** | | Save the SETUP menu and exit |
4. OSD Menu Flow Chart

SETUP

• LENS
• EXPOSURE
• WHITE BAL
• DAY NIGHT
• DNR
• SPECIAL
• ADJUST
• RESET
• EXIT

LENS - DC
BRIGHTNESS 50
RETURN

EXPOSURE
SHUTTER 1/60
BRIGHTNESS
AGC MIDDLE
SENSE-UP AUTO
BLC OFF
D-WDR OFF
RETURN

WHITE BAL - MANUAL
BLUE 40
RED 21
RETURN

DAY NIGHT - AUTO
DELAY 3
S-LEVEL 76
E-LEVEL 51
RETURN

3DNR
LEVEL 50
RETURN

SENSE-UP
SENSE-UP x32
RETURN

BLC
GAIN LOW
DEFAULT
LEFT/RIGHT 2
WIDTH 4
TOP/BOTTOM 3
HEIGHT 3
RETURN

HSBLC
LEVEL 5
DEFAULT
LEFT/RIGHT 2
WIDTH 4
TOP/BOTTOM 3
HEIGHT 3
RETURN
5. Explanation of SETUP Menu

1. LENS
   DC (Default) : DC sub-menu

   (1) BRIGHTNESS
   Changes brightness level (Range: 0~100)
   Darker (0) ~ Brighter (100)

   (2) RETURN
   Return to the Main Menu

   * TIP
   If set up brightness with Manual lens, it operate by EXPOSURE sub-menu.

2. EXPOSURE
   EXPOSURE sub-menu

   (1) SHUTTER
   Current shutter speed
   1/60 (Default) – NTSC 1/60 (Default) - PAL
   1/50 (Default) FLK, 1/250, 1/500, 1/2000, 1/5000
   1/10000, 1/100000

   (2) BRIGHTNESS
   No operation (When lens is manual mode, it operates)

   (3) AGC (Auto Gain Control)
   AGC Level
   OFF, LOW, MIDDLE (Default), HIGH

   (4) SENSE-UP
   OFF : Disable SENSE-UP mode
   AUTO : AUTO sub-menu

   • SENSE-UP
   Select sense-up level
   x2, x4, x8, x16, x32 (Default), x64, x128, x256

   • RETURN
   Return to the EXPOSURE sub-menu
(5) BLC (Backlight Compensation)

Value of each BLC on mode
- OFF (Default) : Disable BLC mode
- BLC : Go to BLC mode

<table>
<thead>
<tr>
<th>BLC</th>
<th>GAIN</th>
<th>LOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAIN</td>
<td>DEFAULT</td>
<td>↘</td>
</tr>
<tr>
<td>LEFT/RIGHT</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>WIDTH</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>TOP/BOTTOM</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HEIGHT</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>RETURN</td>
<td>↘</td>
<td></td>
</tr>
</tbody>
</table>

GAIN
BLC Level:
Low (Default), MIDDLE, HIGH

DEFAULT
Initializes the changed category in BLC menu

LEFT / RIGHT / TOP / BOTTOM / HIGHT
Backlight Compensation weighting Zone

RETURN
Return to the EXPOSURE sub-menu

• HSBLC : HSBLC mode

<table>
<thead>
<tr>
<th>HSBLC</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL</td>
<td>5</td>
</tr>
<tr>
<td>DEFAULT</td>
<td>↘</td>
</tr>
<tr>
<td>LEFT/RIGHT</td>
<td>2</td>
</tr>
<tr>
<td>WIDTH</td>
<td>4</td>
</tr>
<tr>
<td>TOP/BOTTOM</td>
<td>3</td>
</tr>
<tr>
<td>HEIGHT</td>
<td>3</td>
</tr>
<tr>
<td>RETURN</td>
<td>↘</td>
</tr>
</tbody>
</table>

LEVEL
BLC level (Range: 0~8 / Default: 5)
Backlight Compensation Weighting value of each BLC mode

DEFAULT
Initializes the changed category in HSBLC menu

LEFT / RIGHT / TOP / BOTTOM / HIGHT
Backlight Compensation weighting Zone

RETURN
Return to the EXPOSURE sub-menu

(6) D-WDR (Digital Wide Dynamic Range)

OFF (Default) : Disable D-WDR mode
INDOOR : Indoor D-WDR mode
OUTDOOR : Outdoor D-WDR mode

(7) RETURN
Return to the main menu
3. WHITE BALANCE

- ATW: Auto Trace White balance mode
- AWB (Default): Wide Range auto white balance
- AWC → SET
- Manual: Go to Manual Sub-menu
- Adjust R/B Gain Manually

![WHITE BAL - MANUAL](image)

<table>
<thead>
<tr>
<th></th>
<th>BLUE</th>
<th>RED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change</td>
<td>40</td>
<td>21</td>
</tr>
</tbody>
</table>

RETURN
Return to the main menu

4. DAY NIGHT

- COLOR (Default): Day fix mode
- B/W: Night fix mode
- AUTO: Automatically COLOR / BW (Day & Night) According to Illumination change

![DAY NIGHT - AUTO](image)

<table>
<thead>
<tr>
<th></th>
<th>DELAY</th>
<th>S-LEVEL</th>
<th>E-LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to protect susceptible conversion of Color and BW</td>
<td>3</td>
<td>76</td>
<td>51</td>
</tr>
</tbody>
</table>

RETURN
Return to the Main menu

5. 3DNR

- ON (Default): Changes Level (Range: 0~100)
- OFF: Disable the DNR

![3DNR](image)

<table>
<thead>
<tr>
<th></th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNR level (Default:50)</td>
<td>50</td>
</tr>
</tbody>
</table>

RETURN
Return to the Main menu
6. SPECIAL

SPECIAL

1. CAM TITLE OFF
2. D-EFFECT OFF
3. MOTION OFF
4. PRIVACY OFF
5. SYNC INT
6. RETURN OFF

(1) CAM TITLE
OFF : Disable CAM TITLE
ON   : Refer to the CAM TITLE editing menu

- Select position of CAM TITLE menu
- When the cursor is blinking. You can select the character by PUSH button
  - ← : Previous Character
  - → : Next Character
  - POS : Change the position of the CAM TITLE. After changing the position, you push the setup button one more time.
  - END : After set click this letter to end up.

(2) D-EFFECT
D-EFFECT sub menu
FREEZE
OFF (Default) : Real picture
ON : Still picture

MIRROR
OFF: Normal picture
MIRROR : Horizontal reverse picture
ROTATE : Horizontal and vertical reverse picture

D-ZOOM (Digital ZOOM)
D-ZOOM -Digital ZOOM Range : x1.0~x32.0
PAN - Pan Range : -100~100
TILT – Tilt Range : -100~100
RETURN – Return to the previous menu

GAMMA
Default – 0.45(Range : 0.05~1.00)

NEG.IMAGE
OFF (Default) : Positive picture
ON : Negative inverted picture

RETURN
Return to the previous menu
### (3) MOTION
- **OFF**: Disable CAM TITLE
- **ON**: Refer to the CAM TITLE editing menu

**AREA SELECT**
- Area 1~area4
- The zone of motion detection

**AREA DISPLAY**
- **ON**(Default) : Enable the motion detection
- **OFF**: Disable the motion detection

**LEFT/RIGHT**
- Horizontal starting point for motion detection zone
  (Range : 0~100)

**WIDTH**
- Horizontal terminating point for motion detection zone
  (Range : 0~100)

**TOP/BOTTOM**
- Vertical starting point for motion detection zone
  (Range : 0~100)

**Height**
- Vertical terminating point for motion detection zone
  (Range : 0~100)

**SENSITIVITY**
- Range : 0~40

**MOTION VIEW**
- **OFF**(Default)
- **ON**: Display motion block

**RETURN**
- Return to the previous menu

### (4) PRIVACY
- **OFF**: Disable privacy control
- **ON**: Refer to the privacy control menu

**AREA SELECT**
- Area 1~Area8
- Privacy mask zone number

**AREA DISPLAY**
- **ON**(Default) : Enable the privacy zone
- **OFF**: Disable the privacy zone

**LEFT/RIGHT**
- Horizontal starting point for privacy zone
  (Range : 0~100)

**WIDTH**
- Horizontal terminating point of privacy zone
  (Range : 0~100)

**TOP/BOTTOM**
- Vertical starting point of privacy zone
  (Range : 0~100)

**Height**
- Vertical terminating point of privacy zone
  (Range : 0~100)

**COLOR**
- Display Color(Range : 0~15)

**RETURN**
- Return to the previous menu
7. ADJUST
Adjust sub menu

SHARPNESS
• Range : 0(blunt image)~31(sharp image)
BLUE
• Range : 0~100
• Blue gain
RED
• Range : 0~100
• Res gain
RETURN
• Return to the previous menu

8. RESET
RESET sub-menu

FACTORY
• Restore to factory default condition
RETURN
• Return to the main menu

9. EXIT
Save the SETUP menu and exit
* Design and specifications are subject to change without notice.