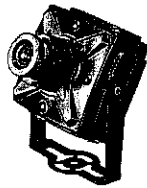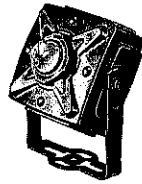# WDR Digital Sensor Mini Camera
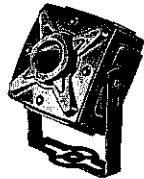
Instruction Guide
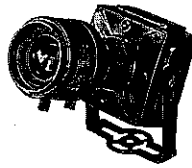
▲ Fixed Lens   ▲ Flat Pinhole Lens

▲ Conical Pinhole Lens   ▲ Varifocal Fixed Iris Lens

■ Features

High Resolution color for crisp, clear video
- 690TVL Effective

Wide Dynamic Range (WDR)
The camera delivers clear, high quality pictures even in backlight, by increasing exposure in dark areas while decreasing it in bright areas; a corrected image with clear details results.
- 120dB maximum dynamic range

DNR (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 image even in low light.

Day & Night
The camera identifies whether it is day or night and automatically switches to the appropriate mode, depending on its environment. By day, the camera switches to color mode in order to maintain optimal color. At night, it switches to B/W mode so as to obtain better picture definition.

High Sensitivity for low-light images
The built-in high sensitivity PIXIM SEAWOLF Sensor enables a clear image even at 0.1Lux

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

Programmable GAMMA Processing

OSD Control by coaxial cable via pelco coaxitron

Controlled by OSD Menu
The camera can be controlled by selecting text displayed on the monitor screen.

Additional Functions
SYNC (INT/LL), SENS-UP, FREEZE, FLIP (H/V-REV), D-ZOOM, SHARPNESS and PRIVACY functions are provided.

■ Components

1. COLOR MINI CAMERA
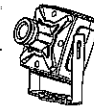
2. SCREWS

3. INSTRUCTION GUIDE

■ Dimensions

(Front)
39.1
39.1
50.6

(Back)
GND
DC12V
VIDEO
GND
VIDEO

(unit:mm)

(Side)
30.6
24.6
15.0

18.3

21.6
17.4
12.0

55.3
24.6

■ Cable Connections

POWER

VIDEO OUT

UP button
RIGHT button

LEFT button

DOWN button

SET button

■ Settings

Settings can be made using the 5 buttons located in the camera.

```
        UP [ ]
  [ ]        [ ]
 LEFT [ ]  RIGHT
 DOWN      SET
              [ ]
```
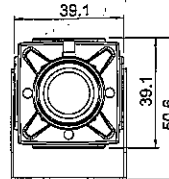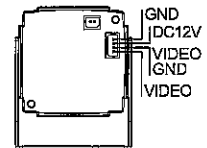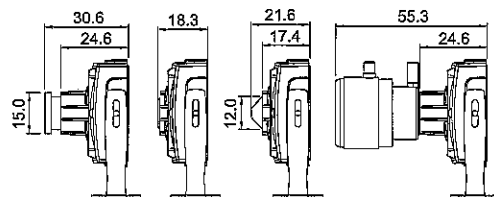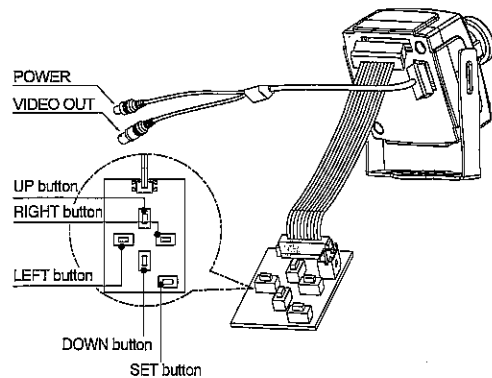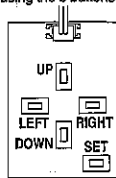
1. Press the SET button
   · Settings can now be made. The SETUP menu is displayed on the monitor.

```
              SETUP
  ► PRESETS          NORMAL
    EXPOSURE..
    WDR              MIDDLE
    WHITE BALANCE    ATW
    DAY/NIGHT        AUTO
    IMAGE ADJ.
    SPECIAL
    EXIT MENU
```
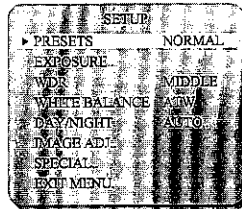
2. Select a menu item from the list available by using the UP and DOWN buttons.
   · Funtions are selected using up and down buttons.
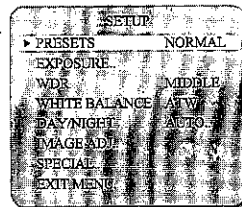   · The selected position is displayed in blue.

Select the function using the UP or DOWN button.

```
              SETUP
  ► PRESETS          NORMAL
    EXPOSURE.
    WDR              MIDDLE
    WHITE BALANCE    ATW
    DAY/NIGHT        AUTO.
    IMAGE ADJ.
    SPECIAL
    EXIT MENU
```

Change the status using the LEFT or RIGHT button.
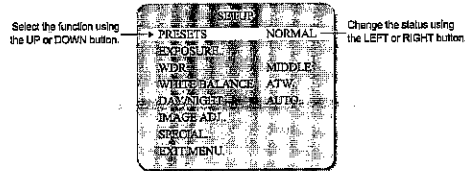
3. Set up a selected item by using the Left and Right buttons.
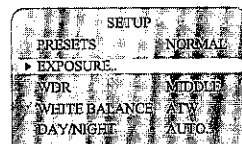4. To finish and save the settings, select 'EXIT' and press the SET button.

> **Note**
> · An item with the .. icon also has sub-menus. To select a sub-menu, press the SET button.
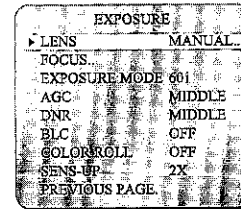
PRESETS

```
              SETUP
  ► PRESETS          NORMAL
    EXPOSURE..
    WDR              MIDDLE
    WHITE BALANCE    ATW
    DAY/NIGHT        AUTO
    IMAGE ADJ.
    SPECIAL
    EXIT MENU
```

● **NORMAL** : Normal environment.
● **INDOOR** : Indoor environment.
● **OUTDOOR** : Outdoor environment.

EXPOSURE

```
              SETUP
    PRESETS          NORMAL
  ► EXPOSURE.
    WDR              MIDDLE
    WHITE BALANCE    ATW
    DAY/NIGHT        AUTO.
```

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

```
            EXPOSURE
  ► LENS              MANUAL
    FOCUS..
    EXPOSURE MODE     60i
    AGC               MIDDLE
    DNR               MIDDLE
    BLC               OFF
    COLOR ROLL        OFF
    SENS-UP           2X
    PREVIOUS PAGE.
```

● **LENS** : Using this function, you can control the screen brightness.

```
         LENS MENU
  ► AJ THRESH      48  24  60
    PREVIOUS PAGE.
```

● **FOCUS** : To adjust the DC and VIDEO lens focus

```
         FOCUS DETECTOR
  ► FOCUS METER   [========]
    SET FOCUS REGION.        85
    PREVIOUS PAGE.
```
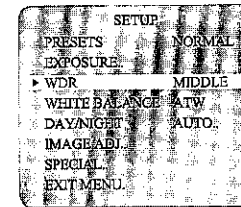
```
         SET FOCUS REGION
```

● **EXPOSURE MODE** : To select the number of fields and number of exposure cycles.
   - 60i/30p selectable
● **AGC (AUTO GAIN CONTROL)** : In the dark situation, the higher the gain level, the brighter the screen but the higher the noise.
   - OFF / LOW / MIDDLE / HIGH selectable
● **DNR (Digital Noise Reduction)** : The level of background noise in low light decreases automatically as the level of gain changes.
   - OFF / LOW / MIDDLE / HIGH selectable
● **BLC** : To optimize the scene when there is a strong backlight behind the object.
   - ON / OFF selectable

```
        ADVANCED BLC SETUP
  ► PERCENTILE      30  35  50
    PREVIOUS PAGE.
```

● **COLOR ROLL** : To control a detector that finds color fluorescent roll.
   - OFF / LOW / MIDDLE / HIGH selectable
● **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.
   - 2X, 4X, 8X, 16X, 32X, 64X
   - OFF : Deactivates the SENS-UP function.

WDR

```
              SETUP
    PRESETS          NORMAL
    EXPOSURE.
  ► WDR              MIDDLE
    WHITE BALANCE    ATW
    DAY/NIGHT        AUTO.
    IMAGE ADJ.
    SPECIAL
    EXIT MENU.
```

● **WDR** : When the image has simultaneous bright and dark areas, the Wide Dynamic Range makes both areas distinct.
  - LOW / MIDDLE / HIGH / USER selectable

```
        WDR LEVEL
 ▶ BIAS     2    -30---------30
   LIMIT   36    0----------36
   PREVIOUS PAGE
```
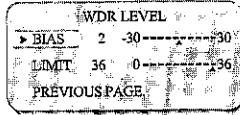
WHITE BALANCE

Use the White Balance function to adjust the screen colors.
1. Position the cursor to point to WHITE BAL on the SETUP menu screen, select using the Up and Down buttons.
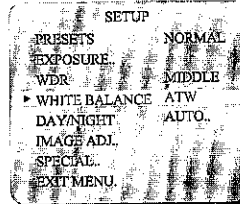2. Select the desired mode using the Left and Right buttons.

```
          SETUP
   PRESETS          NORMAL
   EXPOSURE.
   WDR              MIDDLE
 ▶ WHITE BALANCE    ATW
   DAY/NIGHT        AUTO.
   IMAGE ADJ.
   SPECIAL.
   EXIT MENU.
```
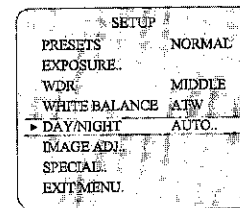
※Select one of the following 5 modes, as appropriate.
● **ATW** : The ATW mode continuously monitors.
● **INDOOR** : Select when the color temperature is between 4000°K and 8500°K
● **OUTDOOR** : Select when the color temperature is between 2000°K and 11000°K
● **AWB** : To obtain the optimum state under the current luminance levels, direct the camera to point toward a sheet of white paper and press the SET button. If the environment changes, including the light source, the white balance will require re-adjustment.
● **MANUAL** : Select to "fine-tune" the White Balance manually. Set White Balance first using the ATW or AWB mode. Afterwards switch to MANUAL mode, fine-tune the White Balance and then press the SET button.

```
   MANUAL WHITE BALANCE
 ▶ RED    18   -20----------20
   BLUE   13   -20----------20
   PREVIOUS PAGE
```

Note

· Under the following conditions White Balance may not work properly. In such cases, select the AWC mode.
① When the color temperature of the subject environment has a very high temperature range (e.g. clear sky, or sunset)
② When the ambient illumination of the subject is low.
③ If the camera is directed toward a fluorescent light, or is installed in a place where illumination changes dramatically, the White Balance operation may become unstable.

DAY/NIGHT

```
          SETUP
   PRESETS          NORMAL
   EXPOSURE.
   WDR              MIDDLE
   WHITE BALANCE    ATW
 ▶ DAY/NIGHT        AUTO.
   IMAGE ADJ.
   SPECIAL.
   EXIT MENU.
```

● **AUTO** : This camera has a function which automatically changes to the appropriate mode according to lighting levels. To set up the switching time and switching speed for the AUTO mode press the SET button.
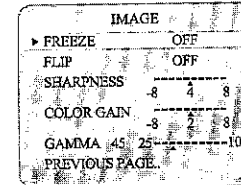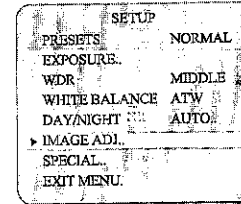
```
      DAY&NIGHT SETUP
 ▶ TIME DELAY    0    5    20

   PREVIOUS PAGE.
```

● **COLOR** : The picture is displayed in color.
● **B/W** : The picture is always displayed in black and white.

IMAGE ADJ.

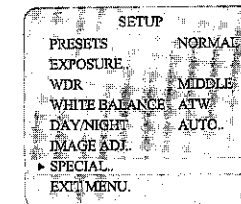When the SETUP menu screen is displayed, select 'IMAGE ADJ.' using the Up and Down buttons.

```
          SETUP
   PRESETS          NORMAL
   EXPOSURE.
   WDR              MIDDLE
   WHITE BALANCE    ATW
   DAY/NIGHT        AUTO.
 ▶ IMAGE ADJ.
   SPECIAL.
   EXIT MENU.
```

```
          IMAGE
 ▶ FREEZE           OFF
   FLIP             OFF
   SHARPNESS    -8   4   8
   COLOR GAIN   -8   2   8
   GAMMA   45   25--------100
   PREVIOUS PAGE
```

● **FREEZE** : View still pictures.
  - OFF / ON selectable
● **FLIP** : OFF / HORIZ / VERT / BOTH selectable

OFF   HORIZ

VERT   BOTH
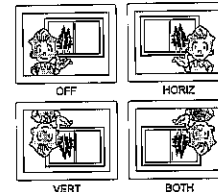
● **SHARPNESS** : The outline of the video image becomes cleaner and more distinctive as the level of SHARPNESS increases. If the level gose up excessively, however, it may affect the video image and generate noise.
  - The available range of level is -8 ~ 8
● **COLOR GAIN** : To control the color level in the video.
  - The available range of level is -8 ~ 8
● **GAMMA** : Users can change the gamma setting between 25 and100

SPECIAL

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

```
          SETUP
   PRESETS          NORMAL
   EXPOSURE.
   WDR              MIDDLE
   WHITE BALANCE    ATW
   DAY/NIGHT        AUTO.
   IMAGE ADJ.
 ▶ SPECIAL.
   EXIT MENU.
```

■ How to Use the Camera

```
          SPECIAL
► CAMERA ID          OFF
  VIDEO OUT.
  DZOOM              OFF
  MOTION             OFF
  PRIVACY SETUP.
  SYNC
  RESET
  RETURN
```

● **CAMERA ID** : User can enter a unique name for the respective camera.
The maximum length of the ID is ten 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.

```
       CAMERA ID
► ID             CAM-001
  POSITION       UP-LEFT
  PREVIOUS PAGE
```

① Move the cursor to the letter required by using the Set-Up button.
② Select an ID from A,B~Y,Z, a,b~y,z, 0,1~8,9 by using the LEFT and
  RIGHT buttons.
③ Repeat the above steps until the ID is complete.

```
       CAMERA ID
  ID             CAM-001
► POSITION       UP-LEFT
  PREVIOUS PAGE
```

① Select the position where the ID is to be displayed by using the LEFT
  and RIGHT buttons.

● **VIDEO OUT** : Move the cursor to select the video system.
  - VIDEO STANDARD ; You can control NTSC / PAL, Video level,
    Sync level, Burst level.

```
       VIDEO STANDARD
► VIDEO SELECT         NTSC
  VIDEO LEVEL  80  110  150
  SYNC LVL  0  -16      -15
  BURST LVL 0  -16      -15
  VIDEO OUT         INTERLG
  COLOR BAR            OFF
  VERSION
  PREVIOUS PAGE
```

● **DZOOM** : Digital P/T/Z are used to create a zoom lens effect.
Zoom Factor (1X to 4X), Pan(±100%, center of image can be moved
to left and right edges of screen), Tilt(±100%, center of image can
be moved to top and bottom edges of screen)

```
          DZOOM
► ZOOM    1  1          4
  PAN     0  -100    -100
  TILT    0  -100    -100
  PREVIOUS PAGE
```

● **MOTION** : This product has a feature that allows you to observe
movements of objects in on the screen, 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.

```
     MOTION DETECTION
► ACTIVITY THR.
               0   25   225
  MESSAGE TIME
               1   3    10
  SETUP MOTION ZONE
  PREVIOUS PAGE
```

```
     MOTION ZONE SETUP
```

■ How to Use the Camera

· White : MOTION ZONE Position movement
  Green : MOTION ZONE Size enlargement
  Red   : MOTION ZONE Size reduction
· For MOTION ZONE Confirm, long press SET button

● **PRIVACY SETUP** : Hide an area you want to hide on the screen.

```
     PRIVACY MASK SETUP
► PRIVACY MASK        OFF
  MASK COLOR        WHITE
  PREVIOUS PAGE
```

```
ENABLE MASKS (1 to 6)        ENABLE MASKS (7 to 12)
► MASK 1        ON         ► MASK 7         OFF
  MASK 2        OFF          MASK 8         OFF
  MASK 3        OFF          MASK 9         OFF
  MASK 4        OFF          MASK 10        OFF
  MASK 5        OFF          MASK 11        OFF
  MASK 6        OFF          MASK 12        OFF
  PREV. NEXT                 PREV.
```

```
   ┐
```

· White : PRIVACY-ZONE Position movement.
  Blue : PRIVACY-ZONE Size enlargement or reduction.
· For PRIVACY-ZONE Confirm, long press SET button.

RESET

Resets the camera settings to the factory defaults.

EXIT MENU.

Saves all the setting menus and then exits.

■ Specifications

ITEM	Specifications
Power Consumption	12VDC Only (Max.150mA)
Image Sensor	PIXIM 1/3" High Sensitivity Digital Sensor
Effective Pixels	758(H) x 540(V)
Dynamic Range	120dB(Max), 102dB(Typical)
Horizontal Resolution	690TVL Effective
Min. Illumination	0.1Lux
Day & Night	Auto / Color / B/W
White Balance	Auto / AWB / Indoor / Outdoor / Manual
WB Range	2000°K~11,000°K
Shutter Speed	up to 1/30, 720 sec
Sens-up	Auto / Off (Selectable x2 ~ x64)
Privacy Masking	12 Zones
AGC	Low / Auto / High / Off
Image Flip	Horizontal and Vertical
Camera ID	On / Off
S/N Ratio	More than 50dB
Video Output	Composite video output 75 ohm terminated
OSD	Built-in
Operating Humidity	30% ~ 90% RH
Operating Temp.	-10°C to 50°