NUVICO®

DOME CAMERA

HI-RESOLUTION
Dome Camera

CD-21N / CD-21P
CD-D21N-L / CD-D21P-L

INSTALLATION MANUAL

NUVICO®

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Version 02.15

Disclaimer

- While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions.
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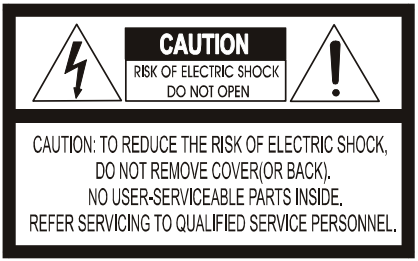
Warning and Caution

WARNING!

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH THE VENTILATION GRILLS OR OPENINGS ON THE EQUIPMENT.

CAUTION!



The lightning flash with 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) instruction in the literature accompanying the product.

Important Safeguards

- Read these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this equipment near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.
- 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.
- Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the equipment.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this equipment during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, the equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.
- CAUTION - THIS MANUAL IS FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO.
- Use Certified/Listed Class 2 power supply transformer only.

Table of Contents

Table of Contents (Continued)

Introduction

ABOUT THIS MANUAL

Thank you for purchasing our Indoor dome camera.

Before installing and using this camera, please read this manual fully and carefully, and be sure to keep it handy for later use.

Key Features

CD-21N

- 700 TVLines
- 2.8-12mm V/F Lens
- Sensup (DSS)
- 3 DNR
- 12VDC / 24VAC
- D-WDR

CD-D21N-L

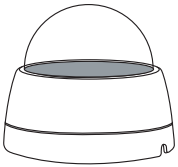
- 700 TVLines
- 2.8-12mm V/F Lens
- 30 IR LEDs
- Sensup (DSS)
- 3 DNR
- 12VDC / 24VAC
- D-WDR

Content Verification

Before installing the camera, please make sure that all of the following items are included in the box.

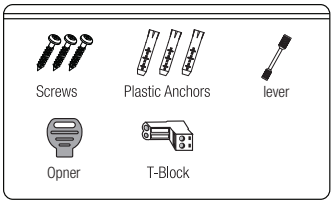
INDOOR DOME CAMERA

1. Dome Camera
2. Installation Manual
3. Service Monitor Cable
4. Mounting Accessories



Indoor Dome Camera

Service Monitor Cable

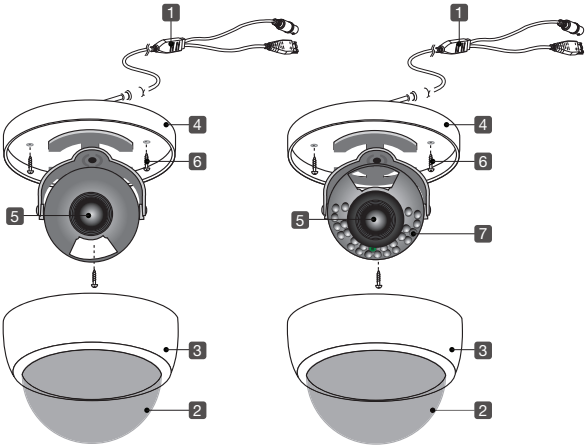


Mounting Accessories

Installation Manual

Parts & Descriptions

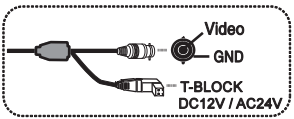
Please refer below for the part names described in this manual.



- Power Input (24VAC / 12VDC) Video Output Connector
- Bubble
- Dome Cover
- Dome Base
- Lens
- Mounting Screws

- Power Input (24VAC / 12VDC) Video Output Connector
- Bubble
- Dome Cover
- Dome Base
- Lens
- Mounting Screws
- IR LED

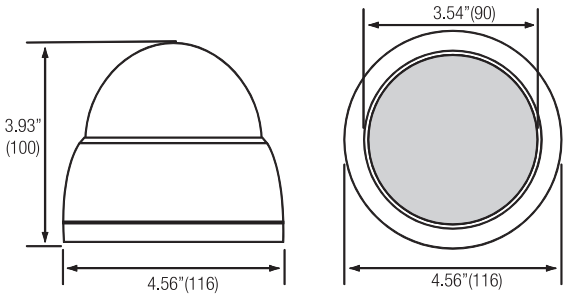
24VAC / 12VDC



REMINDER
For longer, more consistent performance, avoid installation locations prone to direct sunlight.

Dimensions Unit: Inch (mm)

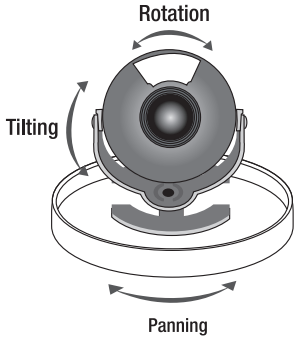
For the specific camera dimensions, please refer to the diagram below.



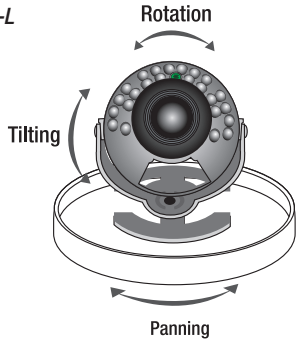
Adjusting the Pan, Tilt and Rotation

Loosen the screw located at the sides of the bracket as illustrated below.

CD-21N



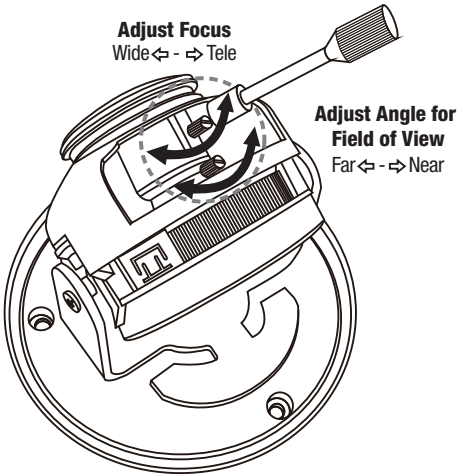
CD-D21N-L



Adjusting the Vari-focal DC Auto Iris Lens

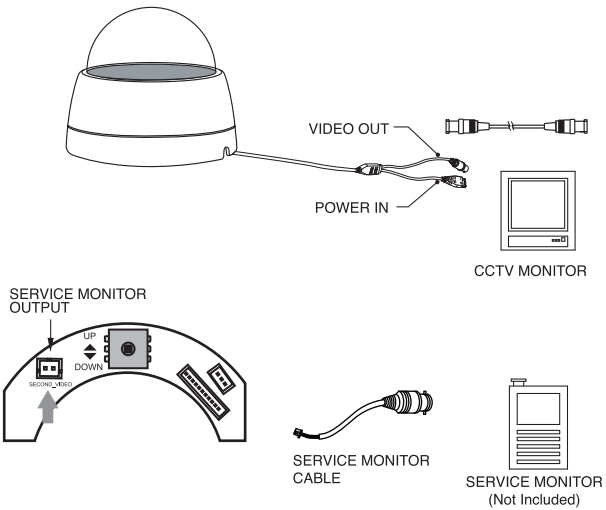
Follow the instruction provided below to make any lens adjustments.

1. Adjust the field of view by sliding the Zoom lever (Zoom in or out).
2. Adjust the focus the same way by sliding the Focus lever (Near or Far).



Connecting to Monitors

Follow the diagram below to make proper connections to the CRT monitor or the service monitor.

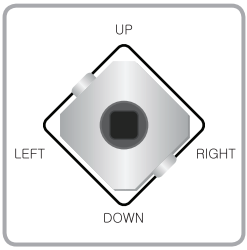


Power Connection - 12VDC/24VAC Dual Voltage (Auto polarity detection and protection)
This camera is equipped with a service monitor output.
To setup the OSD menu, connect the Service Monitor Cable to the Service Monitor output port located at the base of the camera housing as shown above.

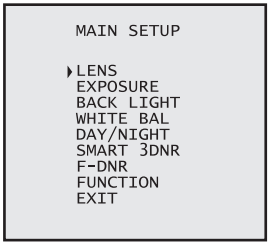
OSD Menu Controls & Navigation

OSD MENU CONTROLS (On-Screen-Display)

- **[SET] key -** Used to access Main menu. Press and hold the [SET] for 3 or more seconds until the menu appears.
- **[▲] Up / [▼] Down key -** Used to scroll through the desired sub-menu selection and to move the cursor up or down during the OSD menu.
- **[◀] Left / [▶] Right key -** Used to adjust the desired menu selection, and to move the cursor left or right during the OSD menu. Also used to confirm the setting changes.
- **ESC menu option -** Used to exit from the sub-menu without saving.



Entering and Navigating the Menus
To enter the main menu, press the [SET] key. To enter the sub-menu, scroll down to the desired sub-menu and press the [▶] right key. Scrolling the available options are accomplished by pressing the corresponding [▲/ ▼] up/down arrow keys.



Go to the Main Menu from the Sub-Menu
To go to the main menu from the sub-menu, press the [▶] right key while highlighting the 'RETURN' option.

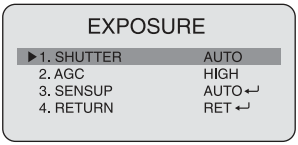
Exiting the OSD Menu
Once all of the desired changes have been made, move the cursor over to the 'SAVE & EXIT' line to save and exit. Choosing 'EXIT' will lose all changes and revert back to its previously saved configuration.

OSD Menu Terms & Settings

1. LENS

This is always set on DC and cannot be changed.

2. EXPOSURE (Continued..)

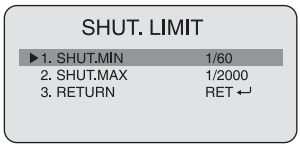


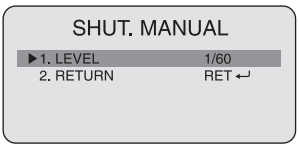
2.1 SHUTTER (AUTO, FLK, 1/60 ⇦ - ⇨ 1/100,000)

The SHUTTER speed can be selected manually according to user preference. Faster shutter speed would be desirable to track fast moving objects across your screen. The shutter speed of 1/60(NTSC), or 1/50(PAL) seconds are recommended.

• AUTO: Select the AUTO mode for automatic adjustment of the shutters. It will slow down or speed up depending on the environment.

• FLK: Select the FLK mode if the screen flickers due to differences in light and electric frequencies.





2.2 AGC - Automatic Gain Control (Off, Low, Middle, High)

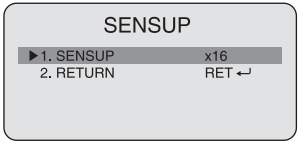
This function is used to amplify the video signal when it falls below the set parameter. As the AGC level increases, the overall screen gets brighter, but the level of Noise is increased.

Note: The AGC feature cannot be modified while Day & Night mode is set to AUTO. By factory default, AGC is set to 'HIGH.'

2-3 Senseup (Off, Auto)

It does not work while the shutter is set to Manual.

The bright screen can be displayed by sensing the degree of the darkness automatically under the circumstance of low light condition.



2.4 RETURN (Ret, End)

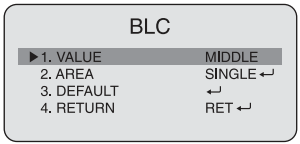
Select RET to go back to the main menu. Select END to save and exit.

3. BACKLIGHT

This function is used to compensate for exposure problem associated with extremely bright backgrounds causing the subjects to bloom or silhouette.

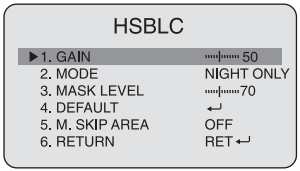
3.1 BLC - Back Light Compensation

The BLC divides the frame and calculates each zone according to its exposure level to counterbalance excessive background light to distinguish the subject in the foreground. User may selectively adjust the size of the area affected by the BLC by increasing or decreasing the respective values.



3.2 HSBLC (Highlight Suppression Back Light Compensation)

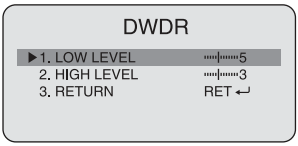
Highlight suppression BLC is a type of BLC that is suitable for extremely strong light. It is specially suitable for detecting the plate of an incoming car with headlights turned on

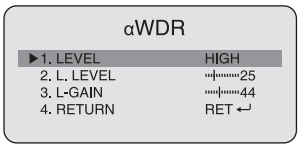


3-3 DWDR (Digital Wide Dynamic Range)

- Wide Dynamic Range works to correct excessive light within a shot to produce a usable image. It works by calculating the ration between the highest and lowest possible value of light to determine a balanced medium.

- Digital Wide Dynamic Range (WDR) is a function which is intended to provide clear images even under varying intensity of illumination, using software. Real WDR lightens dark spots and dims bright areas to bring a whole image into balance



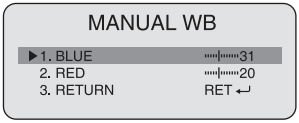


4. WHITE BALANCE

This function is used to control the white balance under different lighting conditions. Adjust this setting to calibrate the camera for correct color rendering.

4.1 Manual

The Blue and Red values can be adjusted independently only in the Manual mode.



4.2 ATW- Auto Tracing White Balance

- Select the ATW1 mode to automatically adjust the color temperature according to its ambient condition.
- The color temperature of the light source is between 1,800°K to 10,500°K

4.3 AWB

The function to search for the color which is matched well with ambient environment. the color temperature is from 3000k to 7000k

4.4 AWC⇨SET

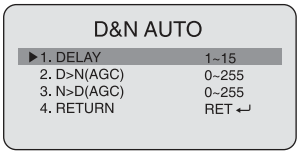
To set white balance using this option you need to point the camera at a white object, make sure it fills as much of the screen as possible, then click SET. The camera will reproduce colors using the color you presented as a baseline. While it can be very accurate this white balance method is best left to professional photographers who are adept at color adjustment and reproduction.

5. DAY&NIGHT (AUTO,COLOR, B/W, EXT)

This function is used to control the color setting during daytime and night-time operation.

5.1 Auto

The Color mode is operated during daytime and automatically converts to B/W mode in the absence of light during night-time.



Delay: sets the time of switching between Color and B/W mode

D⇨N Sets the darkness level before switching from Color to B/W mode.

N⇨D Sets the brightness level before switching from B/W to Color mode.

5.2 Color

The camera is always in Color mode, even during night-time operation.

5.3 B/W

The camera is always in BW (black and white) mode.

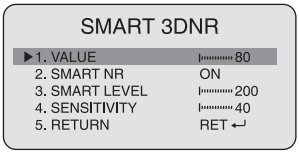
- **BURST -** This function smooths out the noise in B/W mode, and also makes the transition between switching of the modes smoother (Color to B/W)
- **IR Smart -** This function detects too much IR reflection and automatically compensates for the over exposure.

5.4 EXIT

It changes the color and B/W mode automatically by connecting external signal

6. SMART 3DNR

This function reduces background image noise in a low light environment, improving visibility.

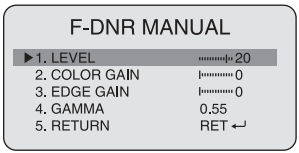


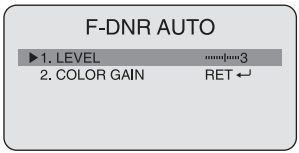
- **OFF**: Deactivates Smart 3DNR.
- **ON** : Value: adjust the noise reduction level
  Smart NR: Choose 'ON' to adjust the smart level and sensitivity.
- **NOTE**: When adjusting the noise reductions level in 3DNR, the higher the level is set, the greater in noise level as well as the brightness of the image.

7. F-DNR

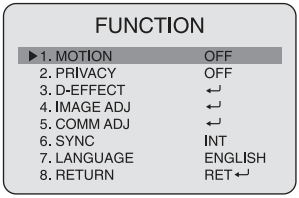
- **F-DNR** improves image clarity when the environment conditions are poor e.g. mist, fog,rain or snow.

- **Note**:F-DNR setting is not activated when aWDR function is ON.

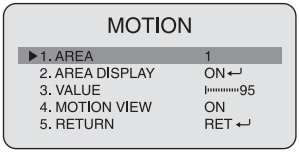




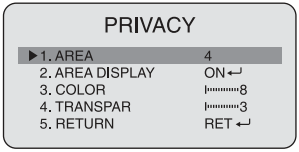
8. Function



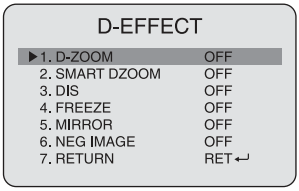
8.1 Motion:



8.2 privacy:



8.3 D-Effect



8.3.1 D-Zoom: Digital Zoom (x1 –x32)

8.3.2 Smart DZoom: Motion activated Digital Zoom to a specified area. This function works more effectively with the optical zoom.

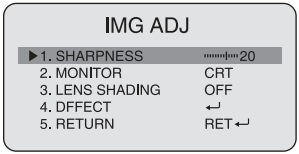
8.3.3 DIS (Digital Image Stabilizer): It enhances picture stability when there is physical motion around a camera . Therefore this feature will help when there is the ghost effect image.

8.3.4 Freeze: Pause the image.

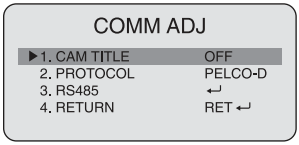
8.3.5 Mirror: you can reverse/flip the image from the camera on your monitor.
Mirror: Vertical Flip
V-Flip: Both horizontal and vertical flip
Rotate: Horizontal flip

8.3.6 Neg. Image: Create a photographic negative image just like a film.

8.4 IMG ADJ



8.5 COMM ADJ



8.6 SYNC

8.7 LANGUAGE

9. EXIT

Technical Specifications | NTSC

Technical Specifications	CD-21N	CD-D21N-L
Video Format	NTSC	
Image Sensor	1/3" CCD	
Horizontal Resolution	700 TV Lines, 750 TV Lines (B/W)	
Day/Night Functionality	Color	Yes w/ ICR
Lens Type (DC Auto Iris)	Vari-focal 2.8mm-12mm	Vari-focal 2.8mm-12mm
Angle of View	125°(W) ~ 35°(T)	125°(W) ~ 35°(T)
IR LEDs	30	30
IR LEDs Distance	100ft.	100ft.
LEDs Illumination Angle	80°	80°
Sync System	Internal	
Effective Pixels (HxV)	976(H) x 494(V)	
Scanning System	525 Lines. 2:1 Interlaced	
Electronic Shutter	1/60 sec. - 1/100,000 sec.	
Main Video Output	1.0 Vp-p Composite, 75 ohm	
Service Monitor Output	1.0 Vp-p Composite, 75 ohm	
Minimum Illumination	0.01 Lux	0.01 Lux, 0.00 Lux (IR LEDs On)
S/N Ratio	More than 52dB (AGC Off)	
Camera Control	External Adjustments - Zoom, Focus	
General Information	**CD-21N**	**CD-D21N-L**
Operating Temperature	23ºF ~ 113ºF (-5ºC ~ +45ºC)	
Operating Humidity	Within 90% RH	
Power Consumption	14W (LEDs On), 8W (Camera Only)	
Input Voltage	12VDC/24VAC Dual Voltage	

*Specifications are subject to change without any prior notice.

Technical Specifications | PAL

Technical Specifications	CD-21P	CD-D21P-L
Video Format	PAL	
Image Sensor	1/3" CCD	
Horizontal Resolution	700 TV Lines, 750 TV Lines (B/W)	
Day/Night Functionality	Color	Yes w/ ICR
Lens Type (DC Auto Iris)	Vari-focal 2.8mm-12mm	Vari-focal 2.8mm-12mm
Angle of View	125°(W) ~ 35°(T)	125°(W) ~ 35°(T)
IR LEDs	30	30
IR LEDs Distance	100ft.	100ft.
LEDs Illumination Angle	80°	80°
Sync System	Internal	
Effective Pixels (HxV)	976(H) x 582(V)	
Scanning System	625 Lines. 2:1 Interlaced	
Electronic Shutter	1/50 sec. - 1/100,000 sec.	
Main Video Output	1.0 Vp-p Composite, 75 ohm	
Service Monitor Output	1.0 Vp-p Composite, 75 ohm	
Minimum Illumination	0.01 Lux	0.01 Lux, 0.00 Lux (IR LEDs On)
S/N Ratio	More than 52dB (AGC Off)	
Camera Control	External Adjustments - Zoom, Focus	
General Information	**CD-21P**	**CD-D21P-L**
Operating Temperature	23ºF ~ 113ºF (-5ºC ~ +45ºC)	
Operating Humidity	Within 90% RH	
Power Consumption	14W (LEDs On), 8W (Camera Only)	
Input Voltage	12VDC/24VAC Dual Voltage	

*Specifications are subject to change without any prior notice.