

XX181-02-00

I-ONYX
VN-855 AND VN-855-C
VN-855DN AND VN-855DN-C
VN-855WDR AND VN-855WDR-C
IP CAMERAS (VICONNET VER 3)

Vicon Industries Inc. does not warrant that the functions contained in this equipment will meet your requirements or that the operation will be entirely error free or perform precisely as described in the documentation. This system has not been designed to be used in life-critical situations and must not be used for this purpose.

Warning: To prevent fire or shock hazard, do not expose the unit to rain or moisture.

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**INSTALLATION &
OPERATION MANUAL**





Dear Valued Customer:

Thank you for selecting Vicon systems and products for your video needs.

Since Vicon's beginning in 1967, our only business has been the design, engineering, and production of the highest quality video systems and equipment for use in a wide variety of security, safety, control, surveillance, and communication applications.

We stand behind the quality and dependability of every product with an industry leading Beneficial Use warranty.

If you are not satisfied with a Vicon product or service, I would like to know. Your complete satisfaction is the mission of every Vicon employee.

Sincerely,

Kenneth M. Darby
President

FCC Notice

Note: *Complies with Federal Communications Commission Rules & Regulations Part 15, Subpart B for a Class A digital device.*

WARNING

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instruction, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class A computing device in accordance with the specification in subpart B of part 15 of the FCC rules, which are designed to provide reasonable protection against such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Relocate the equipment away from the receiver.
- Plug the equipment into a different electrical outlet so that the equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

"Interference Handbook, Bulletin CIB-2"

This booklet is available from the U.S. Government Printing Office, Superintendent of Documents, Mailstop SSOP, Washington, D.C. 20402-9328, ISBN 0-16-045542-1.

Warning: *Power must be removed from this unit before removing circuit modules or ribbon cables.*

Caution: *This unit contains circuit cards with integrated circuit devices that can be damaged by static discharge. Take all necessary precautions to prevent static discharge*

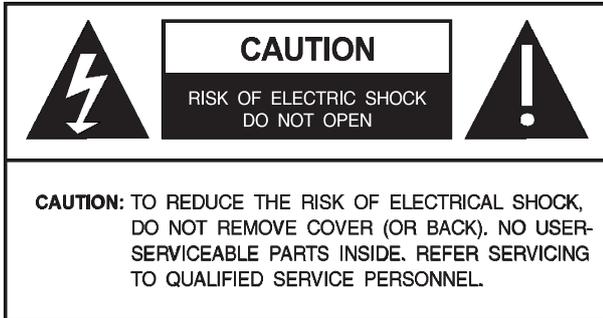
Contents

Important Safeguards	i
Precautions	2
Connectors and Controls	3
OSD Menu for VN-855WDR.....	8
ViconNet Configuration.	15
Shipping Instructions.....	24
Coaxial Cable Recommendations.....	25
Twisted-Pair Cable	26
Network Cable.....	27
Technical Information	29
Vicon Standard Equipment Warranty.....	30

Important Safeguards

GRAPHIC SYMBOL EXPLANATION

The lightning bolt symbol alerts the user to the presence of dangerous voltage that may present the risk of electric shock.



The exclamation point symbol alerts the user to the presence of important operating and maintenance instructions.

1. **Read Instructions** - Read all safety and operating instructions before the product is operated.
2. **Retain Instructions** - Retain all safety and operating instructions for future reference.
3. **Heed Warnings** - Pay attention to all product warnings.
4. **Follow Instructions** - Follow all operating instructions.
5. **Cleaning** - (Do not use caustic, abrasive or aerosol cleaners)
For units that CAN BE DISCONNECTED from the power source, use a damp cloth for cleaning.
For units that CANNOT BE DISCONNECTED from the power source, use a damp cloth for cleaning and do not allow moisture or liquids to enter vents.
6. **Attachments** - Use only Vicon recommended attachments to prevent unit damage and personal injury.
7. **Water and Moisture** - Use only products designed for outdoor environments where they will be exposed to water or moisture.
8. **Accessories** - Do not place the unit on an unstable surface to avoid falling. Use only Vicon recommended mounting accessories.
9. **Ventilation** - Do not block ventilating slots and openings as they ensure reliable operation. Do not place the unit near a heat source or into an enclosure unless recommended by Vicon.
10. **Power Sources** - The product should only be operated from the recommended power source. If not specified, consult your Vicon dealer or local power company.
11. **Grounding** - Only products equipped with a 3-prong grounded plug should be inserted into a grounded power outlet. Contact an electrician to replace an obsolete outlet. Do not force a plug into a non-grounded outlet.
12. **Power Cord Protection** - Power supply cords should not be routed in trafficked areas or in tight spaces where they will be pinched or used to bear weight. Allow some slack in the cord where it enters the unit.
13. **Outdoor Cable Grounding** - Use only grounded outdoor cables to protect against voltage surges and static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70-1984, provides information on proper grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors and the requirements of grounding electrodes.
14. **Lightning** - Disconnect the product from its power source and cable system when possible to prevent damage due to lightning and power-line surges.
15. **Power Lines** - Do not locate outside cables over power or utility lines where they can fall and make direct contact. Contact with power lines can be fatal.
16. **Overloading** - Do not overload wall outlets and extension cords to prevent risk of fire and electric shock.
17. **Object and Liquid Entry** - Never probe through, or spill liquid into, enclosure openings to prevent risk of fire or electric shock.
18. **Servicing** - Refer all servicing to qualified service personnel.
19. **Damage Requiring Service** - Obtain service when:
The power-supply cord or plug is damaged.
Objects have fallen or liquid has been spilled into the product.
The product is not designed for outdoor use and has been exposed to water or moisture.
The product does not operate per the operating instructions. Perform Vicon recommended adjustments, modifications and troubleshooting only to avoid unit damage and personal injury. The product has been dropped. The product shows a significant change in performance.
20. **Replacement Parts** - Use only Vicon specified replacement parts or an approved equivalent to prevent unit damage and injury.
21. **Safety Check** - Request safety checks to be performed following repair or maintenance to verify proper operation.
22. **ESD Precaution** - Take all normal electrostatic discharge precautions to avoid component damage during installation and operation.
23. **For 230 VAC Devices**- When the disconnect device is not incorporated in the equipment or when the plug on the power supply is intended to serve as the disconnect device, follow the guidelines below:
For permanently connected 230 VAC units, a readily accessible disconnect device must be incorporated into the site wiring.
For 230 VAC units with a plug, the outlet must be installed near the unit and be easily accessible.

PRECAUTIONS

1. Installation of the camera must be performed by qualified service personnel in accordance with all local and national electrical and mechanical codes.
2. Do not attempt to disassemble the camera. In order to prevent electric shock, do not remove screws or cover. There are no user-serviceable parts inside.
3. Handle the camera with care. The camera could be damaged by improper handling or storage.
4. Do not expose the camera to rain or moisture, or try to operate it in wet areas. Take immediate action if the camera becomes wet. Turn the power off and refer servicing to qualified service personnel. Moisture can damage the camera and also create a danger of electric shock.
5. Do not use strong or abrasive detergents when cleaning the camera body.
Use a dry cloth to clean the camera when dirty. In a case where the dirt is hard to remove, use a mild detergent and wipe gently.
6. Never point the camera toward the sun. Whether the camera is used outdoors or not, never point it toward the sun. Use caution when operating the camera in the vicinity of spot lights or other bright lights and light reflecting objects.
7. Do not operate the camera beyond its temperature, humidity or power source ratings.
Do not use the camera in an extreme environment where high temperature or high humidity exists. Use the camera under conditions where temperatures are between 14°F~122°F (-10°C~+50°C), and humidity is below 85%. For the correct power supply, refer to the specification sheet.
8. If using 24 VAC power adapter, only use the 24 VAC UL Listed Class 2 power transformer.
9. Only use a Listed Class 2 power source.

▲ **Caution:** To prevent fire or shock hazard, UL listed wire VW-1, style 1007 should be used for the cable.

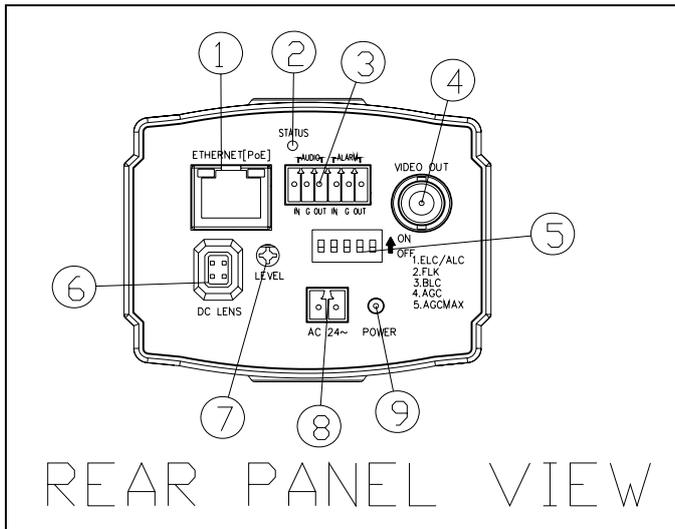
PACKING LIST

1. Iris lens connector plug for DC drive – 1 pc
2. Dust protective cap – 1 pc
3. Ferrite clamp – 2 pc (WDR only)
4. Power connector – 1 pc
5. 6-pin alarm/mic connector – 1 pc

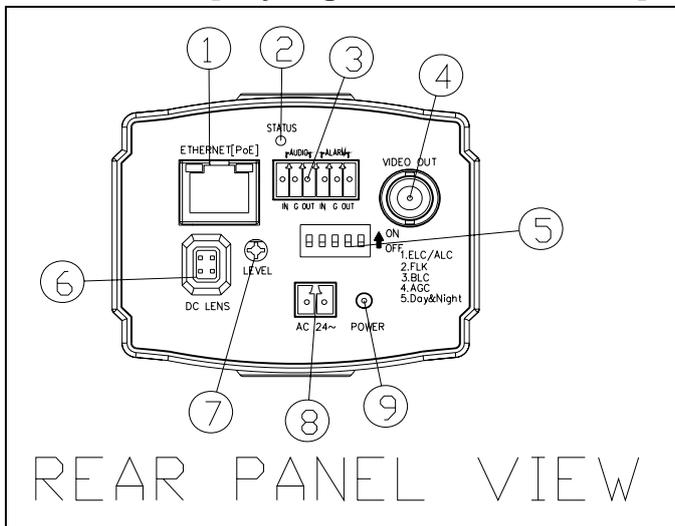
The I-Onyx™ VN-855 is an integrated camera that captures digital video as well as converts analog video to digital video and transmits the video over the ViconNet® network (using Version 3 software). The VN-855 delivers up to 30 fps.

CONNECTORS AND CONTROLS

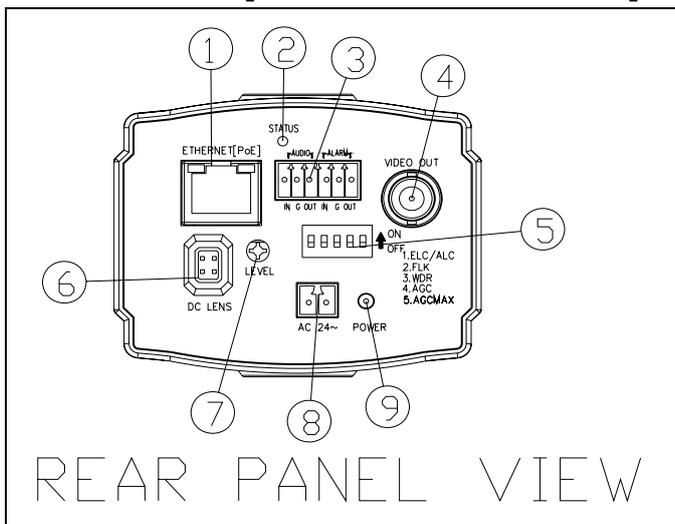
[High-Resolution Model VN-855]

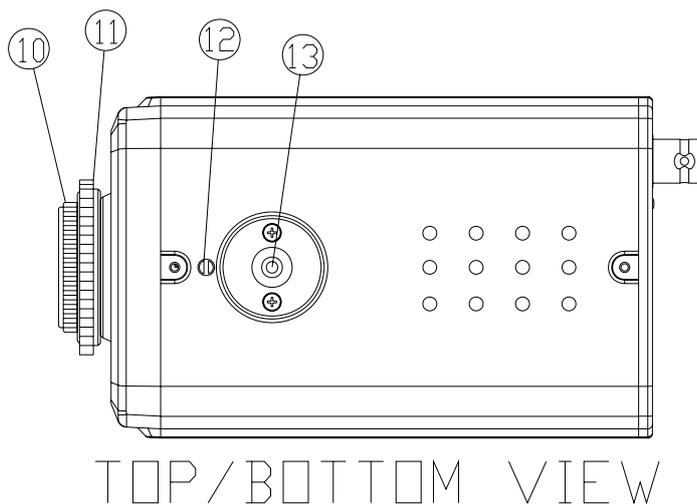


[Day/Night Model VN-855DN]



[WDR Model VN-855WDR]





1. ETHERNET (Network Port)

Connects to Internet, Ethernet (10Base-T/100Base-T). There are 2 LEDs on the RJ-45 connector. The green LED indicates that there is connection to the Network. The amber LED indicates Network activity (data flowing to the camera). This connection also provides PoE (Power over Ethernet). When using PoE, a PoE device, such as the NETSWITCHPOE-24, is required.

2. STATUS

This LED indicates that the camera IP board is live. If the camera is live, the blue LED blinks.

3. ALARM (Alarm Input) and AUDIO (Microphone)

This terminal block input provides 1 alarm and 1 audio input to the camera.

ALARM (Alarm Output) can be defined in the ViconNet application as a relay. It can be set as ON-High, OFF – Low or Momentary (momentarily ON).

Note: To connect to a relay device, the electrical specifications are: open-drain output accepts voltages up to 5.5 V, 24 mA output drive at 3.3 V, non-inductive.

4. VIDEO OUT (CH1)

1.0 V p-p/75 ohm composite video signal is provided at this BNC connector.

5. MODE SELECT SWITCH – (This switch varies according to model)

Note: The VN-855WDR can be set up through an OSD menu system; refer to the section that follows for programming the camera. The camera defaults to DIP switch settings. The PRIORITY setting in the SPECIAL menu must be set to REMOTE in order to set the OSD settings.

1. ELC/ALC Select Switch

This switch is used to select ELC (electronic light control)/EE (electronic exposure) mode or ALC (automatic light control)/AI (autoiris lens) mode. Pole 4 is set to ON for EE/ELC and OFF for AI/ALC.

In the EE/ELC mode, a continuously variable electronic shutter is employed to automatically control the exposure time of the CCD image sensor according to the incoming light level. With this

mode selected, a fixed or manual iris lens can be used instead of an autoiris lens. In the AI/ALC mode, the CCD shutter speed is fixed to 1/60 (NTSC, 1/50 PAL) sec, and the incoming light level is controlled by the autoiris lens. When using a DC-drive type of autoiris lens, set this switch to the AI/ALC position.

Cautions:

- 1) Under bright lighting conditions such as a sunny day outdoors, use an autoiris lens; the EE/ELC control range is not wide enough under these conditions.
- 2) Under certain unique lighting conditions, the following phenomena may appear:
Strong smear and/or blooming on high light objects such as spotlights or windows.
Noticeable flicker in the picture and/or color rendition variations.
To avoid this, use an autoiris lens.
- 3) When operating in EE/ELC mode with a manual iris lens, the depth of field of the image may be less than that obtained by using an AI/ALC lens. Depth of field varies inversely with the iris opening. Thus, using this camera in ELC mode with the manual iris lens fully opened may result in less depth of field and the distant objects in the picture may be seen out of focus.

Note: When adjusting the focus, it is recommended that the iris be completely open (a dark condition, either at night or using a filter) so that the depth of field does not influence the adjustment.

- 4) Fixed iris or manual iris lenses may be used with the linear shutter (EE/ELC mode) when the scene brightness varies over a limited range.
- 5) Do not use the EE/ELC mode when an autoiris lens is installed.

2. FLK (flickerless) ON/OFF Switch

This function is only used in Japan. When set to ON, the shutter speed is fixed at a rate of 1/100 (120) sec.

3. BLC (Backlight Compensation) ON/OFF Switch **OR** WDR (Wide Dynamic Range) ON/OFF Switch (VN-855WDR only)

If the subject being viewed is too dim because of a bright background, set the BLC switch (Pole 3) to ON to compensate for the bright background. With BLC on, the background brightness may saturate in some cases. This function may not operate properly if the object is too small compared to the area of the background. This function can be used with either the linear shutter (EE/ELC mode) or an autoiris lens (AI lens/ALC mode). For the VN-855WDR, the Wide Dynamic Range (WDR) function, which provides the best contrast for high quality images, can be turned ON or OFF.



WITH BLC/WDR OFF



WITH BLC ON



WITH WDR ON

4. AGC (Automatic gain Control) ON/OFF

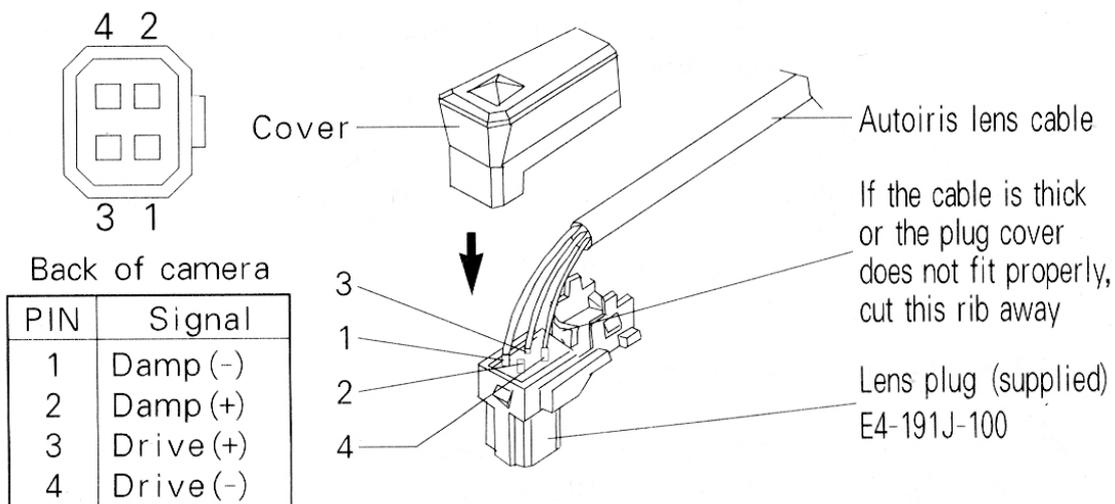
This switch is provided for the AGC circuit. The AGC circuit incorporated into the camera boosts the sensitivity automatically when the scene illumination is insufficient.

5. AGC MAX ON/OFF Switch **OR** DAY/NIGHT ON/OFF Switch (VN-855DN only)

The automatic MORE-GAIN function automatically adjusts picture gain in accordance with the brightness of the subject. This function is enabled when set to ON. For the VN-855DN camera, the day/night function can be turned ON or OFF.

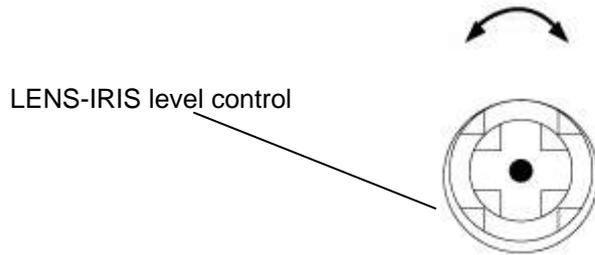
6. AUTOIRIS LENS CONNECTOR FOR DC DRIVE LENS

This connector supplies the control signals to the DC drive autoiris lens.



7. ALC LEVEL ADJUSTMENT POTENTIOMETER FOR DC DRIVE LENS

This potentiometer is used only if the camera is fitted with a DC drive autoiris lens. It is used to control the amount of light striking the CCD image sensor.



Monitor Screen	LEVEL Control Direction
To increase the brightness	Clockwise
To decrease the brightness	Counterclockwise

8. POWER IN (24 VAC)

This terminal accepts 24 VAC power source. Recommended power supply is minimum 9 W (when not using PoE).

▲ Caution: To prevent fire or shock hazard, UL Listed wire VW-1, style 1007 should be used for the cable for 24 VAC input terminal.

9. POWER INDICATOR LED

This LED turns ON only when power is supplied and the DC-DC converter (or the regulator) inside the camera works properly or PoE is functioning.

10. CCD DUST PROTECTIVE CAP

Remove this cap before installing the lens. Do not handle or leave the camera with cap off.

12. BACKFOCUS ADJUSTMENT

This is used to position the CCD image sensor at the precise point of focus the lens.

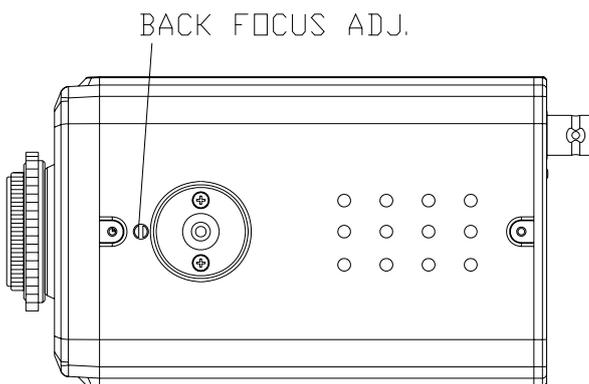
Backfocusing Fixed-Focal-Length Lenses

1. Install a lens and connect the camera to a monitor and power supply.
2. Open the iris completely. If an autoiris lens used, reduce the room lighting to allow the lens to open completely. This gives the most accurate results.
3. Adjust the screw slowly until the sharpest picture is obtained. This completes the adjustment. The backfocus adjustment screw is held in place by friction, so there is no locking screw.

Backfocusing Zoom Lenses

1. Install a lens and connect the camera to a monitor and power supply. If the lens is motorized, it must also be connected to a lens control.
2. Position the camera 25~50 feet (8~16 meters) from a flat vertical surface suitable for focusing. A newspaper works well as a focusing target.

3. Open the iris completely. If an autoiris lens used, reduce the room lighting to allow the lens to open completely. This gives the most accurate results.
 4. Zoom the lens in to the maximum telephoto setting. Adjust the optical focus of the lens using the remote lens control.
 5. Zoom out to the maximum wide angle setting. If the picture is no longer in focus, readjust the backfocus screw.
 6. Repeat steps 4~6 until the image remains sharp through the entire zoom range.
- This completes the adjustment. The backfocus adjustment screw is held in place by friction, so there is no locking screw.



13. CAMERA MOUNTING HOLE

There are two mounting holes provided, one each on the top and bottom of the camera.

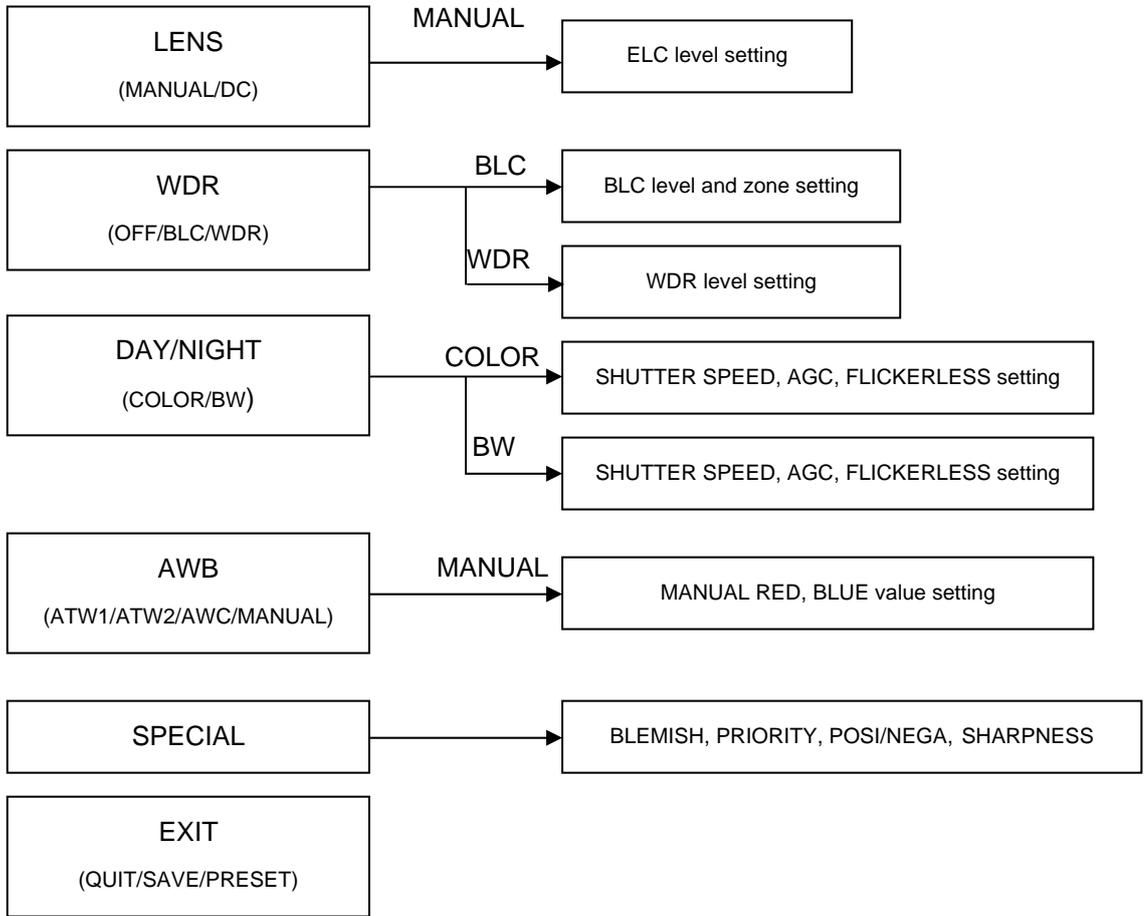
OSD MENU SET UP FOR VN-855WDRV3 CAMERA

Settings for the VN-855WDRV3 camera can also be done from an OSD menu system after the camera is setup in the ViconNet system (ViconNet setup procedure follows). Refer to the most current ViconNet manual, XX113-0X, for detailed instructions on using ViconNet.

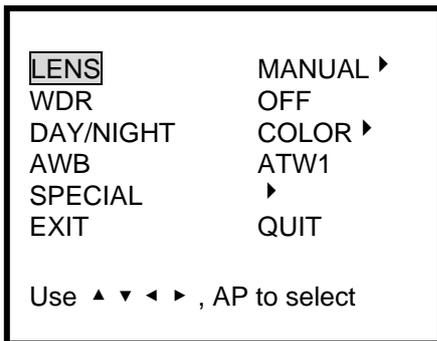
Configuration of the VN-855WDR is done by activating the PTZ driver as SurveyorVFT default configuration (4800 bps). Be sure the most current PTZ driver is installed. After configuration is completed, the driver **MUST BE DISABLED to prevent confusion about PTZ functions of this fixed camera during operation.**

Enter Preset 94 to enter the menu system. Use AP to make submenu selections, AI to escape submenus, Pan Left/Right to make changes/selections and Tilt Up/Down to move the cursor in the menu system and navigate between menus. When using the mouse to set parameters that have a large range of settings, clicking and holding the mouse will scroll quickly through the numbers.

Menu Flow Chart



Main Menu



⚠ Caution: In order to change setting values in the menus, first set PRIORITY to REMOTE on SPECIAL menu. The SPECIAL menu must be set to REMOTE **before** menu items are set for them to take effect.

LENS

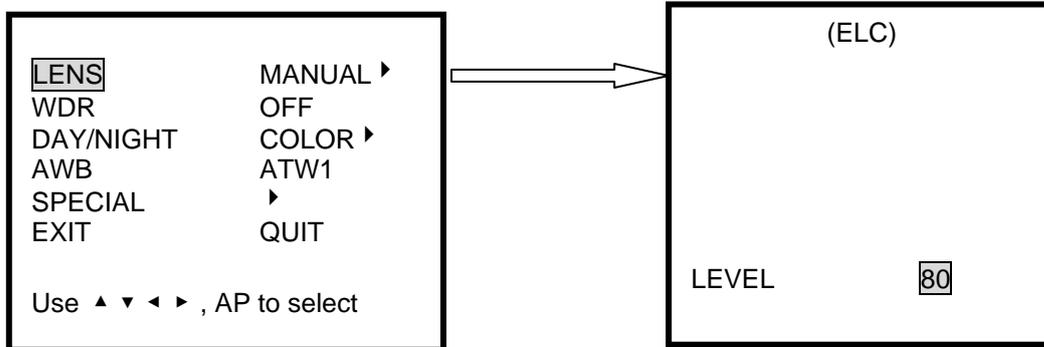
- Select according to lens type:
 - Manual Iris Lens: Manual mode
 - DC Drive Lens: DC mode
- When WDR function is set to ON, mode changes to DC mode, and DC Iris level cannot be setup.

DC Drive Lens

- In Lens menu, select DC using Tilt Up/Down and press AP key. When in DC mode, settings are done using to Level control potentiometer on the camera.

Manual Iris Lens

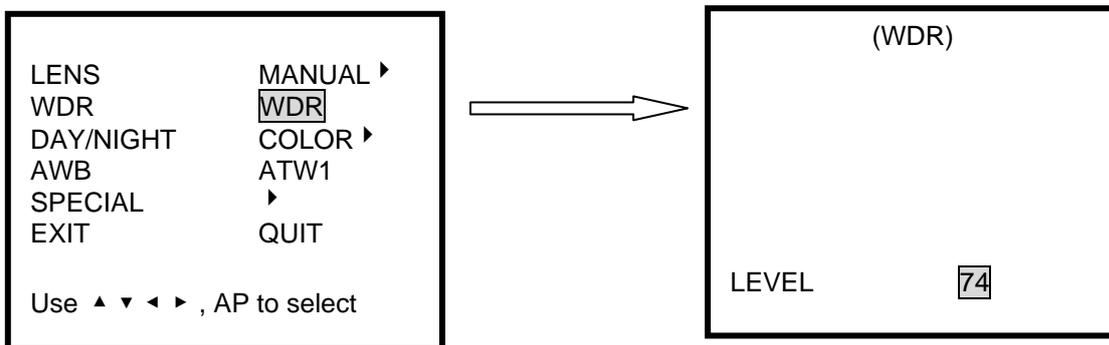
- In Lens Menu, select MANUAL using Tilt Up/Down and press AP key.
- In the following screen, adjust the brightness level using Pan Left/Right.



WDR (Wide Dynamic Range)

WDR

- Using this function, both the indoor and outdoor scenes display clearly.
- Select WDR using Tilt Up/Down and press AP key. Select the Level with Pan Left/Right.

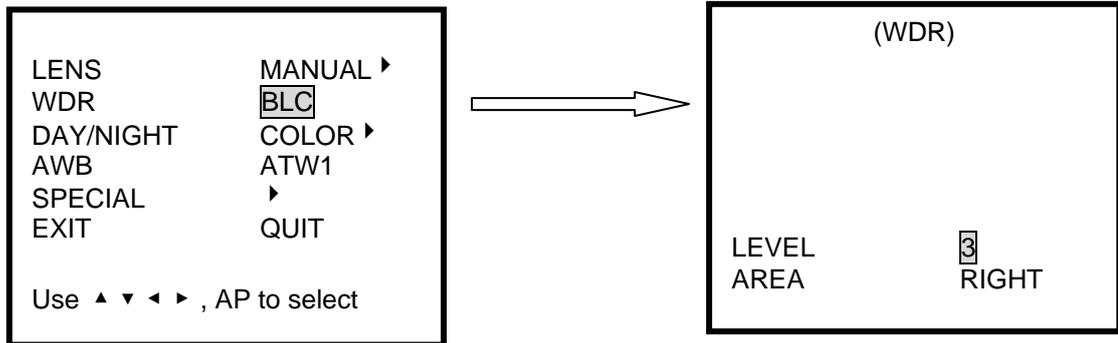


BLC (Backlight Compensation)

- In general, Iris is adjusted for a bright area, so the face of a person who stands against a bright area appears dark.

- With BLC function, the face displays clearly.
- In the WDR Menu: Select BLC and press AP key.

In the screen that follows, select "Level" and "Area" (Right, Left, Top, Bottom).



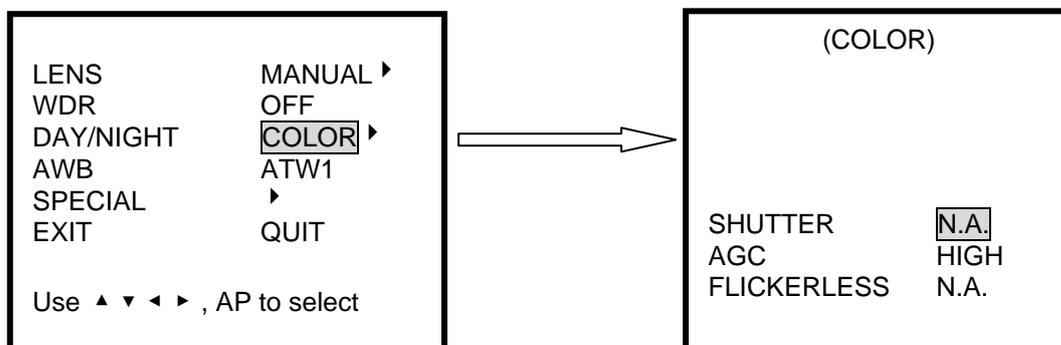
The WDR function can be set to OFF.

Day/Night

Color

- In this mode, video output is always color, regardless of illumination.
- In Day/Night Menu: Select Color and press AP key. In the following screen, select Shutter (speed), AGC (Level) and Flickerless (ON/OFF). Shutter and Flickerless settings are available in Lens DC mode only. Otherwise the display as N.A.

When Manual mode is selected in Lens Menu, set up of Shutter and Flickerless is not available.

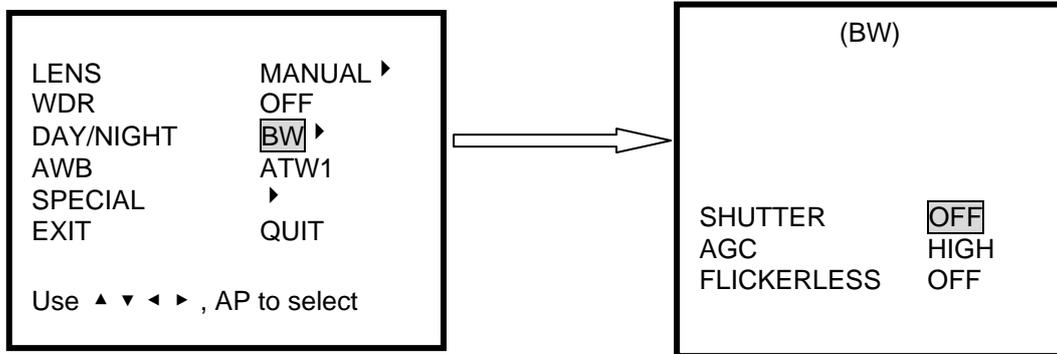


- Shutter mode: Supports 9 levels between 1/100 sec ~ 1/50,000 sec.
- AGC mode: Automatic Gain can be setup as High/Low/Off using Pan Left/Right. In a dark environment, when AGC gain is set to high, the image becomes brighter.
- Flickerless mode: When ON, shutter speed is fixed at 1/100 sec.

Black-and-White (BW)

- In this mode, video output is black-and-white (without IR filter), regardless of illumination.
- This function is useful in a dark environment and is the same as using a black-and-white camera.
- Day/Night Menu: Select BW and enter Preset 94.

In the screen that follows, select Shutter (speed), AGC (Level), and Flickerless (ON/OFF).



AWB

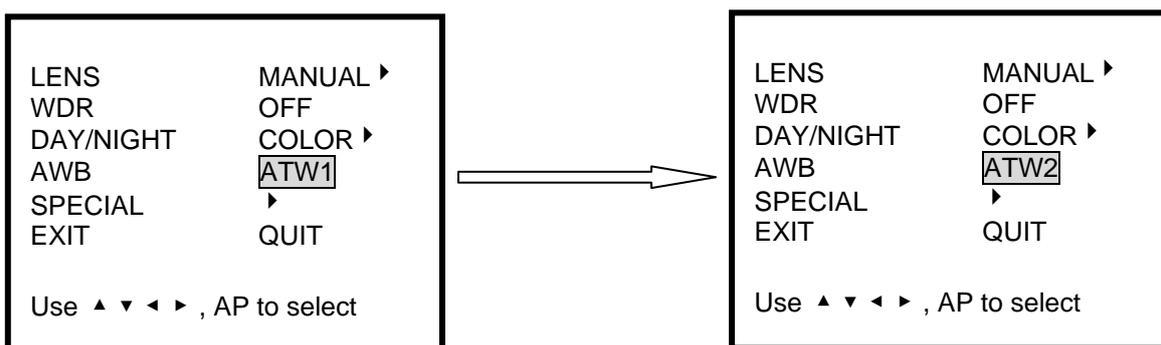
- White Balance function can be setup according to environment.
- In AWB menu, 4 levels (ATW1, ATW2, AWC, Manual) can be setup.

ATW 1

- White Balance is automatically adjusted in the range of 2500K~7500K degrees.

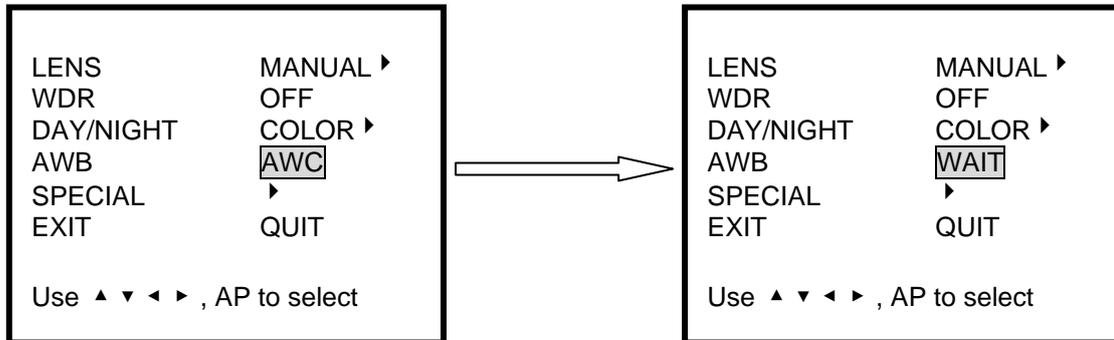
ATW 2

- White Balance is automatically adjusted regardless of the range of color temperature.



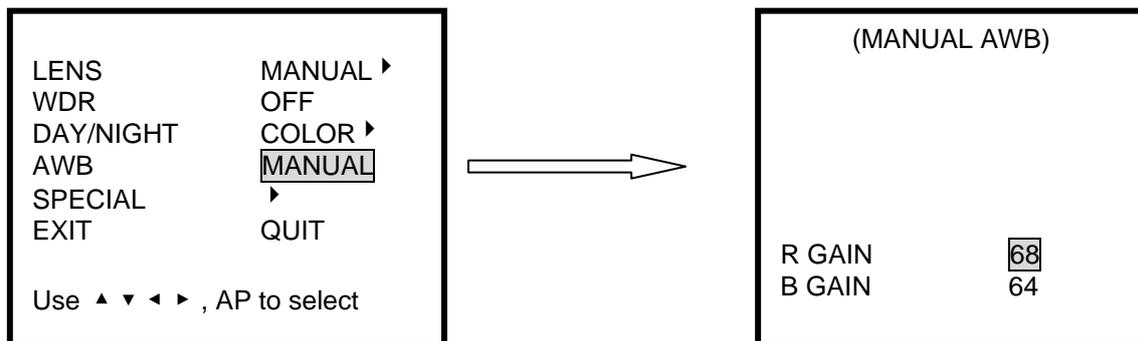
AWC

- This function is used to set the best color temperature in the current environment. If camera has full white screen in front of white paper, and AP key is pressed, the camera is fixed at the best color temperature. "Wait" displays while it sets.
- When the environment is changed, new settings are needed using the same method.



Manual

- White Balance can be directly adjusted by user.
- In Manual mode, press AP key to get following screen.

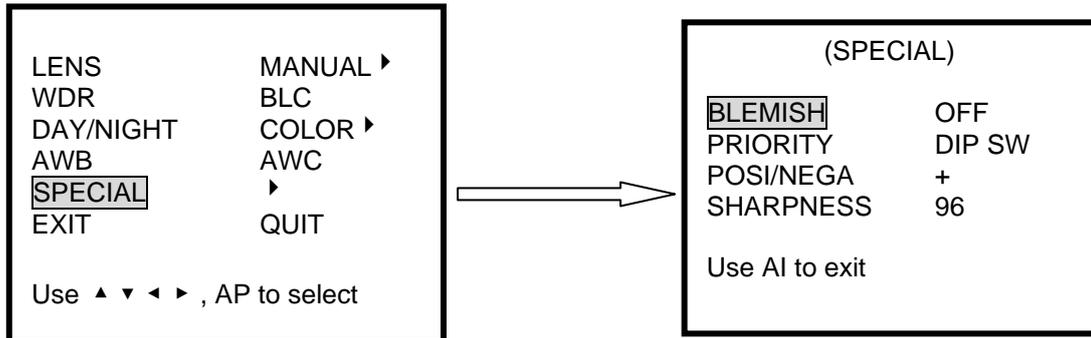


- In R Gain and B Gain modes, the value of Red and Blue can be controlled using the keypad. Considering the change of color, select proper values and fix color temperature.

⚠ Caution: Auto White Balance function can work incorrectly in high temperature (bright sky, sunset), darkness, or drastic change of light.

SPECIAL

- In Special menu, if AP key is pressed, Blemish, Priority, Posi/Nega, and Sharpness can be adjusted.



Blemish

Blemish Mode is selectable between ON and OFF using Pan Left/Right.

When BLEMISH is "ON", it compensates for pixels with uneven light levels (white spots).

⚠ Caution: Before selection of Blemish ON, lens must be covered so the sunlight is blocked to the CCD.

Priority

Set Priority using Pan Left/Right on Priority Mode. Set to Remote to use the OSD menu system. (This must be set before making any other menu selections for the settings to take effect.) When setting to DIP SW, menu setting values will not be applied. Use the DIP switch on the rear of the camera for settings.

POSI/NEGA

In Posi/Nega mode, brightness of video shows (+: normal, -: reverses to negative image).

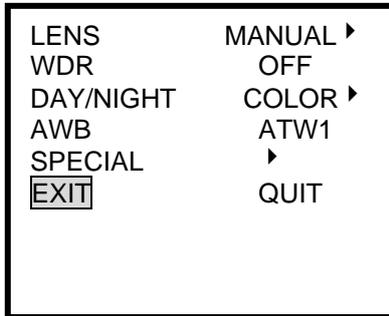
Sharpness

In Sharpness mode, outline of video image can be controlled.

At high level, outline is clear; however, when level is too high, noise can occur.

EXIT

- Exit Menu is used to close the menu.
- The menu is setup with 3 choices (Quit, Save, Preset).



Use the AP key to exit the OSD system.

QUIT

- Changes are not saved. Previously saved menu remains and the menu is closed

SAVE

- Changes are saved and menu is closed.

PRESET

- All of setup menu goes to factory default and menu is closed.

VICONNET CONFIGURATION

Network Considerations

The VN-855IP IP Camera can be connected to any ViconNet network (Version 3 software). Kollector Elite Recorders and ViconNet Workstations can be used for live viewing and recording of network-streamed video. A network can be as simple as a single VN-855IP camera connected to a ViconNet Workstation or can be complex with the addition of several networks interconnected via WAN.

When adding a VN-855IP IP Camera to the ViconNet network, the following items must be considered:

- The number of cameras on a switch with respect to switch capabilities and system bandwidth mapping.
- Bandwidth limitations on ports connected to workstations (using 100 or 1000 Mbps).
- Workstation capabilities such as processing speed, disk write speed and display card strength.
- Storage size and location types including local Workstation recording, attached SCSI RAID and integrated NAS/SAN devices.

Configuring ViconNet (IP/LAN)

The VN-855IP camera is shipped with a ViconNet version 3 CD that contains the ViconNet version 3 software needed to setup your IP system, including the application setup, the camera firmware and setup software (VNSetup). Be sure the ViconNet Workstation meets the minimum requirements, is running the ViconNet application (version 3) (VNSetup) and has the proper PTZ camera driver. The VNSetup is found on the included CD under software, IP Camera Setup. Refer to appropriate ViconNet documentation.

The default parameters on the IP camera are:

IP address: [10.10.10.1].

Nucleus IP address: [1.1.1.1].

On first startup, the camera will attempt to establish connection to the Nucleus with the default address (1.1.1.1). Connecting it to an active Nucleus is done through the VNSetup utility.

Note: When connecting to ViconNet application version 3, the number of **concurrent** users viewing video from the same device cannot **exceed 10 users**.

Groups and Users Restrictions

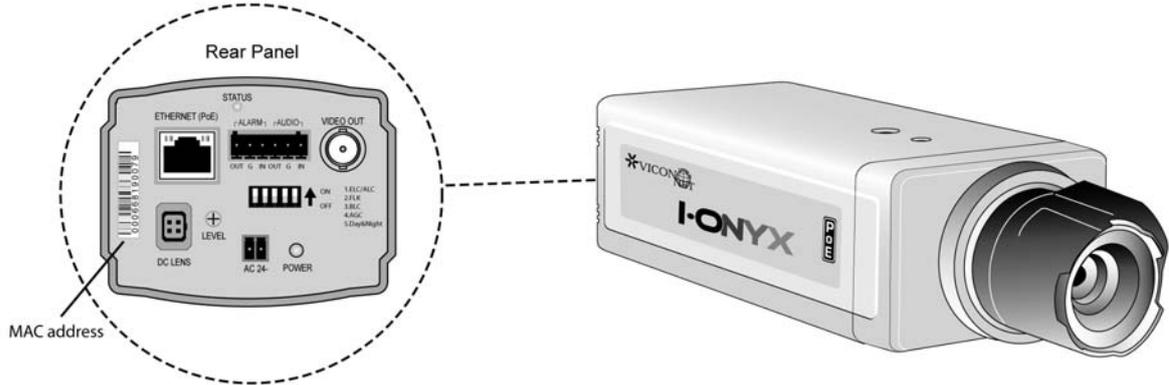
ViconNet allows creating Multiple Groups and Users in order to limit the rights to different levels. For more information on how to create Users and Groups, refer to the latest revision of ViconNet manual XX113.

Although the ViconNet software does not limit the number of Groups and Users that can be created, the VN-855IP IP Camera has Users and Groups limitations. For ViconNet version 3, the camera can support the first 20 Groups (including Administrators and Guests) and the first 100 Users.

IMPORTANT NOTE!

IMPORTANT NOTE !

Each IP camera board has a unique MAC (media access control) address. This information is essential in the camera configuration process described in the ViconNet Configuration Section later in this manual. Before starting installation make a record of this address and the location where the camera is installed. The MAC address label is located on the rear panel, as shown in the illustration below. It is a 12 digit number located below the bar code.



Make all MAC address entries to the log below and retain for future reference

MAC Address	Camera Location
Example: 00-06-68-19-00-79	<i>first floor- lobby doors</i>

Configuring the Network Settings

Note: Before starting, make sure that VNSetup is installed on the configuring PC\workstation. Installation is done using the CD included.

There are two ways to change the IP camera network settings:

- Activating the camera for the first time: via VNSetup application.
- Camera connects to an active Nucleus: via ViconNet application (connection to same Nucleus as the camera is necessary).

Note: In order to install firmware, the PC and camera must be on the same IP network.

Using the VNSetup Utility

VNSetup consists of several TABs. Each TAB provides different functionalities.

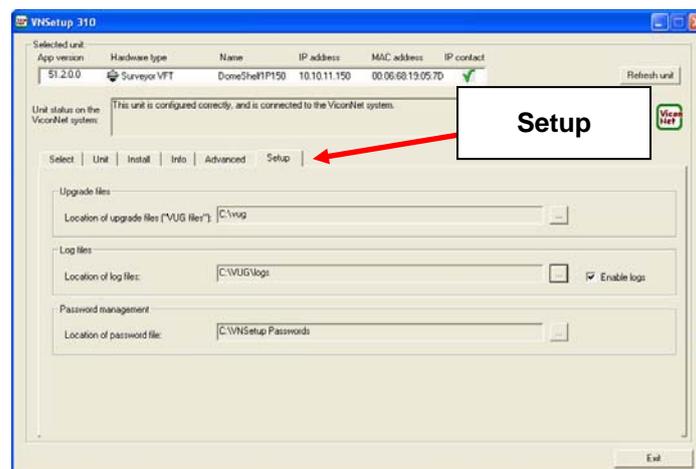
Note: Once the VNSetup is run the first time, a shortcut is placed on the desktop for future use.

1. Make sure the MAC address and password of the camera is available. Use MAC Address log provided.
2. Verify that the camera is physically connected to the configuring workstation via the network.

Setup TAB

Note: Since the Setup configuration affects the entire installation process, it **MUST** be configured first.

In the Setup TAB, 3 fields are defined. The *Upgrade files* field indicates the installation upgrade directory. The *Log files* field allows the user the ability to put a copy of log files in a predefined directory. *Password management* selects a directory to save all password files. (By default, the setup files will be installed to C:\VUG.)



Select TAB

The SELECT TAB allows the user to select the relevant IP Unit in order to change its settings or to upgrade its version.

1. From the *Unit selection* list, select the relevant IP product. In case of multiple sites, it is advised to use the filter under the *Unit Type* field.

2. Once the desired unit has been selected, notice the  icon, indicating a password protected unit. In order to change the selected unit's settings on the local PC that is running the VNSetup, a unique password must be entered.

Note: This is correct for BIOS from version 1.0.10.86 and later (ViconNet version 3).

3. Password authentication

There are two authentication options. You can either authenticate a specific unit, by entering its password, or use a Nucleus authentication, allowing you access to all units in the network.

- 3.1. Unit authentication - On the *Unit password* field, enter the unit password and press the *Add*

password button. Once approved, notice that the  icon has disappeared and the user may proceed to next phase.

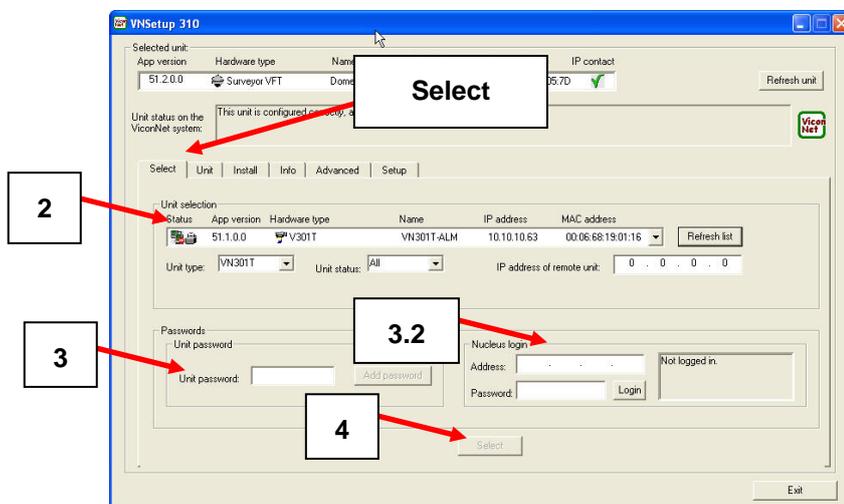
Note: The unit password is supplied on the sticker with the MAC address in the camera package.

- 3.2. Nucleus authentication - On the *Nucleus login* field, enter a valid Nucleus IP address and

password and press the *Login* button. Once approved, notice that the  icon has disappeared from **all** the units currently connected to the selected Nucleus and the user may proceed to next phase.

4. Press the *Select* button on the lower section of the screen.

5. The selected unit appears on the *Selected unit* section on the top of the screen and settings can be changed.

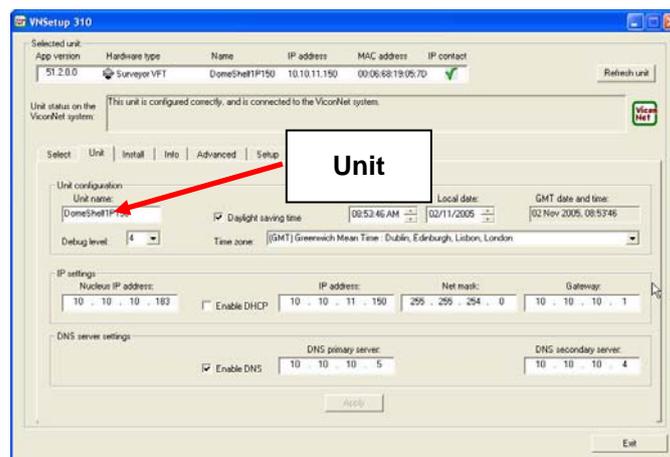


Unit TAB

The Unit TAB allows the user to change the following settings: Unit name, Nucleus IP address, IP address, Net mask, Gateway, DNS, DHCP, Time Zone, daylight saving time, Local time, Local date, and Debug level, on a scale of 0-4, where 4 is most information.

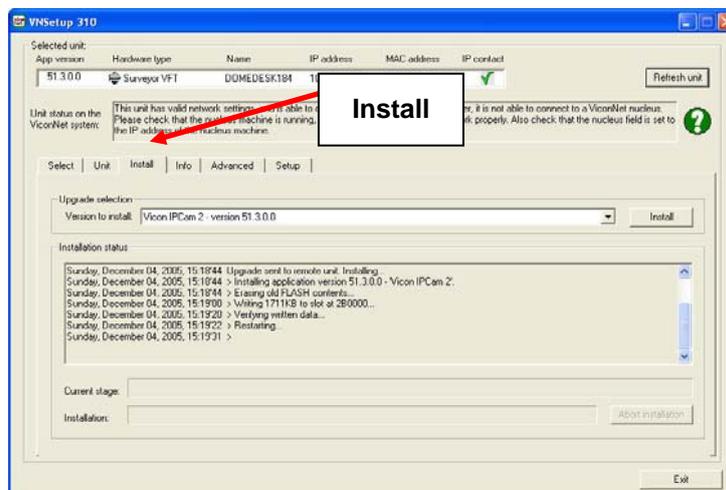
Note: The Apply button must be pressed for changes to take effect.

Note: Verify all IP addressing parameters with your IT administrator.



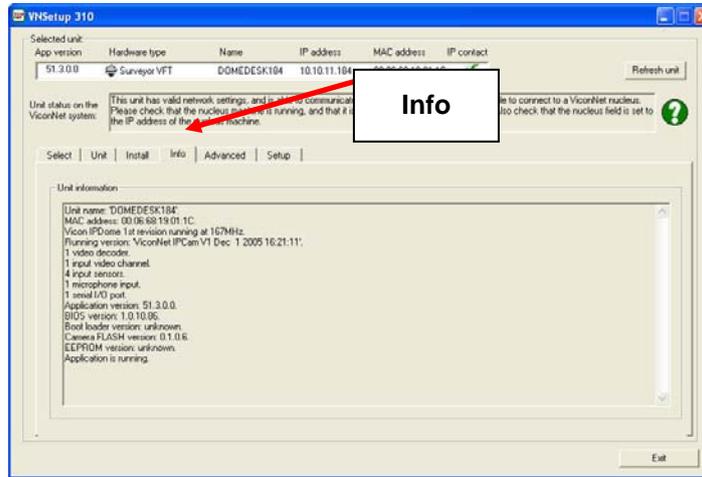
Install TAB

The Install TAB allows the user to install/upgrade newer versions.



Info Tab

The Info TAB displays the selected IP product general information/

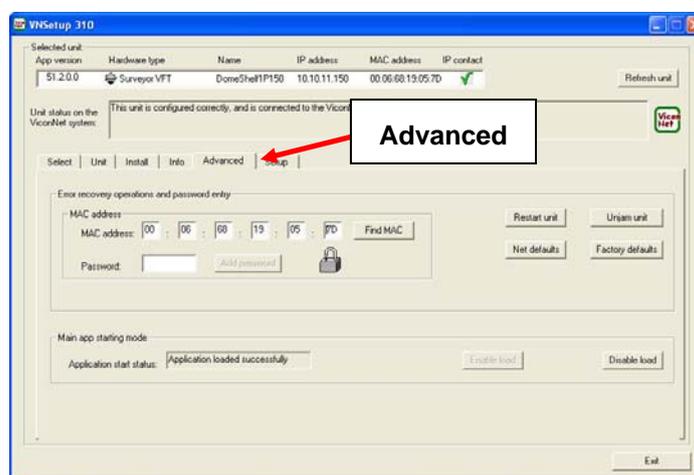


Advanced TAB

The Advanced TAB functionalities allow the user to handle unexpected events on a specific remote unit when they occur.

When a problem occurs, the user can choose to *Unjam unit* to restart the unit's firmware, *Restart unit* to restart the hardware, *Net defaults* to return the initial network settings and *Factory defaults* to return to the initial configuration.

The *Main app starting mode*, *Application start status* may be Unknown, Application loaded successfully or Loading of application is disabled. The *Disable load* button allows the pausing of the application load in case of software issues while still permitting communication via VNSetup; the *Enable load* button resumes the application load.



ViconNet Configuration

After the camera has been setup with the proper IP address, configuration features from a remote workstation, server or recorder are available as follows.

- A network settings screen is used to modify the camera's IP parameters. This allows great flexibility in network setup.

Note: This setup can be performed from any VN1000V3/VN-NVR workstation connected to the camera and to the Nucleus or from a Kollektor Elite.

1. Verify that the camera is connected to the network, that it is active and that it is configured to use the same Nucleus.
2. From the workstation desktop, run the ViconNet application.
3. After logging in, open the site setup selection window.
4. Select the IP camera setup.
5. Open the *Network Setup and Site Name* setup window. *Network Settings* window will display. See Figure below.
6. Change the required parameters and click OK. (See your IT administrator for specific network parameters.) Application of the camera will restart.

The screenshot shows the 'Network Settings' dialog box. At the top, it displays the 'ViconNet' logo and the current configuration: 'Site Name: KE-20_120' and 'IP Address: 10.10.11.141'. Below this, there are three main sections:

- Nucleus Settings:** This section is divided into two parts. The first part, 'Nucleus Settings', has a checked checkbox for 'This Site is the Master Nucleus'. Below it, the 'Nucleus IP' is set to 10.10.11.141 and the 'Master Nucleus DNS name' is KE-20_120. The second part, 'Use Backup Nucleus', has an unchecked checkbox for 'This Site is the Backup Nucleus'. Below it, the 'Backup Nucleus IP' is 0.0.0.0 and the 'Backup Nucleus DNS name' is empty.
- Synchronize Time:** This section has a checked checkbox for 'Synchronize Time on the Network'.
- IP Address Settings:** This section shows the 'Current Network Adapter' as '3Com EtherLink XL 10/100 PCI For Complete PC Management NIC (3C905C-TX) #2'. It has two radio buttons: 'Obtain an IP address automatically' (unchecked) and 'Specify an IP address' (checked). Under 'Specify an IP address', the 'Local IP' is 10.10.11.141, the 'Subnet Mask' is 255.255.254.0, and the 'Default Gateway' is 10.10.10.1.

Buttons for 'Change Name', 'Change Time', 'OK', and 'Cancel' are visible.

Network Settings Window

- An Authorization screen is used to establish authority levels, by user group. Functions such as PTZ and video view, record and playback can be set for authority level.
- A priority screen is used to establish video quality and FPS levels.

ViconNet (IP/LAN) Version Operation

The following functions are supported by the ViconNet system through a workstation, recorder or server.

1. System macros can be configured to view and record the camera's video. In addition, within macros, alarms can be sent and remote macros triggered.
2. An alarm can be triggered upon video motion detection and video loss. This alarm can be sent remotely to other networked units.

Refer to the ViconNet workstation manual XX113-3X for complete information on operation. A copy of the manual can be found on the CD included.

Shipping Instructions

Use the following procedure when returning a unit to the factory:

1. Call or write Vicon for a Return Authorization (R.A.) at one of the locations listed below. Record the name of the Vicon employee who issued the R.A.

Vicon Industries Inc.

89 Arkay Drive

Hauppauge, NY 11788

Phone: 631-952-CCTV (2288); Toll-Free: 1-800-645-9116; Fax: 631-951-CCTV (2288)

For service or returns from countries in Europe, contact:

Vicon Industries Ltd

Brunel Way

Fareham, PO15 5TX

United Kingdom

Phone: +44 (0) 1489 566300; Fax: +44 (0) 1489 566322

2. Attach a sheet of paper to the unit with the following information:
 - a. Name and address of the company returning the unit
 - b. Name of the Vicon employee who issued the R.A.
 - c. R. A. number
 - d. Brief description of the installation
 - e. Complete description of the problem and circumstances under which it occurs
 - f. Unit's original date of purchase, if still under warranty
3. Pack the unit carefully. Use the original shipping carton or its equivalent for maximum protection.
4. Mark the R.A. number on the outside of the carton on the shipping label.

Coaxial Cable Recommendations

⚠ Caution: Careful selection of proper cable is essential to obtain the best performance from this equipment. Vicon assumes no responsibility for poor performance when cables other than those recommended, or equivalent, are installed. In all cases, coaxial cable impedance should be 75 ohms.

Materials

Use only a pure copper center conductor. Do not use a copper-plated steel or aluminum center conductor, as they will result in poor quality video. Solid-core bare copper conductor is the best type, where flexing and bending will be minimal. If severe bending and flexing is required for installation, use a stranded center conductor. Never exceed the manufacturer's minimum bend radius specification. Use cellular (foam) polyethylene dielectric except where heavy moisture exists. For moisture conditions, use solid polyethylene dielectric cable with a heavy exterior insulation. The shield must be copper braid providing 95% or better coverage.

Cable Types

The cable types listed below are the most common 75-ohm types used. They vary in size (diameter), dielectric type and net DC resistance. The larger cable results in a lower DC resistance and better video quality, with increased difficulty in handling and installation. Let the required picture quality and cable distance provide a guide in choosing the best cable type. For cables other than the approved Vicon types below, contact the manufacturers listed below. Note that "BC" refers to bare copper and "TC" refers to tinned copper.

Recommended Coaxial Cable Types

Cable Type	Belden Type No.	Alpha Type No.	West Penn Type No.	Type Center Conductor	Type Shield and % Coverage	DC Resistance ohms/1000 ft (km)
RG-11/U	8213	9847	811,4811	14 Solid BC	BC braid (95%)	2.6 (8.5)
RG-6/U	9248	9804C	806,4806	18 Solid BC	Foil + 61% TC braid (100%)	7.5 (24.6)
RG-59/U	8281*	----	815	20 Solid BC	2 TC braids (96%)	9.9 (32.5)
RG-59/U	9259	9803	816	22 Stranded BC	BC braid (95%)	15.0 (49)
RG-59/U	9659	----	----	22 Stranded BC	BC braid (95%)	15.0 (49)

*Requires special BNC-M connector due to 0.305 nominal O.D.

Belden Inc. <http://www.belden.com/> (800) 235-3361

Alpha Wire Company <http://www.alphawire.com/> (800)-52 ALPHA (522-5742)

West Penn Wire <http://www.westpenn-cdt.com/> (800)-245-4964

Picture Quality vs. Cable Length

Picture Quality	Maximum Cable Run** ft (m)		
	RG-59/U	RG-6/U	RG-11/U
Usable picture	1100 (350)	1500 (450)	2400 (750)
Clean picture	820 (250)	1000 (300)	1600 (500)
Best picture	400 (120)	530 (160)	820 (250)

** For longer cable runs, use a Vicon Video Amplifier to obtain a suitable picture.

Twisted-Pair Cable

⚠ Caution: Careful selection of proper cable is essential to obtain the best performance. Vicon assumes no responsibility for poor performance when cables other than the recommended types, or equivalent, are used.

Materials

Use a pure copper stranded conductor with or without a tin-plating to obtain a low DC resistance. Do not use cable with either steel or aluminum stranded conductor because they do not transfer signals effectively for long distances. The preferred insulation and cable jacket is Polyvinyl chloride (PVC). It has better electrical characteristics than polyethylene and resists flames, sunlight and most solvents, but is more vulnerable to moisture.

Cable Types

The most commonly used cable types are dual individually-shielded, twisted pair in a single jacket. This configuration is the most convenient for RS-422/ RS485 applications. Single individually-shielded, twisted pair is also a suitable cable.

Choose a Belden cable type by referring to the characteristics and maximum distances listed below. The maximum distance for the most reliable digital control refers to the distance between the CPU/Keypad and the Camera Assembly. The characteristics of the cables in Table 6 should be used as a guideline when cables other than Belden are used. Materials and construction must follow the guidelines above.

CABLE TYPE	WIRE SIZE (AWG)	INSULATION MATERIAL	JACKET MATERIAL	DISTANCE ft (m) max.	NUMBER OF TWISTED PAIRS
Belden 9406	22	PVC	PVC	5000 (1500)	2
Belden 9402	20	PVC	PVC	5000 (1500)	2
Belden 8723	22	Polypropylene	PVC	8000 (2400)	2
Belden 8162	24	Datalene ¹	PVC	15000 (4600)	2
Belden 9729	24	Datalene ¹	PVC	15000 (4600)	2
Belden 9182	22	Datalene ¹	PVC	25000 (7600)	1

¹Datalene is a Registered Trademark of Belden.

Belden Inc. [http://www.belden.com/\(800\)235-3361](http://www.belden.com/(800)235-3361)

Table
Recommended Individually-Shielded, Twisted-Pair Cable Types

Network Cable

⚠ Caution: Careful selection of proper cable is essential to obtain the best performance. Vicon assumes no responsibility for poor performance when cables other than the recommended types, or equivalent, are used.

Materials

Use pure copper stranded conductors to obtain a low DC resistance. The preferred insulation and cable jacket is Polyvinyl chloride (PVC). It has better electrical characteristics than Polyethylene and resists flames, sunlight and most solvents, but is more vulnerable to moisture.

Cable Types

The most commonly used cable types are CAT5, CAT5e and CAT6. These category cables are best suited for Ethernet network applications.

Choose a Belden cable type by referring to the characteristics listed below. The Table below should be used as a guideline when cables other than Belden are used. Materials and construction must follow the guidelines above.

CABLE TYPE	WIRE SIZE (AWG)	INSULATION MATERIAL	JACKET MATERIAL	CATEGORY	BANDWIDTH (MHz)	MAXIMUM DISTANCE (ft/m)	NUMBER OF TWISTED PAIRS
Belden 1624P	24	Flourinated Ethylene Propylene	Low Smoke PVC	5	100	328/100*	4
Belden 1583A	24	Polyolefin	PVC	5e	100	328/100	4
Belden 1585A	24	Flourinated Ethylene Propylene	PVC	5e	100	328/100	4
Belden 7883A	24	Polyolefin	PVC	6	250	328/100	4

*For any cable in the system exceeding 300 ft (75 m), it is recommended to use Cat5e or higher to maintain good signal integrity.

Belden Inc. <http://www.belden.com/> (800) 235-3361

Table
Recommended Network Cable Types

Technical Information

ELECTRICAL

Input Power Source: 24 VAC, ±15% or PoE (802.3af compatible).

Input Power Isolation: Internal fully isolated power input.

Current: VN-855: 360 mA max.
VN-855DN: 410 mA max.
VN-855WDR: 380 mA max.
250 mA @48 VDC (PoE)

Power Consumption: VN-855: 5.8 W max.
VN-855DN: 6.5 W max.
VN-855WDR: 6.4 W max.

Heat Equivalent: 0.3 btu/min (0.09 kg-cal/min) nominal.
Note: These figures represent the conversion of 100% of the electrical energy to heat. Actual percentage of heat generated will be less and will vary from product to product. These figures are provided as an aid in determining the extent of cooling required for an installation.

Maximum Power Cable Distance: Refer to Table 1 (based on 24 VAC, standard camera).

Radio-Frequency Emission Standard: FCC Class A/CE.

VICONNET (IP)

Communication System: ViconNet Digital Video Management System Version 4.

LAN Interface: 10/100 Mbps, TCP/IP Unicast.

Number of Video Channels: 1, over LAN connection.

Video Formats Supported: NTSC and PAL, model dependant.

Video Transmission Rate: 30 fps (25 fps, PAL).

Number of Simultaneous Video Streams: Maximum 10 viewing/recording streams per camera.

Video Quality: ViconNet software quality 1-8, selectable on a 4-position bar with 2 compression level settings in resolutions 720 x 488 (863 x 586 PAL), 720 x 244 (863 x 293, PAL), 360 x 244 (432 x 293, PAL), 360 x 122 (432 x 146, PAL).

Audio: 1 line-level microphone input; 0 dbm, 32 KHz bandwidth, 600 ohm impedance, 2 V RMS (1 V p-p) output.

Alarm: 1, select N.O./N.C.

Video Bandwidth: 1.7 Mbps (per video stream), nom.

Hard Drive Consumption Rate: Refer to Table 2.

SOFTWARE OPERATION

Network Setup: Standard network protocol type using IP addressing scheme and separate PC application software.

Site Authorization: Camera can be setup using remote recorder or workstation GUI. Permissions can be assigned for macro create & edit, alarm setup, Authentication, Reports and System Status. Supports up to 20 Groups and 100 Users.

Macro Create & Edit: System macros can be configured to use the camera's video. In addition, within macros, alarms can be sent and remote macros run.

Alarm Setup: An alarm can be triggered on video motion detection and loss. The alarm can be sent to remote units.

Authentication: The video from the camera can be set to view the Authentication status symbol (A) on the displayed video.

Picture Quality and FPS Priority: Camera video can be setup to prioritize recorded picture quality and video FPS. Priority can be assigned to user/macro recording for highest requested video quality or Master user control.

VIDEO CHARACTERISTICS

Image Device: 1/3-inch interline transfer CCD.

Active Picture Elements: NTSC: 768 (H) x 494 (V).
PAL: 752 (H) x 582 (V).

Sensitivity: VN-855/VN-855WDR
0.09 fc (1.0 lux) at standard gain;
0.07 fc (0.7 lux) at high gain.
VN-855DN
0.0009 fc (0.01 lux) in night mode; 0.07 fc (0.7 lux) in day mode.
Conditions: lens at f/1.2 and 40 IRE video output.

Horizontal Resolution: VN-855/ N-855DN: 540 lines
VN-855WDR: 480 lines.

Electronic Iris: NTSC: 1/60-1/100,000.
PAL: 1/50-1/100,000.

Scanning System: NTSC standard: 2:1 interlace, 525 lines, 30 frames/sec.
PAL standard: 2:1 interlace, 625 lines, 25 frames/sec.

Backlight Compensation/Wide Dynamic Range: ON/OFF select.

**Table 2
Hard Drive
Consumption**

VN-855V4	Remote Hard Drive Storage (GB)								
	60	200	300	500	600	900	1000	2000	3000
Days Recording	24	80	120	200	240	360	400	800	1200

Note: This table is based on the following conditions:
- 24 hours normal activity with 50% detected movement over time, Normal compression and Quality Q5 (320 x 240 pixels NTSC, 384 x 288 pixels PAL)
- Recording durations may vary based on actual scene activity.

- Signal-to-Noise Ratio:** Better than 52 dB.
- White Balance:** Automatic.
- Video Signal Output:** 1.0 V p-p VBS @ 75 ohms composite video.
- Synchronization In:** Internal.
- Gain Control:** Automatic (AGC), ON/OFF select.
- Output for Autoiris:** DC-drive coil (CS-G) autoiris lenses.

CONTROLS AND CONNECTORS

- External Controls:** Power Indicator: Red LED.
Ethernet Indicators: Green LED (Network connectivity); Amber LED (Network activity).
Status Indicator: Blue LED (blinks when camera is live).
ALC Level: potentiometer.
Mode Select DIP Switch (model dependent):
BLC (WDR) ON/OFF.
ALC/ELC (AI/EE).
AGC ON/OFF.
FLICKERLESS ON/OFF*.
DAY/NIGHT [TURBO (High Gain)] ON/OFF.
WDR version: additional OSD menu through ViconNet.

- Connectors:** Power: 2-pin terminal.
Autoiris lenses (DC drive): 4-pin connector.
Analog Video Out: BNC.
Alarm in: screw terminal.
Network: RJ-45 CAT 5.
Audio: screw terminal.
See Rear Panel diagram.

*Used in Japan only

Wire Size (AWG) Annealed Copper Wire	Maximum Distance ft (m)
20	534 (163)
18	853 (260)
16	1358 (414)
14	2153 (656)
12	3429 (1045)

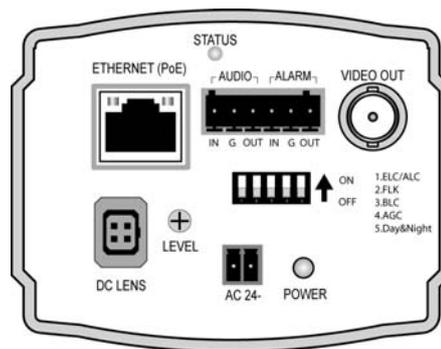
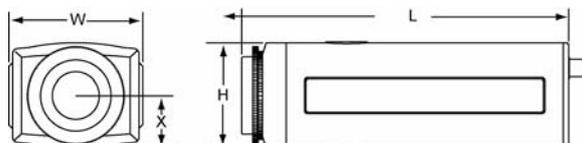
Table 1: Maximum Power Cable Distances

MECHANICAL

- Dimensions:** See Figure.
Height (H): 2.2 in. (56 mm).
Width (W): 2.9 in. (74 mm).
Length (L): 5.3 in. (135 mm).
- Distance from Base to Optical Center of Lens (X):** 1.1 in. (30 mm).
- Weight:** 0.88 lb (0.4 kg).
- Flange Back Adjustment:** CS mount: 12.5 mm.
C mount: 17.5 mm.
- Lens Mount:** C or CS mount.
- Camera Mounting:** 1/4-20 threaded hole in camera bottom and camera top.
- Shipping Dimensions:** Height: 3.6 in. (91 mm).
Width: 4.4 in. (111 mm).
Length: 6.9 in. (176 mm).
- Shipping Weight:** 1.85 lb (0.84 kg).
- Shipping Volume:** 0.06 ft³ (0.002 m³).

ENVIRONMENTAL

- Operating Temperature Range:** 32 to 122° F 0 to +50° C).
- Humidity:** Up to 90% relative, noncondensing.



Typical Rear Panel

Vicon Standard Equipment Warranty

Vicon Industries Inc. (the "Company") warrants your equipment to be free from defects in material and workmanship under Normal Use from the date of original retail purchase for a period of three years, with the following exceptions:

1. VCRs, all models: Labor and video heads warranted for 120 days from date of original retail purchase. All other parts warranted for one year from date of original retail purchase.
2. Video monitor CRT (cathode ray tube) and LCD monitors, all models: One year from date of original retail purchase.
3. Uninterruptible Power Supplies: Two years from date of original retail purchase.
4. VDR-304 and VDR-308 Recorder Series: One year from date of original retail purchase.
5. Normal Use excludes prolonged use of lens and pan-and-tilt motors, gear heads, and gears due to continuous use of "autopan" or "tour" modes of operation. Such continuous operation is outside the scope of this warranty.

Date of retail purchase is the date original end-user takes possession of the equipment, or, at the sole discretion of the Company, the date the equipment first becomes operational by the original end-user.

The sole remedy under this Warranty is that defective equipment be repaired or (at the Company's option) replaced, at Company repair centers, provided the equipment has been authorized for return by the Company, and the return shipment is prepaid in accordance with policy.

The Company will not be obligated to repair or replace equipment showing abuse or damage, or to parts which in the judgment of the Company are not defective, or any equipment which may have been tampered with, altered, misused, or been subject to unauthorized repair.

Software supplied either separately or in hardware is furnished on an "As Is" basis. Vicon does not warrant that such software shall be error (bug) free. Software support via telephone, if provided at no cost, may be discontinued at any time without notice at Vicon's sole discretion. Vicon reserves the right to make changes to its software in any of its products at any time and without notice.

This Warranty is in lieu of all other conditions and warranties express or implied as to the Goods, including any warranty of merchantability or fitness and the remedy specified in this Warranty is in lieu of all other remedies available to the Purchaser.

No one is authorized to assume any liability on behalf of the Company, or impose any obligations on it in connection with the sale of any Goods, other than that which is specified above. In no event will the Company be liable for indirect, special, incidental, consequential, or other damages, whether arising from interrupted equipment operation, loss of data, replacement of equipment or software, costs or repairs undertaken by the Purchaser, or other causes.

This warranty applies to all sales made by the Company or its dealers and shall be governed by the laws of New York State without regard to its conflict of laws principles. This Warranty shall be enforceable against the Company only in the courts located in the State of New York.

The form of this Warranty is effective August 15, 2007.

THE TERMS OF THIS WARRANTY APPLY ONLY TO SALES MADE WHILE THIS WARRANTY IS IN EFFECT. THIS WARRANTY SHALL BE OF NO EFFECT IF AT THE TIME OF SALE A DIFFERENT WARRANTY IS POSTED ON THE COMPANY'S WEBSITE, WWW.VICON-CCTV.COM. IN THAT EVENT, THE TERMS OF THE POSTED WARRANTY SHALL APPLY EXCLUSIVELY.

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