

# 81-IN5247-07064 Q-View FusionDome

QFDW(T/C)X-XXXX / QIFDW(T/C)X-XXXX

REVISION DATE: July 6, 2004



## TABLE OF CONTENTS

Cable and Power Guidelines	1, 11
Electrical Specifications	1
General Instructions	1
Wall Mounting	1
Pendant Mounting	2
Wiring	2
Camera Adjustment	2
Camera Focusing	2
Camera Settings	3
Completion of Installation	3
NVT Instructions	4
Exploded View	6
Warranty Information	7
Service and Safeguard Information	8
Troubleshooting	9
Mounting Template	12

### CABLE AND POWER GUIDELINES (Detailed info on Page 12)

This chart shows the proper current needed for power supplies for Q-View™ cameras. Use Class 2 Power only. Input voltage must be 24 VAC/VDC.

CAMERAS	VOLTAGE	CURRENT	POWER
1	24 VAC/VDC	102mA	2.5W
2	24 VAC/VDC	210mA	5W
3	24 VAC/VDC	331mA	7.9W
4	24 VAC/VDC	487mA	10.9W

Use the formula below to select the correct power supply for cameras connected in parallel (positive to positive, negative to negative):

**Total current for a 24 VAC system:**

**TOTAL CURRENT = (202mA x total number of cameras)**

Note: 202mA is camera plus power supply

### ELECTRICAL SPECIFICATIONS (OUTDOOR ONLY):



Power 24VAC, Class 2 Only

26 watts at 24 VAC (accessories)

Heater: 25 watts

Blower: .84 watts

Input Connectors (outdoor units):

BNC Connectors - 1 for each camera

Screw-down connectors - 2



**NOTE:** This unit is designed for operation in an upright position. Installing the FusionDome™ upside down may cause damage to the internal equipment, and will void the warranty.

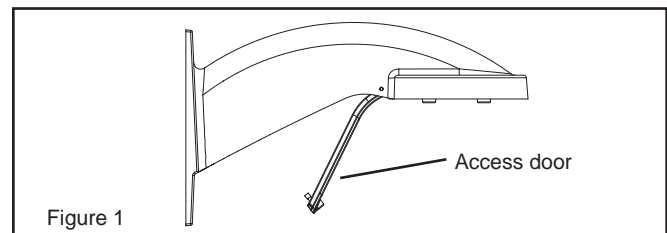
### GENERAL INSTRUCTIONS:

Tools Required: .100" Flat Head Screwdriver  
Phillips Head Screwdriver

Carefully remove the housing from the packaging material. Check to be sure all parts are present.

### WALL MOUNTING THE QFD

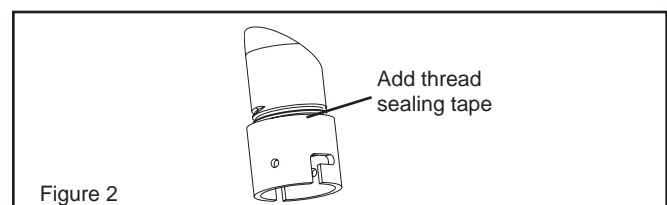
1. A template is included as a guide for mounting the bracket to a wall. Choose the desired location for installation and mark the drill holes using the template. Run approximately 8" of wiring out of the wall.
2. Open the access door on the bottom of the wall mount by loosening the screw nearest the mounting plate (Figure 1).



3. Pull the wires from the wall through the rectangular hole in the wall mount bracket. Attach the wall mount to the wall using appropriate hardware (not included).
4. Make all wiring connections (See next page). Attach the BNC connectors to the video in.
5. Once all wiring connections are made, place the wires inside the wall mount bracket and close the access door. Secure with the screw removed earlier.

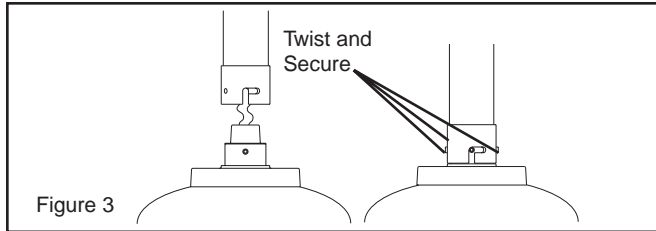
### PENDANT MOUNTING THE QFD AND QIFD

1. This unit includes a 1 1/2" NPT housing coupling that can be used with a standard 1 1/2" NPT pipe or with brackets designed with 1 1/2" male pipe threads, such as Videolarm's WM20G.
2. Attach the coupling to the bracket or pendant pipe (Figure 2).  
**NOTE:** Pipe threads should be clean and rust free. Use a sealer (such as Teflon™ tape or silicone sealer) on the threads for outdoor applications



- Be sure the bracket is properly and securely mounted to a supporting structure capable of rigidly holding the weight of the entire unit.

- Bring all wiring through the NPT pipe or bracket.
- Mount the housing assembly to the mounting bracket and housing coupling. A safety cable is included with the housing to temporarily hold it while making wiring connections. Loop the safety cable over one of the set screws on the housing coupling (Figure 3).



- Make the proper connections to the incoming power (See Wiring section below) and attach all BNC connectors to the video in.
- Place the finished wiring inside the pendant pipe. Undo the safety cable and twist the housing onto the housing coupling. Secure all (3) setscrews provided on the housing coupling (Figure 3 above).

## WIRING

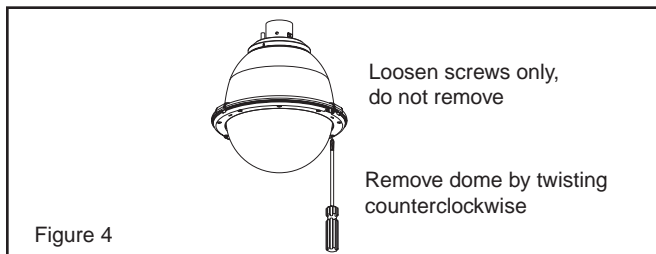
- Attach the incoming power and accessory wiring using the color code chart below.

1	Camera Power (24 VAC)	Red
2	Camera Power (24 VAC)	Orange
3	Accessory Power (24 VAC)	Yellow
4	Accessory Power (24 VAC)	Green

**NOTE:** Polarity is not important in this unit.

## CAMERA ADJUSTMENT

- Access the cameras by removing the dome. Loosen the locking screws on the lip of the dome. **DO NOT TAKE THESE SCREWS OUT.** Once the screws are loosened, turn the dome counter clockwise until it stops, then pull the dome off (Figure 4).

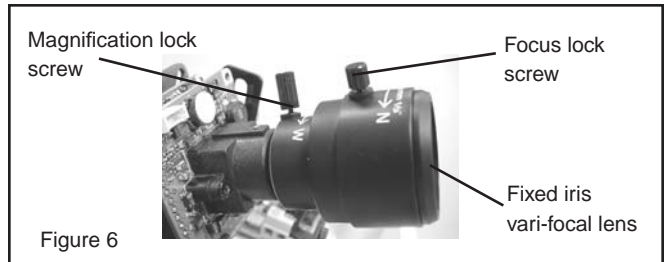


## CAMERA FOCUSING (FOR EACH CAMERA)

**Fixed Lens:** Loosen the set screw in the lens mount. Manually rotate the lens until a clear picture is achieved. Once the focus is set, retighten the set screw (Figure 5).



**Vari-Focal Lens:** First, adjust the Magnification Lock Screw to the desired magnification (telephoto to wide angle). Tighten the Lock Screw. Next, adjust the Focus Lock Screw until a clear picture is achieved. Tighten the Lock Screw (Figure 6).



Auto Iris Lens:

**NOTE: THE AUTO IRIS LENS IS SET AT THE FACTORY.**

- IF YOU EXPERIENCE VIDEO TOO LIGHT OR DARK AUTO IRIS ADJUSTMENT MAY BE NEEDED.

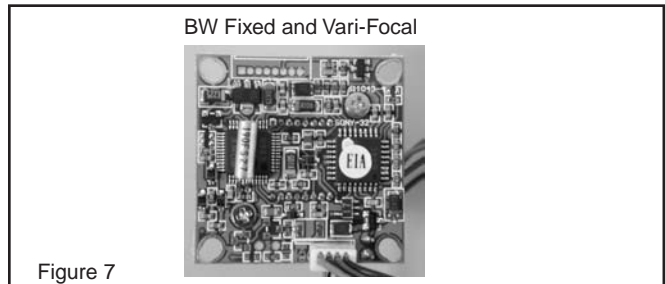
**SEE THE TROUBLESHOOTING SECTION FOR ADJUSTMENT INFORMATION.**

## CAMERA SETTINGS

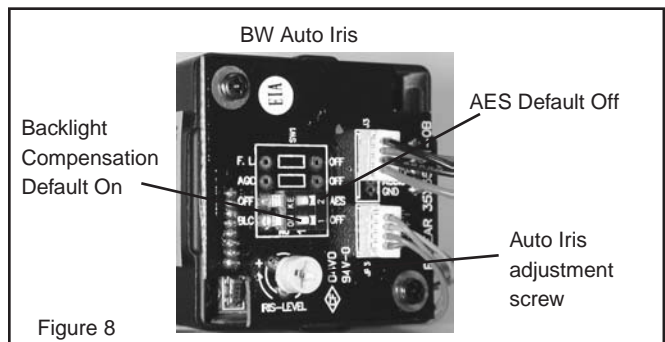
**NOTE:** To determine which camera is used in your unit, locate the serial number on the inside of the housing. Match the two letter prefix with the corresponding instructions included here for adjustments.

### SERIAL NUMBERS BEGINNING WITH YK

**FIXED AND FIXED VARI-FOCAL LENSES.** There are no user adjustable settings on these units (Figure 7).



**AUTO IRIS LENSES.** The dip switches are factory set with AES off and backlight compensation on (Figure 8). The auto iris is also set at the factory, but an adjustment screw is included for use if needed. See page 10 for instructions on adjusting Auto Iris.



## SERIAL NUMBERS BEGINNING WITH MC

The operational settings for the camera are defined by ten dip switches located on the PC Board (Figure 9). Moving the switches to the on position will activate each setting. Factory defaults are pictured below (Figure 10 and 11).

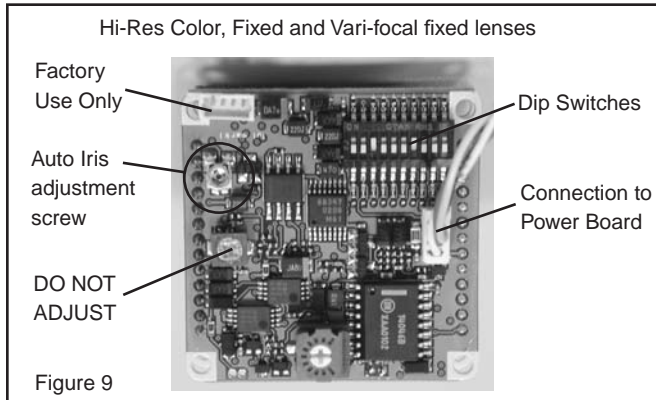


Figure 9

**NOTE:** Dip switches are factory pre-set for optimum performance. In certain **specific** instances it may be necessary to adjust one or more settings. Consult a qualified technician before making any adjustments. A Dip Switch settings chart is available on the next page.

**FACTORY DEFAULT FIXED AND FIXED VARI-FOCAL LENSES:**  
Dip Switches 5 and 7 on, all others off.

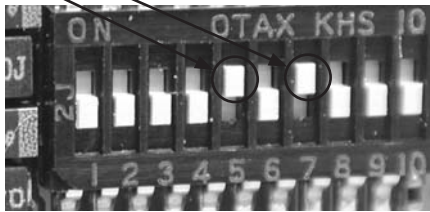


Figure 10

**FACTORY DEFAULT AUTO IRIS LENSES:**  
Dip Switches 3, 5 and 7 on, all others off.

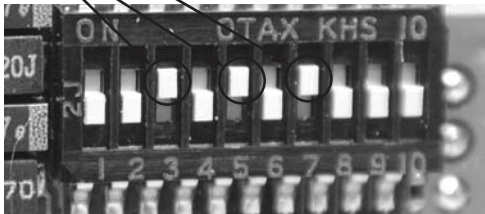


Figure 11

## MC CAMERA DIP SWITCH SETTINGS CHART

SWITCH	SETTING	DEFINITION
1	Flickerless Mode	Setting this switch to "On" and switch 3 (MIRIS) to "Off" will help to reduce the flicker in fluorescent lights
2	BLC (Back Light Compensation)	Helps prevent an object from being washed out when the object is directly in front of a light source.
3	MIRIS (Manual/Electronic Iris)	When the switch is in the on position the auto iris lens controls the amount of light on the chip. If in the off position the light level is controlled electronically.
4	GAMMA	Helps balance the contrast in the picture.
5	AGCMAX (auto/gain control)	Allows day/night cameras to switch to b/w in low light conditions, also helps with low light conditions in standard and hi-res cameras
6	(Automatic White Balance Control) AW1	Used to help improve the color quality of the camera picture under different lighting conditions. The Factory Default is Switch 7 "ON", switches 6 and 8 "OFF". <b>NOTE: ANY ADJUSTMENTS TO THESE SETTINGS SHOULD ONLY BE MADE BY A QUALIFIED CCTV TECHNICIAN</b> See examples below to help with any adjustments.
7	AW2	
8	AW3	
9	AEREF	This sets the electronic convergence level. In the "off" position the level is set to 100 IRE; in the "on" position the user can set the level. Not used with auto Iris
10	AEME	With this switch in the "On" position users can manually adjust the shutter speed and gain using other switches See the tables below for specific settings

### SHUTTER SPEED

Flickerless (1)	BLC (2)	MIRIS (3)	Shutter Speed
On	Off	Off	1/100 Sec.
Off	On	Off	1/60 Sec.

### GAIN

MIRIS (3)	AEREF (9)	AGCMAX (5)	Gain
On	Off	Off	0dB
On	On	Off	6dB
On	Off	On	12dB
On	On	On	18dB

## SERIAL NUMBERS BEGINNING WITH CB

**NOTE:** This hi-res color camera uses a 1/4" chip and a 3-6mm auto iris lens. It is comparable to a 1/3" chip using a 4-9mm auto iris lens.

The operational settings are defined by four dip switches located on the side of the PC Board (Figure 12 and 13). Moving the switches to the UP position will activate specific settings. Refer to the chart below.

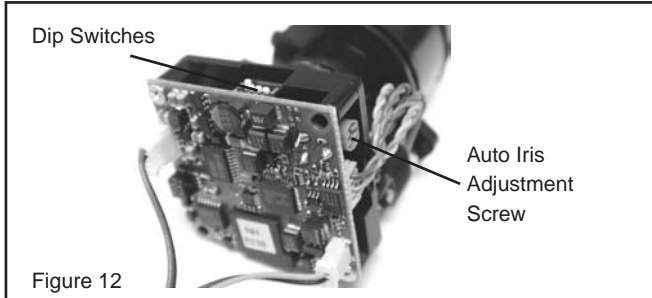


Figure 12

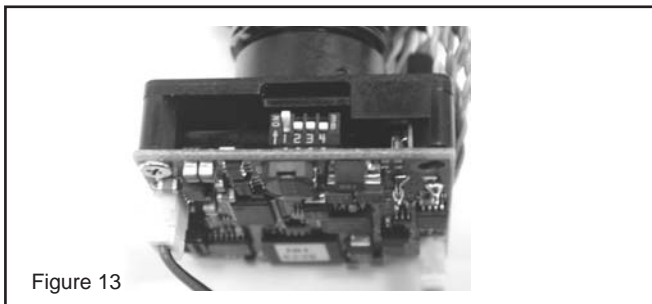


Figure 13

Dip Switch	UP	DOWN
1 (Iris)	Auto Iris On	Position for Fixed Lens
2 (Flickerless)	Shutter speed fixed at 1/100 sec.	Normal
3 (Back Light Compensation)	ON	Normal
4 (Synch Mode)	Internal Synch	Line Lock Mode

## SERIAL NUMBERS BEGINNING WITH CT

**FIXED AND FIXED VARI-FOCAL LENSES.** There are no user adjustable settings on these units (Figure 14)

**AUTO IRIS LENSES:** The auto iris can be adjusted if needed. See the Troubleshooting section for instructions.

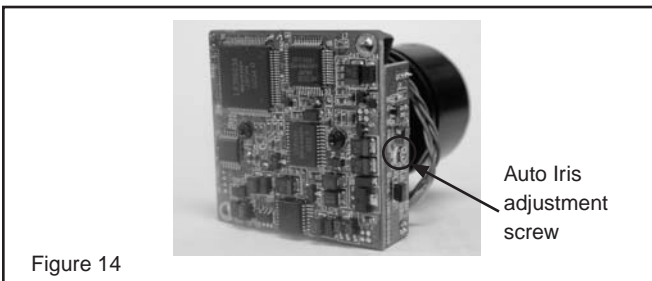


Figure 14

## COMPLETION OF INSTALLATION

1. When the desired focus is achieved for each camera, adjust the segmented bracket arms to the desired viewing angle. Once you've finished, put the dome back in place and check to be sure none of the cameras touch the dome. If one or more do, readjust the arm(s) until they are clear of the dome.
2. Reattach the dome by putting it in place, turning clockwise until it locks, and then tightening the locking screws.

## NVT INSTRUCTIONS UNSHIELDED TWISTED PAIR VIDEO WIRING



**NOTE:** The customer must purchase the Video Transceiver from NVT. Part numbers are:

- NV-212A (500 ft.)
- \* NV-213A or NV-213A-M (1000 ft.)
- NV-652R, NV-862R, or NV-1662R (3000 ft.)

The cameras included in the Q-View™ series have the option of transmitting video signals to NVT receivers via unshielded twisted pair cable. You must purchase the receiver separately. Instructions for connecting the receiver end of the the unshielded twisted pair cable will be included with the NVT receiver. Following are instructions for connecting the unshielded twisted pair cables to the RJ45 (Cat. 5) cable running outside your housing.

1. Video for all four cameras is contained in the one RJ45 (Cat. 5) cable. An RJ45 female coupling is provided so that all connections can be made with an RJ45 connector. The following is the wiring diagram for the four twisted pair wires that are included with the Cat. 5 cable.

PIN	WIRE COLOR	CAMERA NUMBER
1	White/Green	Camera 1 +
2	Green	Camera 1 -
3	White/Orange	Camera 2 +
6	Orange	Camera 2 -
5	White/Blue	Camera 3 +
4	Blue	Camera 3 -
7	White/Brown	Camera 4 +
8	Brown	Camera 4 -

2. Connect the other end of the unshielded twisted pair cable to the NVT receiver.

**CAUTION:** The unshielded twisted pair video signal is polarity dependent. The positive video wire for each camera **MUST** be connected to the positive terminal on the NVT receiver, and negative **MUST** be connected to negative.

3. When using unshielded twisted pair cable you **DO NOT** need the BNC connector. All four BNC connectors are provided inside the housing for testing purposes. Be sure that there is no video connection other than the unshielded twisted pair cable.

## Wiring Notes

### Wire — What to DO

- DO** use point-to-point Unshielded Twisted Pair wire, gauge 24 or thicker, stranded or solid, Category 2, 3, 4, or 5.
- The video signal may co-exist in the same wire bundle as other video, telephone, data, control signals, or low-voltage power. It is also OK to run NVT video signals in or near electromagnetic fields (in accordance with National Electrical Code, local, or other local safety requirements).
- DO** measure the wire distance. Use only transceivers that are designed for that distance.
- DO** make sure the pair of wires carrying the video signal is sent as a twisted pair (e.g. the blue-white/white-blue wires twisted together as a pair), not a “split-pair” (e.g. blue-white conductor, part of one pair/orange-white conductor, part of another pair).

### Wire — What NOT to DO

- DO NOT USE SHIELDED TWISTED PAIR WIRE.** It will severely degrade the distance performance. Short runs may be used with some signal degradation (for example elevator traveler cables). Multi-pair wire with an overall shield is OK.
- DO NOT USE UN-TWISTED WIRE.** It will reduce the NVT product’s inherent interference immunity.
- DO NOT** allow your installation to have “bridge-taps”, loading coils, talk-battery, or MOV type protectors. Bridge-taps are where a twisted pair is connected to two twisted pairs (such as an extension phone at home). Bridge-taps cause reflections as the signal propagates, resulting in “ghosts” in the video image, and are to be avoided.
- If the phone company is providing the cable runs between buildings, make sure it’s “dry copper” i.e. it should have none of the following: dial-tone, 48 volts, loading coils, bridge-taps, switching, or long paths to the phone company’s central office and back.
- Due to near-end crosstalk, **DO NOT** send a transmit and a receive signal in the same wire bundle. Exceptions: Less than 1,000 ft (300m), or Category 5 cable, up to 2,000 ft (600m) are OK.
- DO NOT** send “Up-the-Coax” Pan/Tilt/Zoom signals through active (amplified) NVT transceivers.



7. For safety, never put NVT signals in the same conduit as high-voltage wiring.



8. **WARNING** — to reduce a risk of fire or electrical shock, do not expose this product to rain or moisture.

### Measure your wire distance

Note: All NVT quoted distance specifications include any coax in the run. It is recommended that the wire distance be measured to ensure that the capability of the NVT product is correct.

Wire resistance may be measured with an ohm-meter by shorting the two conductors together at the far end, and measuring the loop-resistance out and back. Compare your readings with the charts in the next column.

Cable Distance	Unshielded Twisted-Pair Wire Gauge (AWG)				
	18	19	20	22	24
250 ft	3 Ω	4 Ω	5 Ω	8 Ω	13 Ω
300 ft	4 Ω	5 Ω	6 Ω	10 Ω	16 Ω
400 ft	5 Ω	6 Ω	8 Ω	13 Ω	21 Ω
500 ft	6 Ω	8 Ω	10 Ω	16 Ω	26 Ω
600 ft	8 Ω	10 Ω	12 Ω	19 Ω	31 Ω
800 ft	10 Ω	13 Ω	16 Ω	25 Ω	42 Ω
1000 ft	13 Ω	16 Ω	20 Ω	32 Ω	52 Ω
1250 ft	16 Ω	20 Ω	25 Ω	40 Ω	65 Ω
1500 ft	19 Ω	24 Ω	30 Ω	48 Ω	78 Ω
1750 ft	23 Ω	28 Ω	35 Ω	55 Ω	91 Ω
2000 ft	26 Ω	32 Ω	40 Ω	63 Ω	104 Ω
2500 ft	32 Ω	40 Ω	49 Ω	79 Ω	131 Ω
3000 ft	39 Ω	48 Ω	59 Ω	95 Ω	157 Ω
3500 ft	45 Ω	56 Ω	69 Ω	111 Ω	183 Ω
4000 ft	52 Ω	64 Ω	79 Ω	127 Ω	209 Ω
5000 ft	65 Ω	80 Ω	99 Ω	158 Ω	261 Ω
6000 ft	78 Ω	95 Ω	119 Ω	190 Ω	313 Ω
8000 ft	104 Ω	127 Ω	158 Ω	253 Ω	418 Ω

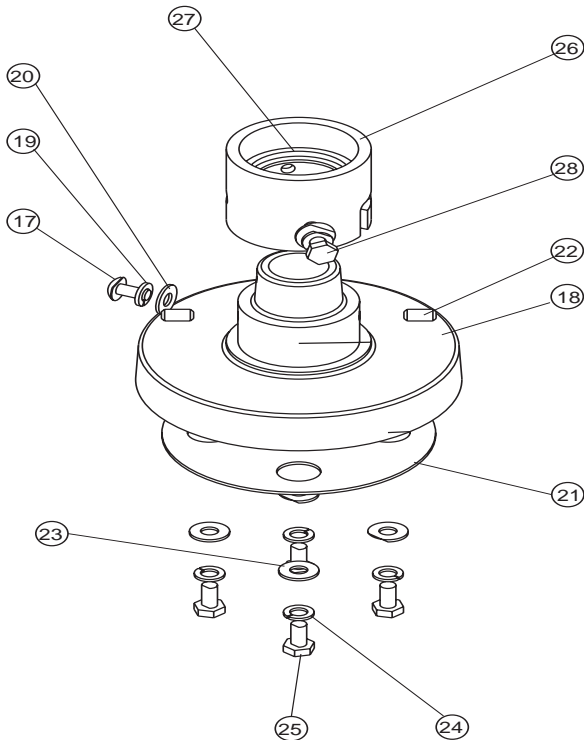
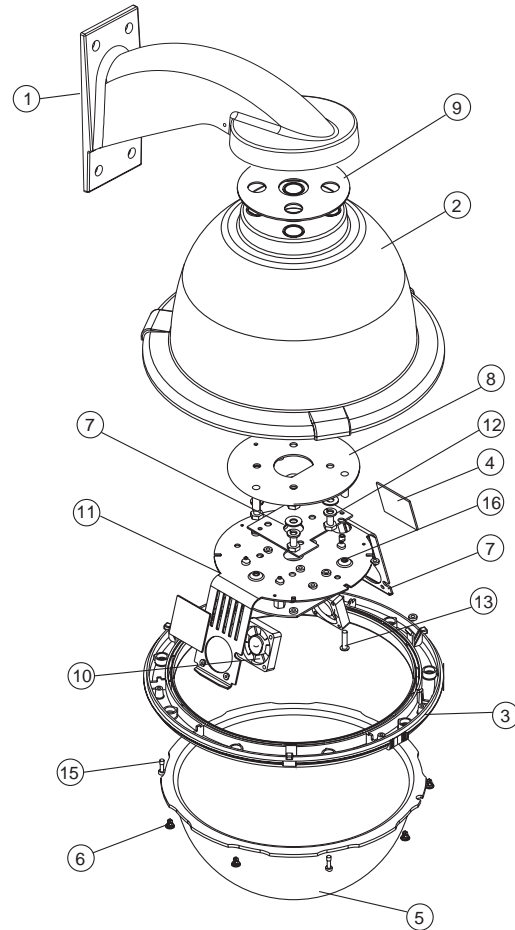
Cable Distance	Unshielded Twisted-Pair Wire Gauge (AWG)				
	18	19	20	22	24
75 m	3 Ω	4 Ω	5 Ω	8 Ω	13 Ω
100 m	4 Ω	5 Ω	6 Ω	10 Ω	17 Ω
125 m	5 Ω	7 Ω	8 Ω	13 Ω	21 Ω
150 m	6 Ω	8 Ω	10 Ω	16 Ω	26 Ω
200 m	9 Ω	10 Ω	13 Ω	21 Ω	34 Ω
300 m	13 Ω	16 Ω	19 Ω	31 Ω	51 Ω
400 m	17 Ω	21 Ω	26 Ω	42 Ω	69 Ω
500 m	21 Ω	26 Ω	32 Ω	52 Ω	86 Ω
600 m	26 Ω	31 Ω	39 Ω	62 Ω	103 Ω
750 m	32 Ω	39 Ω	49 Ω	78 Ω	129 Ω
900 m	38 Ω	47 Ω	58 Ω	94 Ω	154 Ω
1000 m	43 Ω	52 Ω	65 Ω	104 Ω	171 Ω
1200 m	51 Ω	63 Ω	78 Ω	125 Ω	206 Ω
1500 m	64 Ω	78 Ω	97 Ω	156 Ω	257 Ω
1800 m	77 Ω	94 Ω	117 Ω	187 Ω	309 Ω
2400 m	102 Ω	125 Ω	156 Ω	249 Ω	411 Ω

Cable Distance	Unshielded Twisted-Pair Wire Gauge (mm)				
	1.0	0.8	0.7	0.6	0.5
75 m	3	5	6	9	13 Ω
100 m	4	7	9	12	18 Ω
125 m	6	8	11	15	22 Ω
150 m	7	10	13	18	27 Ω
200 m	9	13	17	24	36 Ω
300 m	13	20	26	36	54 Ω
400 m	18	27	35	48	72 Ω
500 m	22	33	43	60	90 Ω
600 m	26	40	52	72	108 Ω
750 m	33	50	65	89	135 Ω
900 m	40	60	78	107	162 Ω
1000 m	44	66	86	119	179 Ω
1200 m	53	80	104	143	215 Ω
1500 m	66	100	130	179	269 Ω
1800 m	79	120	155	215	323 Ω
2400 m	106	159	207	286	431 Ω

# EXPLODED VIEWS OF HOUSING

## Wall Mount Assembly

Item No.	Description	Part No.	Qty
1	Wall Mount Bracket Assembly	40-BRWM12	1
2	FD8 Housing Top	30-VL1697	1
3	Dome Support Ring	30-VL1695	1
4	25W, 24VAC w/Leads	72-HT1752	1
5	FD8 Clear Dome	20-DCFD8	1
n/s	FD8 Tinted Dome	20-DTFD8	1
n/s	9.25" O-ring	96-RSORG11	2
6	Plastic Ring Plugs	30-VL1696	6
7	FD8 PCB	76-FPD8PB	1
8	FD8 Upper Housing Bracket	30-VL1744	1
9	Housing Gasket	96-PSGK05	3
10	Housing Fan	71-VLBL03	1
11	Adapter Bracket (In Housing Packet)	40-PKFD8	1
12	1/4 x 20 x .75" HH Bolts	90-BTHH27	4
12	1/4 Split Lock Washer	92-WSSL01	4
12	1/4 Flat Washer	92-WSFL01	4
13	10 x 32 x .75 Phil PH SS	90-BTRP28	3
15	Captive Screw	30-VL1749	3
n/s	Captive Screw Spring	92-SPR01	3
n/s	Captive Screw Retainer	94-FSRT04	3
16	Main Housing Bracket	30-VL1742	1
n/s	Housing Ring 1" Lanyard Spring	92-SPR02	1
n/s	Lanyard Spring Screws	90-BTPEM01	2
n/s	Packet Assembly	40-PKFD8	1
n/s	Power/Control/Video Input Cable	40-CAFD802	1
n/s	Product Instructions	81-IN5215	1

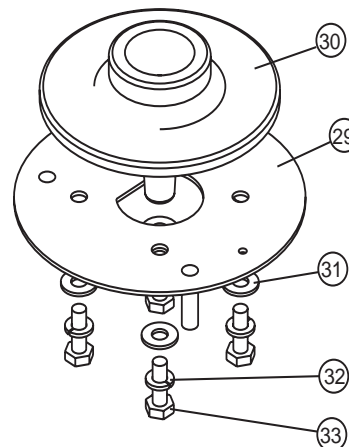


## Indoor Pendant Assembly

29	FD8 Upper Housing Bracket	30-VL1013	1
30	Indoor Housing Coupling	30-VL1744	1
31	1/4 Flat Washer	92-WSFL01	1
32	1/4 Split Lock Washer	92-WSSL01	4
33	1/4 x 20 x .75" HH Bolts	90-BTHH27	4

## Pendant Assembly

17	1/4 x 20 FH SS Bolt	90-BTSR01	1
18	Housing Pendant Bracket	30-VL926	1
19	1/4 Split Lock Washer	92-WSSL01	1
20	1/4 Flat Washer	92-WSFL01	1
21	Housing Gasket	96-PSGK05	1
22	1/4 x 20 x 1/2" Set Screw	90-BTSS05	2
23	1/4 Flat Washer	92-WSFL01	4
24	1/4 Split Lock Washer	92-WSSL01	4
25	1/4 x 20 x .75" HH Bolts	90-BTHH27	4
26	1 1/2" Housing Coupling	30-VL917	1
27	Upper Housing Gasket	96-PSGK04	1
28	1/4 x 20 x .375" HH Bolts	90-BTHH39	2
n/s	1/4 Flat Washer	92-WSFL01	2
n/s	1/4 Split Lock Washer	92-WSSL01	2



## IMPORTANT SAFEGUARDS

1. **Read Instructions** - All the safety and operating instructions should be read before the unit is operated.
2. **Retain Instructions** - The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** - All warnings on the unit and in the operating instructions should be adhered to.
4. **Follow Instructions** - All operating & user instructions should be followed.
5. **Electrical Connections** - Only a qualified electrician should make electrical connections.
6. **Attachments** - Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7. **Cable Runs** - All cable runs must be within permissible distance.
8. **Mounting** - This unit must be properly and securely mounted to a supporting structure capable of sustaining the weight of the unit. Accordingly:
  - a. Installation should be made by a qualified installer.
  - b. Installation should be in compliance with local codes.
  - c. Care should be exercised to select suitable hardware to install the unit, taking into account both the composition of the mounting surface and the weight of the unit. Be sure to periodically examine the unit and the supporting structure to make sure that the integrity of the installation is intact. Failure to comply with the foregoing could result in the unit separating from the support structure and falling, with resultant damages or injury to anyone or anything struck by the falling unit.

## UNPACKING

Unpack carefully. Electronic components can be damaged if improperly handled or dropped. If an item appears to have been damaged in shipment, replace it properly in its carton and notify the shipper. **Be sure to save:**

1. The shipping carton and packaging material. They are the safest material in which to make future shipments of the equipment.
2. These Installation and Operating Instructions.

## LIMITED WARRANTY FOR VIDEOLARM INC. PRODUCTS

**VIDEOLARM INC.** warrants this Product to be free from defects in material or workmanship, as follows:

PRODUCT CATEGORY	PARTS	LABOR
All Enclosures and Electronics	Three (3) Years	Three (3) Years
Pan/Tilts	Three (3) Years **6 months if used in autoscan	Three (3) Years **6 months if used in autoscan
Poles/PoleEvators	Three (3) Years	Three (3) Years
Warrior/Q-View/I.R. Illuminators	Five (5) Years	Five (5) Years
Controllers	Three (3) Years	Three (3) Years
Power Supplies	Three (3) Years	Three (3) Years
Accessory Brackets	Three (3) Years	Three (3) Years

During the labor warranty period, to repair the Product, Purchaser will either return the defective product, freight prepaid, or deliver it to Videolarm Inc. Decatur GA. The Product to be repaired is to be returned in either its original carton or a similar package affording an equal degree of protection with a RMA # (Return Materials Authorization number) displayed on the outer box or packing slip. To obtain a RMA# you must contact our Technical Support Team at 800.554.1124, extension 101. Videolarm will return the repaired Product freight prepaid to Purchaser. Videolarm is not obligated to provide Purchaser with a substitute unit during the warranty period or at any time. After the applicable warranty period, Purchaser must pay all labor and/or parts charges.

**The limited warranty stated in these product instructions is subject to all of the following terms and conditions:**

**1. NOTIFICATION OF CLAIMS: WARRANTY SERVICE:** If Purchaser believes that the Product is defective in material or workmanship, then written notice with an explanation of the claim shall be given promptly by Purchaser to Videolarm but all claims for warranty service must be made within the warranty period. If after investigation Videolarm determines that the reported problem was not covered by the warranty, Purchaser shall pay Videolarm for the cost of investigating the problem at its then prevailing per incident billable rate. No repair or replacement of any Product or part thereof shall extend the warranty period as to the entire Product. The specific warranty on the repaired part only shall be in effect for a period of ninety (90) days following the repair or replacement of that part or the remaining period of the Product parts warranty, whichever is greater.

**2. EXCLUSIVE REMEDY: ACCEPTANCE:** Purchaser's exclusive remedy and Videolarm's sole obligation is to supply (or pay for) all labor necessary to repair any Product found to be defective within the warranty period and to supply, at no extra charge, new or rebuilt replacements for defective parts.

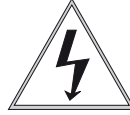
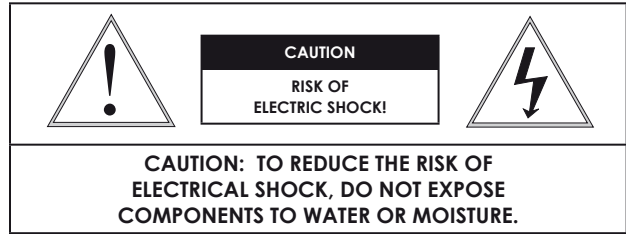
**3. EXCEPTIONS TO LIMITED WARRANTY:** Videolarm shall have no liability or obligation to Purchaser with respect to any Product requiring service during the warranty period which is subjected to any of the following: abuse, improper use: negligence, accident, lightning damage or other acts of God (i.e., hurricanes, earthquakes), modification, failure of the end-user to follow the directions outlined in the product instructions, failure of the end-user to follow the maintenance procedures recommended by the International Security Industry Organization, written in product instructions, or recommended in the service manual for the Product. Furthermore, Videolarm shall have no liability where a schedule is specified for regular replacement or maintenance or cleaning of certain parts (based on usage) and the end-user has failed to follow such schedule; attempted repair by non-qualified personnel; operation of the Product outside of the published environmental and electrical parameters, or if such Product's original identification (trademark, serial number) markings have been defaced, altered, or removed. Videolarm excludes from warranty coverage Products sold AS IS and/or WITH ALL FAULTS and excludes used Products which have not been sold by Videolarm to the Purchaser. All software and accompanying documentation furnished with, or as part of the Product is furnished "AS IS" (i.e., without any warranty of any kind), except where expressly provided otherwise in any documentation or license agreement furnished with the Product.

**4. PROOF OF PURCHASE:** The Purchaser's dated bill of sale must be retained as evidence of the date of purchase and to establish warranty eligibility.

**DISCLAIMER OF WARRANTY** EXCEPT FOR THE FOREGOING WARRANTIES, VIDEOLARM HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY AND/OR ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND/OR ANY WARRANTY WITH REGARD TO ANY CLAIM OF INFRINGEMENT THAT MAY BE PROVIDED IN SECTION 2-312(3) OF THE UNIFORM COMMERCIAL CODE AND/OR IN ANY OTHER COMPARABLE STATE STATUTE. VIDEOLARM HEREBY DISCLAIMS ANY REPRESENTATIONS OR WARRANTY THAT THE PRODUCT IS COMPATIBLE WITH ANY COMBINATION OF NON-VIDEOLARM PRODUCTS OR NON-VIDEOLARM RECOMMENDED PRODUCTS PURCHASER CHOOSES TO CONNECT TO PRODUCT.

**LIMITATION OF LIABILITY** THE LIABILITY OF VIDEOLARM, IF ANY, AND PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR DAMAGES FOR ANY CLAIM OF ANY KIND WHATSOEVER, REGARDLESS OF THE LEGAL THEORY AND WHETHER ARISING IN TORT OR CONTRACT, SHALL NOT BE GREATER THAN THE ACTUAL PURCHASE PRICE OF THE PRODUCT WITH RESPECT TO WHICH SUCH CLAIM IS MADE. IN NO EVENT SHALL VIDEOLARM BE LIABLE TO PURCHASER FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION, REIMBURSEMENT OR DAMAGES ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS OR FOR ANY OTHER REASON WHATSOEVER.

## SAFETY PRECAUTIONS



The lightning flash with an arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of non-insulated "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 presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## SERVICE

If the unit ever needs repair service, customer should contact Videolarm (1-800-554-1124) for return authorization & shipping instructions.

## TECHNICAL SUPPORT

Videolarm has set-up a 24 hour technical support line for their customers.

**24 HOUR TECHNICAL SUPPORT**

**1-800-554-1124**

# TROUBLESHOOTING

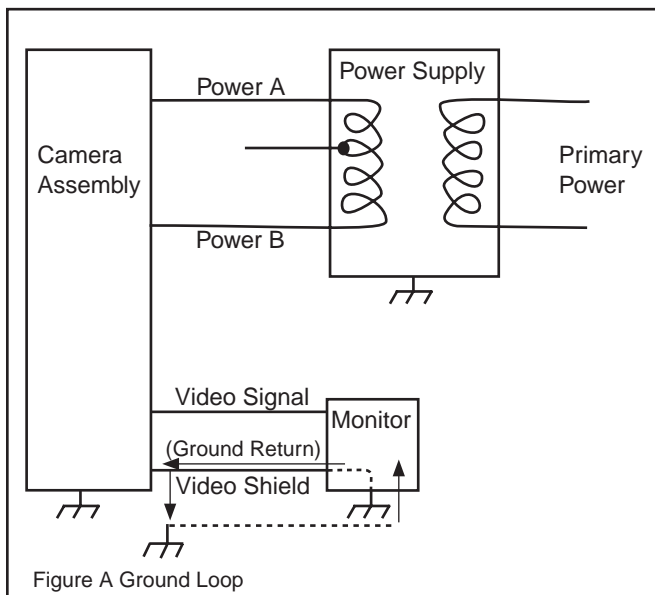
If you experience problems with the camera picture please check these simple troubleshooting procedures for possible solutions before calling technical support.

## STATIONARY OR SCROLLING HORIZONTAL LINES ON SCREEN

### GROUND LOOPS

Generally a horizontal line on screen, whether moving or stationary, means you have a ground loop problem. The video shield should only be connected to ground through the monitor or other electronic equipment that uses the video signal. Connecting the video shield to ground at the camera will create a ground loop, which may interfere with the video signal (See Figure A). This should not damage the camera, but the video signal may become unusable. A ground loop problem will cause a dark horizontal bar to slowly "scroll" through the picture. To solve this problem, remove all ground connections from the video connection EXCEPT for the ground at the terminating end of the video signal.

The video termination should be a 75-ohm impedance, standard in monitors and other video equipment. If the video signal goes to more than one piece of equipment, a monitor and multiplexer input for instance, insure that one and only one piece of equipment terminates the video signal with 75 ohms; otherwise the image will be degraded and may appear to be unusually dim.



**IMPORTANT NOTE:** If you have removed the ground loop and the horizontal line still remains on screen call Videolarm technical support for further information.

## LINE LOCK

All cameras are all shipped from the factory with the line lock function disabled. If your application requires Line Lock contact Videolarm.

## AUTOMATIC BROWN OUT FEATURE

The camera includes an automatic brown out feature which is activated whenever the incoming voltage drops below 10 VAC or VDC.

## PICTURE IS CLEAR, LOW OR NO COLOR; PICTURE IS DARK OR GRAINY IN GOOD LIGHTING CONDITIONS

The auto iris lens is set at the factory. If you experience video too light or dark you can manually adjust using the auto iris adjustment screw.

If there is low or no color the Auto Iris is too open, if the picture is dark or grainy in good conditions the Auto Iris is too closed.

To adjust the auto iris lens, first locate the AUTO IRIS ADJUSTMENT SCREW on the camera PC board. Using a small insulated screwdriver (blade width of from 1/16" to 3/32"), adjust the control. Turning the control CLOCKWISE opens the iris, making the image brighter. Turning the control COUNTER CLOCKWISE closes the iris, making the image darker.

### SERIAL NUMBER YK CAMERAS

Auto Iris Adjustment Screw



Figure B

### SERIAL NUMBER MC CAMERAS

Auto Iris Adjustment Screw

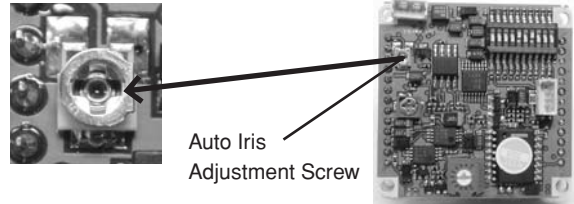


Figure C

### SERIAL NUMBER CB CAMERAS

Auto Iris Adjustment Screw



Figure D

### SERIAL NUMBER CT CAMERAS

Auto Iris Adjustment Screw

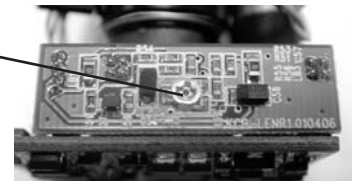


Figure E

### IMPORTANT NOTE ON AUTO IRIS ADJUSTMENT:

**WHEN ADJUSTING, USE A SMALL, INSULATED SCREWDRIVER.** The auto iris adjustments are very sensitive. Use gentle pressure when turning. To adjust, turn either clock-wise or counter-clockwise no more than one degree at a time. Check the monitor after each turn to determine is the desired brightness and color have been obtained. When the adjustment is satisfactory, place a hand over the lens to block out all light. Quickly remove the hand to be sure the iris reacts.

## NVT TROUBLESHOOTING

If you are experiencing problems, attempt to simplify your setup. Test each cable segment separately. For example, test the camera and monitor together without the other equipment. Then add in the NVT transceivers, back-to-back. Test each segment of a long cable-run independently. Attempt to isolate the problem.

Below are problems that may be encountered. If the suggestions below are not helpful, or the recommendations are not effective, please call NVT's customer support. NVT customer support can be reached 8:00 AM to 5:30 PM PST at (800) 959-9870 or at (+1) (650) 562-0600.

### FAINT OR BLURRY PICTURE; LITTLE OR NO COLOR

Possible causes include:

1. Shielded twisted-pair cable. Verify that the wire is unshielded twisted-pair cable. Multi-pair cable with an overall shield is OK.
2. Longer wire distance than expected. Be sure to include any coax cable that's part of this distance. Verify end-to-end connectivity with an ohm meter. Measure the distance by disconnecting the transceivers, shorting the far end, reading the loop's resistance at the near end. See above for ohm vs. distance ratings. If necessary, replace transceivers with correct models specified for this distance.
3. Incorrect distance equalization setting. Adjust the equalization controls) with a mini screwdriver (NV-652R, NV-862R or the NV-1662R). If the transmitter is an NV-653T, verify correct equalization switch setting.
4. Poor connection at a punch-block, splice, or coax cable. Re-check using the method described in #2 above, or use a wire test set.
5. Short between conductors of the twisted-pair. Use an ohm meter to locate the short.
6. Transient protection devices employing metal-oxide varistors. Use carbon blocks, gas-discharge tubes, or NVT transceivers with built-in protection.
7. Check the camera. Are the focus and iris set correctly? Verify with portable monitor.

### EXTREMELY FAINT PICTURE

Only faint shadows of the original picture are visible. One of the twisted pair conductors is open or the wires are shorted together. Check with an ohm meter.

### OVER-SATURATED COLORS; HIGH CONTRAST GRAINY PICTURE; TOO BRIGHT, TORN PICTURE

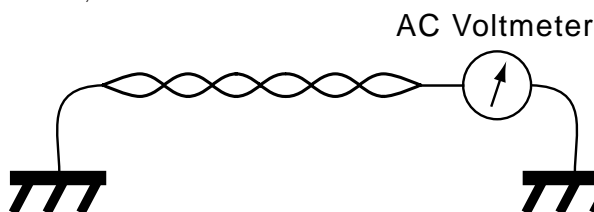
Adjust the distance equalization as necessary. Verify that the monitor has a 75 termination, not in "loop-through".

### WON'T SYNC; WIDE, WHITE JAGGED AREAS

Looks like a scrambled Cable TV signal. Check polarity.

### WON'T SYNC; TORN PICTURE

1. Make sure that you are using unshielded twisted pair wire.
2. Check distance equalization settings.
3. For installations with passive (non-amplified) transceivers at both ends, check for ground loops. This may be done with an AC Voltmeter, as shown below:



If the voltage is greater than 1/2 volt, use an amplified receiver, such as the NV-652R, NV-862R, or NV-1662R.

Alternately, remove the ground at one end (usually at the camera end). Be sure that floating the camera conforms to local/regional and National Electrical Codes.

4. Check for crosstalk from a second video path. Disconnect all other video sources. If the problem goes away, check for a split-pair or un-twisted wire.

### FAINT STRIPES GLIDING UP OR DOWN THE SCREEN

These are caused by crosstalk from a second video path, or with ground-loops in installations employing passive models at both ends.

1. To identify, disconnect all other video signals temporarily. If the interference goes away, check the wire to make sure the signal is traveling through a twisted pair. Is two-way video being sent more than 1,000 ft (300m) over Category 2 or 3 wire? If so, the send and receive signals may need to go in separate jacketed cables, or upgrade to Category 5 wire.
2. Next, check for ground loops. See #3 above.

### NO POWER LIGHT ON THE NVT UNIT

Check the blue "power" LED on powered NVT units. If the light is not on, the receiver is not getting power. Re-check the power source and connections.

If the green LED is on but the power LED is off, check that the power supply is floating. Grounding one side of the power input may cause this condition.

### NO GREEN LIGHT, NO VIDEO

The NV-652R, NV-862R or NV-1662R series receiver/hub is not detecting a video signal. There is an open or shorted connection. Use a multimeter to locate the fault.

### GHOSTS

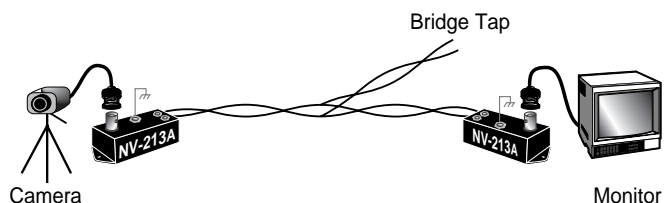
Faint shadows of the original signal shifted to the right. This is caused by an impedance mismatch along the wire. Verify that the monitor is terminated with 75 (not in "loop-through".) Check that all wire is **unshielded** twisted pair. The high-frequency wire impedance should be 100. Check for bridge-taps (see below) either by inspecting wiring closet connections, or, if available, using a "Time-Domain Reflectometer" (T.D.R.), sometimes called a "cable tester".

If the faint shadows are not copies of the original picture, but from the picture of some other camera, check for crosstalk:

Is any portion of the wire un-twisted?

Are the signals from two cameras split between two pairs?

Is there a short between a conductor of one signal and a conductor of another?



## CABLE AND POWER GUIDELINES

This chart shows the proper current needed for power supplies for Q-View Series cameras. Use Class 2 Power only. Input voltage must be 24 VAC/VDC.

CAMERAS	VOLTAGE	CURRENT	POWER
1	24 VAC/VDC	102mA	2.5W
2	24 VAC/VDC	210mA	5W
3	24 VAC/VDC	331mA	7.9W
4	24 VAC/VDC	487mA	10.9W

Use the formula below to select the correct power supply for cameras connected in parallel (positive to positive, negative to negative):

**Total current for a 24 VAC system:**

**TOTAL CURRENT = (202mA x total number of cameras) Example: 202mA x 5 total cameras = 1010mA**

**Note: 202mA is camera plus power supply**

### Power Supply Cable Maximum Length (feet/meters)

CAMERAS	TOTAL LOAD	POWER SUPPLY	24 AWG	22 AWG	18 AWG	16 AWG
1	2.5W	24 VAC/VDC	1718/523	2733/833	6909/2106	10985/3348
2	5W	24 VAC/VC	834/254	1327/404	3356/1023	5335/1626
3	7.9W	24 VAC/VDC	529/161	842/256	2129/649	3385/1032
4	10.9W	24 VAC/VDC	359/109	572/174	1447/441	2300/701

**NOTE:** The above table is based on a "worst-case" power supply. Using a regulated or switching power supply can increase your cable distance. Videolarm recommends using our **PS24** power supply, or a CSA/UL listed Class 2 power supply.

### Video Cable Maximum Length (feet/meters)

Cable Type	RG-59	RG-6	RG-11
Wire Gauge	23 AWG*	18 AWG*	16 AWG*
Max. Length	750/229	1500/457	2000/610

\* Copper clad steel core, 95% braided shield

#### Maximum Length (feet/meters)

AWG	250/76	500/152	1000/305	1500/457	2000/610	3000/914
18	3Ω	6Ω	13Ω	19Ω	26Ω	40Ω
20	5Ω	10Ω	20Ω	30Ω	40Ω	59Ω
22	8Ω	17Ω	33Ω	48Ω	66Ω	99Ω
24	13Ω	26Ω	52Ω	78Ω	108Ω	163Ω

Mounting Template

