



# TECHNICAL Practice

**TELECOM SOLUTIONS FOR THE 21ST CENTURY**

**VCAM-1/1IR**  
**VCAM-2**  
Compact Color  
Video Camera Kit

August 2, 2011

## Compact Color Camera Kits and Single Gang Mountable Cameras



**Model VCAM-1  
and VCAM-1IR**

The **VCAM-1** and **VCAM-1IR** are high resolution color composite video cameras. Their compact size will allow mounting in even the smallest locations. The extreme temperature rating of this camera, makes it ideal for mounting in outdoor locations in a water tight enclosure.

The **VCAM-2** is a compact, high resolution color composite video camera mounted behind a standard single gang wall plate. The **VCAM-2** is available in two finishes: Brushed Stainless Steel (**VCAM-2-SS**) and Oil Rubbed Bronze (**VCAM-2-BN**). The extreme temperature rating and Enhanced Weather Protection make this camera ideal for mounting in outdoor locations.

The **VCAM-1** is not compatible with IR illuminators and is a direct replacement for the cameras included in the following Viking models: **AES-2005**, **E-35**, **E-50**, **E-65**, **E-75**, **K-1205**, **K-1705-3** and **W-3005**.

The **VCAM-1IR** has a day/night OLP (optical low pass) filter and is compatible with standard 840-850nm IR illuminators. The **VCAM-1IR** is the same size as the **VCAM-1** allowing it to be used in all of the above Viking products.

All cameras are equipped with Enhanced Weather Protection (**EWP**) for outdoor installations where the unit is exposed to precipitation or condensation. The **VCAM-1**, **VCAM-1IR** and **VCAM-2** feature sealed connections, as well as an epoxy potted circuit board.



**Model VCAM-2**

## Features

### VCAM-1 / VCAM-1-IR / VCAM-2 Features:

- High resolution color composite video camera with wide 70° viewing angle, tilt/swivel adjustments, and wide operating temperature range
- Designed for outdoor use, all cameras come standard with Enhanced Weather Protection (EWP), see **DOD# 859** for more information
- All cameras designed to meet IP66 Ingress Protection Rating
- 5V DC adapter and wire connectors included
- **VCAM-1-IR** only: IR illuminator compatible

### VCAM-2 Features:

- **Compact size:** Front panel is the size of a typical single gang midsize wall plate
- **Mounting:** Flush mount in a single gang electrical box (2.25" deep x 2.00" wide x 2.84" tall min) electrical box or surface mount in a Viking model **VE-3x5** (not included, see **DOD# 424**)
- **Available in 2 standard faceplate finishes:** Brushed Stainless Steel and Oil Rubbed Bronze
- **PNL-VCAM-2 faceplates:** Replacement faceplates with matching screws available in both finishes
- **Vandal Resistant Features:** 18 gauge 304 stainless steel faceplate, stainless steel camera mounting plate, scratch resistant powder coating, impact and scratch resistant camera lens, and hex drive mounting screws
- **Weather Resistant Features:** Faceplate gasket, sealed camera lens, potted camera circuit board, stainless steel camera mounting hardware
- **VCAM-2-BN** only: UV stable weather resistant powder coating

## Applications

- Door entry
- Gate entry
- Covert surveillance

Phone... 715.386.8861

[info@vikingelectronics.com](mailto:info@vikingelectronics.com)

<http://www.vikingelectronics.com>

## Specifications

**Shipping Weight:** VCAM-1 / VCAM-1-IR: 0.23 kg (0.5 lbs)  
VCAM-2: 0.36 kg (0.8 lbs)

**Operating Temperature:** -40°C to 85°C (-40°F to 185°F)

**Connections:** (3) gel-filled butt connectors (3M Scotchlok UR2)

(See page 2 for complete specifications)

## IF YOU HAVE A PROBLEM WITH A VIKING PRODUCT, PLEASE CONTACT: VIKING TECHNICAL SUPPORT AT (715) 386-8666

Our Technical Support Department is available for assistance Monday 8am - 4pm and Tuesday through Friday 8am - 5pm central time. So that we can give you better service, before you call please:

1. Know the model number, the serial number and what software version you have (see serial label).
2. Have your Technical Practice in front of you.
3. It is best if you are on site.

### RETURNING PRODUCT FOR REPAIR

The following procedure is for equipment that needs repair:

1. Customer must contact Viking's Technical Support Department at 715-386-8666 to obtain a Return Authorization (RA) number. The customer MUST have a complete description of the problem, with all pertinent information regarding the defect, such as options set, conditions, symptoms, methods to duplicate problem, frequency of failure, etc.
2. Packing: Return equipment in original box or in proper packing so that damage will not occur while in transit. Static sensitive equipment such as a circuit board should be in an anti-static bag, sandwiched between foam and individually boxed. All equipment should be wrapped to avoid packing material lodging in or sticking to the equipment. Include ALL parts of the equipment. C.O.D. or freight collect shipments cannot be accepted. Ship cartons prepaid to: **Viking Electronics, 1531 Industrial Street, Hudson, WI 54016**
3. Return shipping address: Be sure to include your return shipping address inside the box. We cannot ship to a PO Box.
4. RA number on carton: In large printing, write the R.A. number on the outside of each carton being returned.

### RETURNING PRODUCT FOR EXCHANGE

The following procedure is for equipment that has failed out-of-box (within 10 days of purchase):

1. Customer must contact Viking's Technical Support at 715-386-8666 to determine possible causes for the problem. The customer MUST be able to step through recommended tests for diagnosis.
2. If the Technical Support Product Specialist determines that the equipment is defective based on the customer's input and troubleshooting, a Return Authorization (R.A.) number will be issued. This number is valid for fourteen (14) calendar days from the date of issue.
3. After obtaining the R.A. number, return the approved equipment to your distributor, referencing the R.A. number. Your distributor will then replace the product over the counter at no charge. The distributor will then return the product to Viking using the same R.A. number.
4. **The distributor will NOT exchange this product without first obtaining the R.A. number from you. If you haven't followed the steps listed in 1, 2 and 3, be aware that you will have to pay a restocking charge.**

### LIMITED WARRANTY

Viking warrants its products to be free from defects in the workmanship or materials, under normal use and service, for a period of one year from the date of purchase from any authorized Viking distributor or 18 months from the date manufactured, whichever ever is greater. If at any time during the warranty period, the product is deemed defective or malfunctions, return the product to Viking Electronics, Inc., 1531 Industrial Street, Hudson, WI., 54016. Customer must contact Viking's Technical Support Department at 715-386-8666 to obtain a Return Authorization (R.A.) number.

This warranty does not cover any damage to the product due to lightning, over voltage, under voltage, accident, misuse, abuse, negligence or any damage caused by use of the product by the purchaser or others.

NO OTHER WARRANTIES. VIKING MAKES NO WARRANTIES RELATING TO ITS PRODUCTS OTHER THAN AS DESCRIBED ABOVE AND DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

EXCLUSION OF CONSEQUENTIAL DAMAGES. VIKING SHALL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE TO PURCHASER, OR ANY OTHER PARTY, FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL OR EXEMPLARY DAMAGES ARISING OUT OF OR RELATED TO THE SALE OR USE OF THE PRODUCT SOLD HEREUNDER.

EXCLUSIVE REMEDY AND LIMITATION OF LIABILITY. WHETHER IN AN ACTION BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR ANY OTHER LEGAL THEORY, ANY LIABILITY OF VIKING SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT, OR AT VIKING'S OPTION, REFUND OF THE PURCHASE PRICE AS THE EXCLUSIVE REMEDY AND ANY LIABILITY OF VIKING SHALL BE SO LIMITED.

IT IS EXPRESSLY UNDERSTOOD AND AGREED THAT EACH AND EVERY PROVISION OF THIS AGREEMENT WHICH PROVIDES FOR DISCLAIMER OF WARRANTIES, EXCLUSION OF CONSEQUENTIAL DAMAGES, AND EXCLUSIVE REMEDY AND LIMITATION OF LIABILITY, ARE SEVERABLE FROM ANY OTHER PROVISION AND EACH PROVISION IS A SEPARABLE AND INDEPENDENT ELEMENT OF RISK ALLOCATION AND IS INTENDED TO BE ENFORCED AS SUCH.

### PART 15 LIMITATIONS

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## Specifications

### Electrical

**Image Sensor:** 1/4" color CMOS  
**Active Pixels:** 640 x 480 @ 30 fps  
**Resolution:** 420TVL  
**Sensitivity:** 0.26 lux (20 IRE) F 2.0  
**Lens:** 3.4mm pinhole, semi-conical  
**FOV (Field of View):** 70°  
**Signal to Noise Ratio:** 46 dB  
**Gamma:** 0.45  
**Gain:** Automatic 36 dB  
**Synchronization:** Internal  
**Back Light Compensation:** Off  
**White Balance:** AWB  
**Shutter Mode:** Electronic rolling shutter  
**Shutter Speed:** Auto exposure or fixed  
**Frame Rate:** 30 fps  
**Scan Mode:** Interlaced  
**Contour Enhancement:** Enabled  
**Dynamic Range:** 73.4 dB  
**Iris Controls:** Electronic (no DC signal)  
**Video Output:** 1V p-p composite, NTSC, 75 Ohms  
**Power Input:** 3.5-6V DC regulated (polarity protected) 5V DC regulated adapter included  
**Power Consumption:** < 150mA  
**Connector:** 6 pin JST SHR-06V-S-B  
**Wire:** 7" flying leads, 24 AWG stranded, yellow = video out, red = +6VDC, black = -/GND

**Maximum Wire Run Length:** 750 ft with RG59/RG6 for video and CAT5 for power (3 pairs) and entry phone audio (1 pair). 150 ft with CAT5E for video, power and entry phone audio (longer video runs are possible by using video balun transceivers, see **Installation** section).

### Environmental

**Operating Temperature:** -40°C / -40°F ~ 85° / 185°F  
**Storage Temperature:** -40°C / -40°F ~ 90° / 194°F  
**Operating Humidity:** 5% - 95% non-condensing

### Mechanical

**Dimensions WxHxD:** 26mm x 24mm x 19mm (1.03" x 0.94" x 0.76")  
**Weight:** 13.4g (0.036 lbs)

**VCAM-1/VCAM-2 IR Compatibility:** This camera is equipped with an OLP (Optical Low Pass) filter to maintain correct video color in outside applications. The standard camera is not compatible with IR illuminators. If IR illumination is required, see Viking model **VCAM-1IR**.

**VCAM-1IR:** This camera is equipped with a Day/Night OLP (Optical Low Pass) filter and is compatible with standard 840-850nm IR illuminators. All other specifications are identical to the **VCAM-1/VCAM-2**.

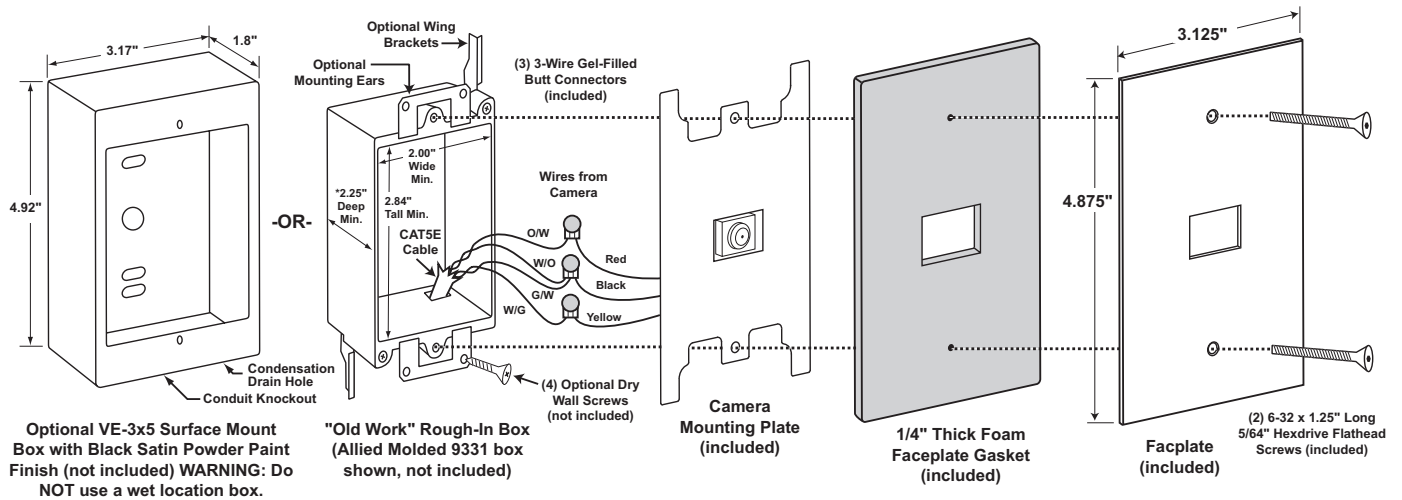
# Installation

## A. Surface Mounting the VCAM-2

A Viking model **VE-3x5** can be used to surface mount a **VCAM-2** to a wall or post. Recommended mounting height to bottom of **VE-3x5** is 50" - 54". Drill a small wire exit hole in wall. Pull wire through and seal hole around wire with putty or caulking. Route wire into the **VE-3x5** box, securely screw it to wall or post and seal hole in box around wire with putty or caulking. **Note:** Conduit may also be used when surface mounting wire, but should not enter through the top of the **VE-3x5**. When routing wiring from above, a drip loop is required. **WARNING:** Do **NOT** use a typical "wet location box" as not all styles seal properly with the **VCAM-2** faceplate.

## B. Mounting the VCAM-2 Faceplate

After the Rough-In box or **VE-3x5** is securely mounted, caulking between the box and rough opening is completed (if required), wires are connected, and camera is tilted and rotated to the desired position (as shown in section **G**). Remove paper liner from face plate gasket and press gasket to the back of the faceplate. Push the 1-1/4" 6-32 screws through faceplate holes and small holes in gasket, the faceplate gasket should retain the screws. Position the camera mounting plate over screws. Align screws with single gang box bosses and tighten face plate until gasket is fully collapsed. Included 1/4" thick gasket will provide an adequate seal for most siding surfaces; however for rough surfaces (ie: brick, stucco, etc.) additional caulking may be required.

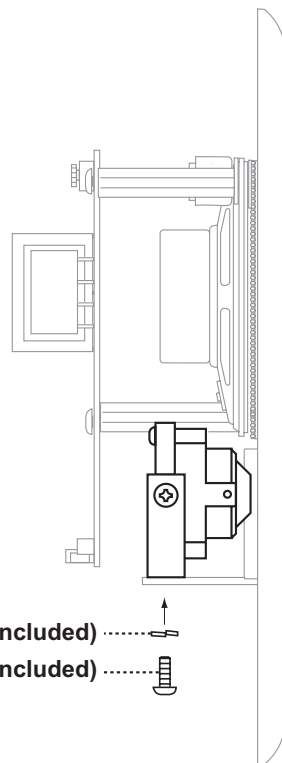


## C. Mounting the VCAM-1



**IMPORTANT:** Electronic devices are susceptible to lightning and power station electrical surges from both the AC outlet and the telephone line. It is recommended that a surge protector be installed to protect against such surges.

**Note:** The recommended camera mounting height is 50.0" - 56.0" from the ground.

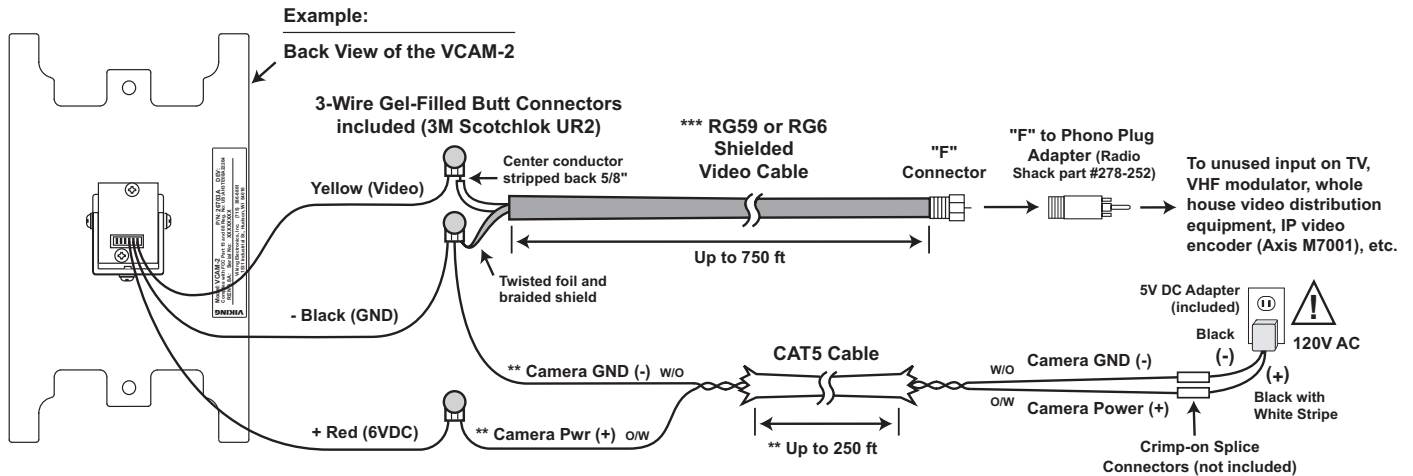


**Example:**  
Side View of  
Model E-50  
(not included)

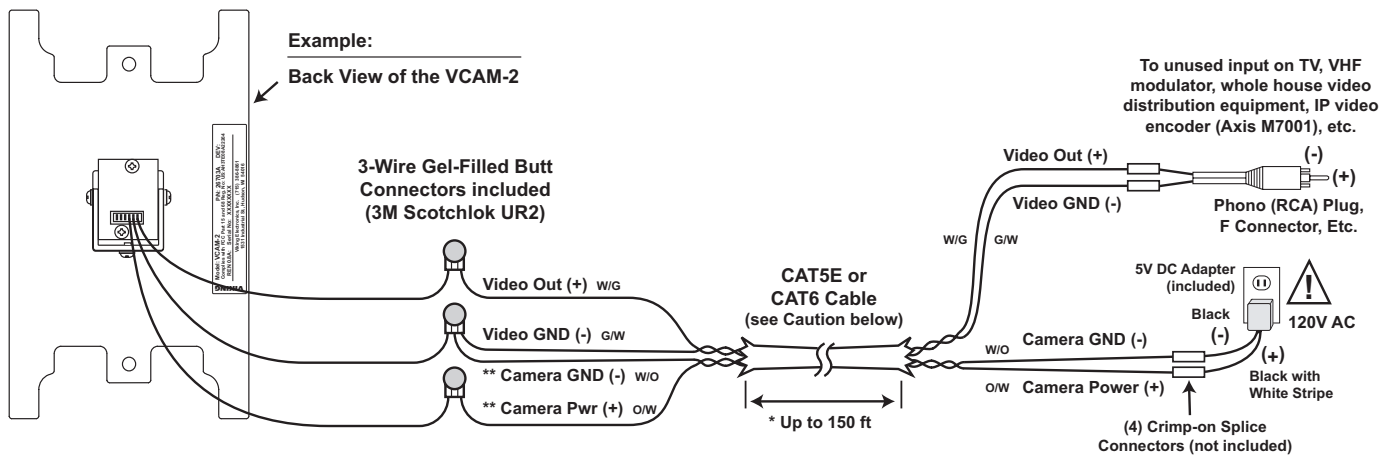
#2 Lock Washer (included) .....  
#2-56 x 3/16 Phillips Screw (included) .....

## D. Wiring

### 1. Using RG59 for Video and CAT5 for Camera Power (Recommended)



### 2. Using CAT5E or CAT6 for Video and Camera Power (see Caution below)



\* **Note:** Up to 150 ft video cable run length can be achieved using CAT5E or CAT6 cable. Longer cable runs can be used if a passive or active video Balun transceiver is used on each end of the cable. Generally, passive transceivers can achieve up to 750 ft cable runs where active transceivers can achieve up to 3000 ft runs depending on cable type, etc. The type of video balun transceiver required is specific to your cable run length. For more information on video balun transceivers go to: [www.northernvideo.com](http://www.northernvideo.com).

\*\* **Note:** The maximum camera power supply wire run length is 250 ft of 24 gauge wire (CAT 5/6), longer runs are possible by doubling pairs or increasing the wire gauge.

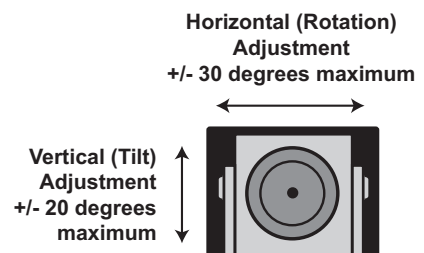
\*\*\* **Note:** RG59 or RG6 with solid center conductor and 95% bare copper braid shield.

**Caution:** When routing CAT5E or CAT6 cable, maintain a minimum distance of 3 ft from any parallel high voltage wire (110 VAC) and a minimum of 2 ft from crossing any high voltage wire. For installations where RF noise is expected (commercial applications) or wire runs are near high voltage (110 VAC) wires, a shielded video cable such as RG6 is recommended.

## E. Adjusting the Camera

The camera can be tilted and rotated to your desired position. A portable service (test) monitor can be used to determine the correct viewing angle during installation.

**Important:** To prevent the edge of the faceplate from being viewed in the video image, do not rotate the camera beyond 30 degrees or tilt beyond 20 degrees.



**Product Support Line...715.386.8666**

**Fax Back Line...715.386.4345**

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