

# Rear View Camera System with Side Cameras

Product Manual / Installation Instructions



**Rear View Camera Systems**  
Model # RVS-770616N

Rear View Safety, Inc. © 2014

 REAR VIEW  
**SAFETY**  
REVERSE WITH CONFIDENCE™

# What's in the Box?



- 2 Color CCD side cameras w/infra-red weather proof cameras
- 1 Color CCD w/infra-red weather proof camera
- 1 DIGITAL 7" LED color monitor with universal mount/stand and wire
- 1-66' Camera cable for Backup camera
- 2-33' Camera Cable for Side Cameras
- 1 Remote control
- 1 Power connection wire
- 1 Double RCA + power converter (to connect external audio, video and power)
- 1 Screw kit for installation

# Table of Contents

Introduction.....	4
Safety Information.....	5-7
Before Beginning Installation .....	8
Installation Guide.....	9
Wiring Camera & Monitor .....	10-11
Installation Diagram .....	12
Installing the Monitor .....	13
Monitor Operation .....	14
Splitting & Splicing .....	15
Positioning .....	16
Multiplexer .....	17
Monitor Dimensions .....	18
Monitor Specifications .....	19
Rear Camera Dimensions.....	20
Rear Camera Specifications .....	21
Side Camera Dimensions .....	22
Side Camera Specifications .....	23
Troubleshooting.....	24

# Introduction

Please read all of the installation instructions carefully before installing the product. Improper installation will void manufacturer's warranty.

**Congratulations** on purchasing a Rear View Backup Camera System. With this manual you will be able to properly install and operate the unit.

The Backup Camera System is intended to be installed as a supplement aid to your standard rear view mirror that already exists in your vehicle. The Backup Camera System should not be used as a substitute for the standard rear view mirror or for any other mirror that exists in your vehicle.

In some jurisdictions, it is unlawful for a person to drive a motor vehicle equipped with a TV viewer or screen located forward of the back of the driver's seat or in any location that is visible, directly or indirectly, to the driver while operating the vehicle.

# Safety Information

Please read the entire manual and follow the instructions and warnings carefully. Failure to do so can cause serious damage and/or injury, including loss of life. Be sure to obey all applicable local traffic and motor vehicle regulations as it pertains to this product. Improper installation will void manufacturer's warranty.

## USAGE

- The Rear View Camera System is designed to help the driver safely detect people and/or objects helping to avoid damage or injury. However, you the driver, must use it properly. Use of this system is not a substitute for safe, proper or legal driving.
- Never back up while looking at the monitor alone. You should always check behind and around the vehicle when backing up, in the same way as you would if the vehicle did not have the Rear View Camera System. If you back up while looking only at the monitor, you may cause damage or injury. Always back up slowly.
- The Rear View Camera System is not intended for use during extensive back-up maneuvers or backing into cross traffic or pedestrian walkways.
- Please, always remember, the area displayed by the Rear View Camera System is limited. It does not display the entire panorama that is behind you.

# Safety Information

## INSTALLTION

- Electric shock or product malfunction may occur if this product is installed incorrectly.
- Use this product within the voltage range specified. Failure to do so can cause electronic shock or product malfunction.
- Take special care when cleaning the monitor.
- Make sure to firmly affix the product before use.
- If smoke or a burning smell is detected, disconnect the system immediately.
- Where the power cable may touch a metal case, cover the cable with a friction tape. A short circuit or disconnected wire may cause a fire.
- While installing the Rear View System be careful with the wire positioning in order to avoid wire damage
- The Rear View System should only be used when the vehicle is in reverse.
- Do not watch movies or operate the monitor while driving; as it may cause an accident.
- Do not install the monitor where it may obstruct drivers view or obstruct an air bag device.
- Dropping the unit may cause possible mechanical failure.

## Safety Information

IN NO EVENT SHALL SELLER OR MANUFACTURER BE LIABLE FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.



# Before Beginning Installation

Before drilling please check that no cable or wiring is on the other side of the wall. Please clamp all wires securely to reduce the possibility of them being damaged while vehicle is in use. Keep all cables away from hot or moving parts and electrical noisy components.

**We recommend doing a benchmark test before installation to insure that all components are working properly.**

**Step 1:** Choose the monitor and camera locations.

**Step 2:** Install all cables in vehicle, when necessary a 0.8 (20mm) hole should be drilled for passing camera cable through vehicles walls. Install split grommets where applicable

**Step 3:** Once all cables and wiring have been properly placed routed, perform a system function test by temporarily connecting he system. If the system seems to not be operating properly see troubleshooting



## Camera

1. Attach camera bracket close to rear marker lights, centered on vehicle.
2. Attach camera to bracket using screws provided and adjust the angle.

## Cable

1. Be sure to position the cable properly. The aviation camera cable uses aircraft grade connectors which means the camera cable can be exposed to all weather elements, do not run the cable over sharp edges, do not kink the cable and keep away from HOT and rotating parts.
2. Fasten all cable and secure all excess cable.

## Monitor

1. To Attach the Pedestal mount to the dashboard or to the headliner using self-tapping screws and/or adhesive pad.
2. Attach monitor to mount, and adjust mounting angle to allow optimum driver viewing comfort. (see figure 1.1 on page 12)

# Wiring Camera & Monitor

- When installing a ONE (1) camera setup, connect camera extension cable from the rear view camera to port # labeled "backup" (most systems port 3) Connect red 12V+ wire to ignition power source and black wire 12V- to chassis ground. Do not use white and yellow wires.
- The blue wire is the REVERSE trigger wire. In typical rear-view installations, connecting this wire to the vehicle's backup light circuit will activate the rear-view image whenever the vehicle shifts into reverse.
- Before drilling, be sure no cable or wire is on the other side.
- Feed as much cable as possible into vehicle and clamp securely. This reduces the possibility of cable being hooked or snagged.
- Camera: Drill a 20mm (0.8in) diameter hole into vehicle body near the camera and bracket. Insert camera cable into vehicle (be careful not to kink cable) and fit grommet into hole. Apply sealant around grommet to increase resistance to water penetration. Connect camera to the camera extension cable which runs inside the vehicle.
- The camera system can be wired to be powered "ON" the entire time the vehicle is activated and this is typical in RV and some Commercial applications.
- The camera and monitor can always be activated by manually pushing the power button on monitor this is in addition to utilizing the positive triggers.

Note: If connecting power directly to battery, the camera is always ON and therefore can drain battery, therefore its recommended to connect power to an ignition switched accessory power source.

# Wiring Camera & Monitor

- Audio works on two ports of multiplexer and positive triggers must be triggered for audio to operate. **#3** Port labeled "backup" (blue trigger) **#2** port labeled "DVD" (white Trigger).
- When installing a TWO (2) camera setup, use ports #3 and #2 and use positive triggers Blue and White.
- ◆ To automatically have camera and monitor turn ON when vehicle activates, simply twist BLUE positive trigger 12V+ to Red Power line 12V+ and wire to ignition power which can be an accessory switch/fuse line and black wire 12V- to chassis ground.
- ◆ Infrared technology built into camera IRs are activated automatically according to the lighting conditions.
- There is a built-in voltage regulator for our systems which can handle 9-32 volts real consumption is 10 to 30 Volts.
- When installing all THREE (3) cameras, use all three ports and connect all positive triggers to appropriate connections.
- ◆ When using the positive trigger functions (blue, yellow & white wires) each trigger function needs to work on a separate 12V+ source i.e. the Yellow and White wires can be wired to a turn signal circuit etc.
- ◆ Grid lines function can be turned on/off by pushing MENU 8 times and then select ON/OFF

# Installation Diagram

## On Select Models

Figure 1.1

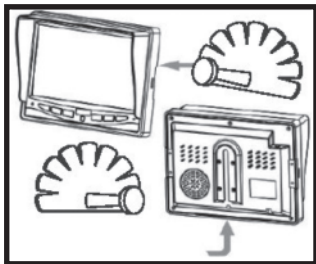


Figure 1.2

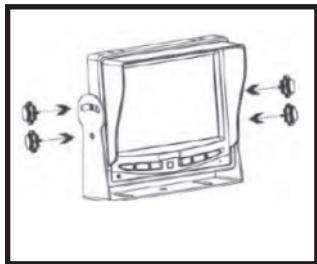
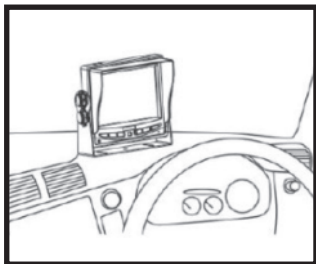
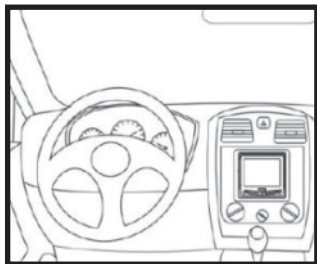


Figure 1.3



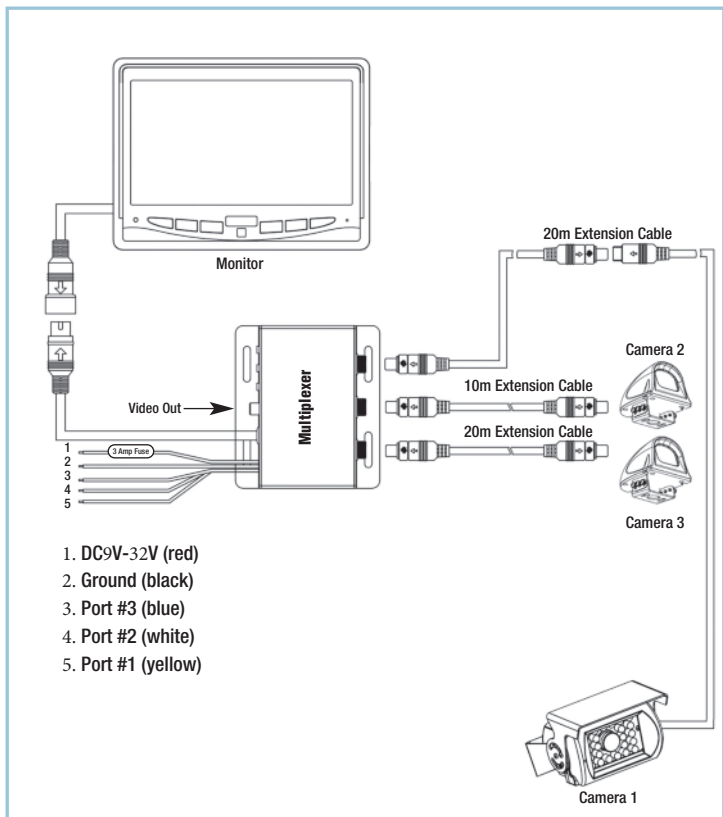
Connection of U Bracket

Figure 1.4



Connection of  
Flushmount Bracket

# Installing the Monitor

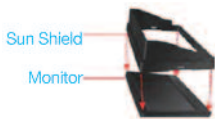




# Splitting & Splicing

## Installing & Splitting Embedded Monitor

**Installing sun shield:** Put shade cover on the display. **Installing back cover:** Put the monitor with shade cover in the back cover (only for embedded monitor)



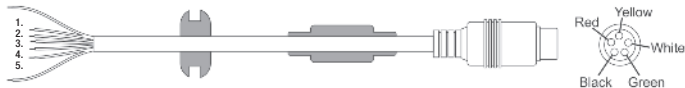
**Splitting back cover:** Hold monitor with 2 hands and detach with fingers, as indicated by arrows. (only for embedded monitor)



**Splitting sun shield:** Take the monitor with the left hand and detach with right hand as indicated by the white arrow. (see below)



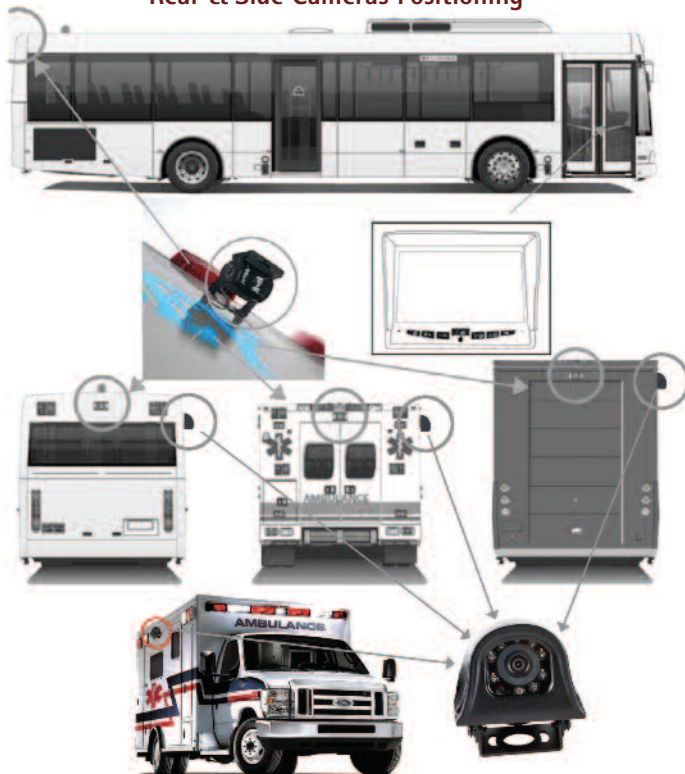
## Splicing



1. Red - Power (+)
2. Yellow - Video
3. Green - Mirror / Normal Imaging
4. White - Audio
5. Black - Ground (-)

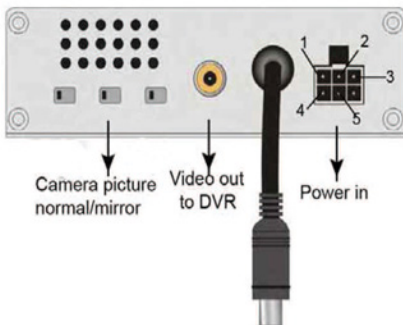
# Positioning

## Rear & Side Cameras Positioning

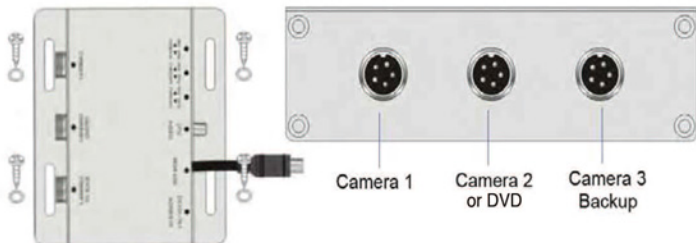




# Multiplexer

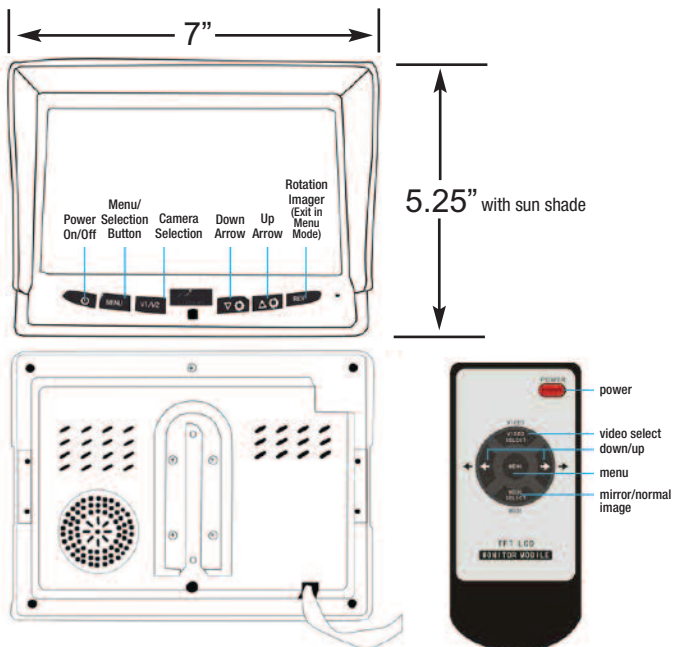


Pin Number	Description
1	Blue: Reverse Gear Power circuit port #3
2	Yellow: Camera - Port #1
3	Red: DC 9V-32V Power Supply
4	White: Camera Port #2
5	Black: Ground



# Monitor Dimensions

## Some Models

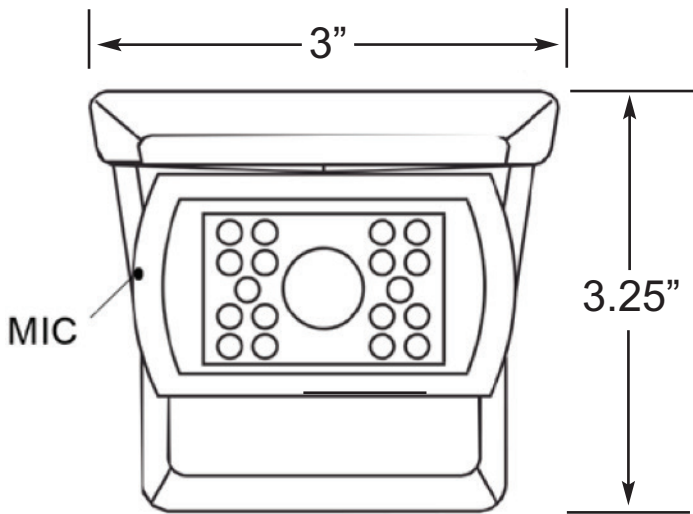


# Monitor Specifications

LED Digital Monitor	
Screen Size	7"
Dot Resolution	800H x 480V
Display Format	16:9 / 500:1
Display Brightness	400cd/m <sup>2</sup>
Viewing Angle	U:50° / D:60° / R:70°
Video Input	3 channel
Video Source	1Vp-p, 75Ω
Power Supply	DC 9V-32V
Storage Temperature	-30° C ~ +85° C
Operating Temperature	-20°C ~ +70° C
Video System	Auto NTSC/PAL
Overall Dimensions	7"L x 5"H x 1"D
Weight	400G
Impact Rating	5G
Dot Pitch	0.1926H x 1710V
Sync System	Internal

## Rear Camera Dimensions

Rear Camera

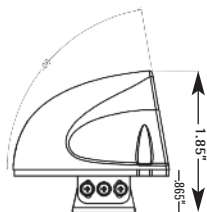
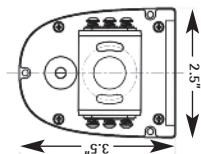
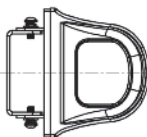
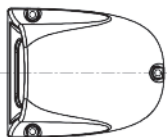


## Rear Camera Specifications

Camera	1/3" Sharp® Color CCD
Picture Elements	410,000 pixels
Gamma Correction	r=0.45 to 1.0
Image Sensor	620 TV lines PAL:752h x 582v, NTSC: 811h x 507v
Lens	2.5mm
View Angle	130°
Sync System	Internal Synchronization
Infrared distance	50 Feet (18 Infrared IR)
Usable Illumination	0 Lux (IR On)
Power Source	DC 9V-32V
S/N Ratio	More than 48dB
Electronic Iris	1/50, 160-1/100,000sec
<b>Video Output</b>	1Vp.p 75 ohm
IR Switch Control	ACDS Automatic Control
Impact Rating	20G Vibration/100G Shock
Operating Temperature	-40C - +70°C/RH 95% Max
Storage Temperature	-40°C - +85°C/RH 95% Max

# Side Camera Dimensions

## Side Camera



## Side Camera Specifications

Camera	1/4" Sharp® Color CCD
Picture Elements	250,000 pixels
Gamma Correction	r=0.45 to 1.0
Image Sensor	420 TV lines PAL:500h x 582v NTSC: 510h x 492v
Lens	2.1mm
View Angle	120°
Sync System	Internal Synchronization
Infrared distance	30 Feet (9 Infrared IR)
Usable Illuminatioem	0 Lux (IR On)
Power Source	DC 9V-32V
S/N Ratio	More than 48dB
Electronic Iris	1/50, 160-1/100,000sec
Video Output	1Vp.p 75ohm
IR Switch Control	ACDS Automatic Control
Impact Rating	20G Vibration/100G Shock
Operating Temperature	-40°C - +80°C/RH 95% Max
Storage Temperature	-40°C - +60°C/RH95% Max

# Troubleshooting

## Monitor Display Blue Screen & Displays No Signal

- Do a hard reset, unplug all cables and power cables from multiplexer (silver box) leave out for 1 minute and then re-connect them.
  - Check to ensure that the connection to the camera is tight.
  - Verify camera cable is plugged into port labeled **Backup Camera**
  - Verify that the blue positive trigger on power harness is put to power 12v+.
- If the problem still persists, verify that alternate ports work. If alternate ports do not work, remove Blue Trigger wire from 12V+ and select alternate channels.**

## Monitor Will Not Power-Up (no backlight on power button)

- Check fuse
- Check 12v+ to monitor
- Check ground connection

## No Image On Screen

- Verify camera is on correct camera input
- Verify cable is connected to monitor
- Verify camera is connected to cable
- Connect known working camera and cable to monitor.
- Verify Blue trigger is receiving power

## Audio on Camera

- Verify chosen camera has audio
- Verify volume setting
- Confirm that the Blue audio trigger is connected to 12v+