Please read this manual thoroughly before operating the unit, and keep manual for future reference.

ZONE DEFENSE
Saint Petersburg, Florida
(866) 672-1212

SYSTEM 322-1
7 INCH FLAT MONITOR

SALES & PARTS
RV Parts/sales inquiries
sales@zonedefenserv.com
Trucking Parts/sales inquires
sales@zonedefensetruck.com

ZONE DEFENSE
Saint Petersburg, Florida
(866) 672-1212
(5” LCD 3 AV \ 13-pin Monitor Cable)
ZONE DEFENSE™ offers systems to meet any need and price point within the RV/Trucking Industries. Our systems offer unparalleled features designed for professional drivers. Zone Defense develops, manufactures and markets, among other devices: products and applications developed to transmit voice, video, audio and data either individually or in any combination with one another. The Company has also developed, manufactured and marketed different kinds of underwater video cameras, lights and accessories for the marine, commercial, transportation, trucking and consumer retail markets.

OPTIONAL TRUCK - TRAILER CABLE
Zone Defense Trailer Coil Cable
Auxiliary Coiled Camera Cable with 2 Receptacles for Zone Defense Camera Cables. Part# 359

SAFETY INFORMATION
Before installing and operating read manual

Important! – Please Read This Manual Before Installing!
Congratulations on the purchase of your Zone Defense™ System. Zone Defense is a leader in vehicle observation systems. When properly installed and used, your System 322 is designed to provide you with years of trouble-free operation. This manual contains important information required to properly install and operate the unit. Please read this manual thoroughly before beginning.

All Zone Defense products are strictly intended to be installed as a supplement and Zone Defense observation systems and/or products are not intended for use as substitutes for rear-view mirror devices, or for any other standard motor vehicle equipment required to be installed on vehicles by law. Zone Defense products contribute to improving the vehicle operator’s field of view. Our products are no substitute for proper defensive driving techniques, observance of traffic laws and motor vehicle safety regulations.

Warnings!
Installation Location
It is unlawful in most jurisdictions for any person(s) to drive a motor vehicle equipped with a television viewer/screen located at any point 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. The system 322 is designed to be used primarily as a rear observation device. In any installations where Systems 322 products are used to display television broadcasts or recorded video playback, installation location must adhere to local laws and regulations.

Tampering
To prevent electrical shock, DO NOT OPEN THE MONITOR CASE. There are potentially harmful voltages inside the monitor. There are no user serviceable parts inside any of the components of the Zone Defense products. If tampering is detected, the warranty will be considered void.
**WARNING**

♦ Do not place heavy object on cables or cover them with rugs or carpet.
♦ Do not place cables where they can be pinched or stepped on.
♦ Designed as a driving aid. Watching videos, broadcasts, DVDs and/or any images other than intended driving assistance cameras is prohibited.

**CAUTION**

♦ To avoid damage to electronic circuit, stop using this product while doing welding work to the vehicle and/or trailers.
♦ Never immerse any component in water, and do not employ spray cleaners. When cleaning, use damp lint-free cloth only.
♦ Connect this unit only to other compatible devices.
♦ Make sure all cables are connected properly; improper cable connections may damage the camera and the monitor.
♦ Make sure all cables are connected firmly.
♦ Cables should not be allowed to touch hot or rotating parts, such as engine, ventilator, etc.
♦ Do not locate the monitor near heat generating vents or devices.
♦ Turn off power to the monitor when connecting the camera.

Monitors are not designed to be waterproof. Exposure to water, such as rain, may damage the unit.

**SYSTEM FEATURES**

**MONITOR**
- Display Device: Color TFT-LCD
- Screen Size: 5 Inches
- Audio Output: Max. 0.3W
- Loudspeaker: One 4.5cm round loudspeaker
- Power Supply: 10-32 v, DC
- Outer Dimension: 147.6mm (W) x 109mm (H) x 26.5mm (T)
- Weight: 540g
- Resolution: 1440(H)*234(V)
- Contrast: 150:1
- Brightness: 300cd/m²
- Viewing Angle: U: 15 / D: 35, R/L: 55

**1 / 3” COLOR CCD SENSOR SPECIFICATIONS (REAR)**

- With Audio and IR
- TV System: NTSC
- Effective Pixels: 512 x 492 pixels
- Sensing Area: 4.9mm x 3.7mm
- Scanning System: 2:1Interlace
- Sync. System: Internal
  - Resolution: 420TV lines
- Horizontal Sync. Frequency: 15.734KHz
- Vertical Sync. Frequency: 60Hz
- Minimum Illumination: 0 Lux
- Microphone: Yes
- Video Output: 1.0vp-p, 75Ohm
- AGC: Auto
- White Balance: Auto
- S/N Ratio: Better than 48dB
- Electronic Shutter: 1/60 ~ 1/10,000
- Current Consumption: Max. 300mA
- Power Supply: DC12V
- Operating Temperature: −20 °C ~ 70 °C, RH95% MAX
- Storage Temperature: −40 °C ~ 80 °C, RH95% MAX
- Lens: f = 2.8
- Lens Angle: 90° Vertical 180° Horizontally (May vary depending on system configuration)

**1 / 3” COLOR CCD SENSOR SPECIFICATIONS (SIDE)**

- Without Audio
- Image Device: SHARP
- TV System: PAL
- Effective Pixels: 512 x 582 pixels
- Sensing Area: 4.9mm x 3.7mm
- Scanning System: 2:1Interlace
- Sync. System: Internal
  - Resolution: 420TV lines
- Horizontal Sync. Frequency: 15.625KHz / 15.734KHz
- Vertical Sync. Frequency: 50Hz / 60Hz
- Minimum Illumination: 0 Lux/F1.2 with IR
- Video Output: 1.0vp-p, 75Ohm
- AGC: Auto
- BLC: Auto
- White Balance: Auto
- S/N Ratio: Better than 48dB
- Electronic Shutter: 1/60 (NTSC) / 1/50 (PAL) ~ 1/10,000 Seconds
- Power Supply: DC12V
- Current Consumption: Max. 300mA
- Operating Temperature: −20 °C ~ 70 °C, RH95% MAX
- Storage Temperature: −40 °C ~ 80 °C, RH95% MAX
- Lens: f=3.6mm / F = 2.0
- Lens Angle: 92

**ALL SPECIFICATIONS ARE SUBJECT TO CHANGE**
**SYSTEM COMPONENTS**

- 5 Inch Flat Panel
- I/F Remote
- Infrared Color w/ audio Rear Camera
- 20-Meter Camera
- Universal Mount
- Flush Mount
- 12 volt DC Power
- 13-pin AV Monitor Cable

*Side Cameras Sold Separately

---

**MONITOR**

This monitor can be mounted in dash, hanging or seating in any position, which ever is suitable to the driver to observe the images. Take care not to block any necessary viewing area when mounting.

**Mounting Monitor**

1. After determining the monitor location, position the monitor support bracket, mark the bolt hole location and then drill the holes. Be careful not to drill into any other surface that may be hidden.
2. If supplied, use washers on mounting screws. Attach monitor bracket. Check installation before mounting monitor.
3. Mount the monitor to the support bracket with supplied 4 angle adjustment screws.
4. Connect one end of the power cable (wire) to the proper connections. Connect the other end of the power cable (plug) to the monitor, connect the monitor and the camera with the system connecting cable.

**Camera Mounting**

- Waterproof Camera Connectors
- Secondary Waterproof Sleeve Slides Over Connection
- Grommet To Seal Through Vehicle Exterior

5/8-inch hole needed to pass connector through the exterior wall. Be careful not to drill a hole so large that the grommet will not seal. Before drilling make sure there are no obstacles in the way in the drill bit. Check to make sure wall thickness is suitable for weatherproofing grommet. Use proper hardware to mount camera.
1. Remote Signal Receiver Window Ear phone jack
2. Power Indicator Light
3. Power Off/On button
4. (VOL+) Volume Increase Options Control Button
5. (VOL-) Volume Decrease
6. Channel – (Down button)
7. Menu Control Button
8. (AV1 / AV2 / AV3) Switches between AV 1, AV 2, & AV3
9. Ear Phone Jack

Note: No Audio with Side Cameras

RED wire (with in-line fuse) power supply DC / 12-32V (+).
BLACK wire for GND (-).
BROWN wire to positive power supply of backup light.
WHITE (activates camera 1) wire to positive power supply of left directional light (if side camera used).
BLUE (activates camera 2) wire to positive power supply of right directional light (if side camera used).

CAMERA 3 [REAR]
CAMERA 2 [Right-side]
CAMERA 1 [Left-side]
Press MENU in turn to display options as follows:

1. PICTURE  
2. OPTION  
3. OPTION  
4. SYSTEM

(1) Picture

BRIGHT, CONTRAST, COLOR, TINT display on the screen as illustrated below:

* Press CH- to select BRIGHT

<table>
<thead>
<tr>
<th>PICTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRIGHT</td>
</tr>
<tr>
<td>CONTRAST</td>
</tr>
<tr>
<td>COLOR</td>
</tr>
<tr>
<td>TINT</td>
</tr>
</tbody>
</table>

Press VOL- / VOL+ to adjust the value of selected item.

2) Option

SCALE, CAM1, CAM2, CAM3 displays on screen as illustrated below:

* Press CH- to select BRIGHT

<table>
<thead>
<tr>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCALE</td>
</tr>
<tr>
<td>CAM1</td>
</tr>
<tr>
<td>CAM1</td>
</tr>
<tr>
<td>CAM1</td>
</tr>
<tr>
<td>DVD</td>
</tr>
</tbody>
</table>

Press VOL - / VOL + to select SCALE / CAM1 / CAM2 / CAM3 / DVD

Press CH- to select the CAM1.

<table>
<thead>
<tr>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCALE</td>
</tr>
<tr>
<td>CAM1</td>
</tr>
<tr>
<td>CAM1</td>
</tr>
<tr>
<td>CAM1</td>
</tr>
<tr>
<td>DVD</td>
</tr>
</tbody>
</table>

Press VOL - / VOL + to select MIRROR/NORMAL image.
3) OPTION
TRIG OFF DELAY, TRIG PRIORITY display on the screen as illustrated below:

Press CH- to select the item TRIG OFF DELAY.

Press VOL - / VOL + to select CAM1+2 / NONE

Press CH- to select the item TRIG PRIORITY.

Press VOL - / VOL + to select CAM1 / CAM2

4) SYSTEM
LANGUAGE, COLOR-SYS, BLUE-BACK displays on the screen as illustrated below:

Press CH- to select the item COLOR-SYS.

Press VOL - / VOL + to select LANGUAGE

Press CH- to select / unselect the BLUE BACKGROUND.

Press CH- to select Item ZOOM

Press VOL - / VOL + to select ZOOM 16:9 / 4:3
## TECHNICAL SUPPORT

### Trouble Shooting Chart

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small - Unstable image</td>
<td>Monitor improper voltage</td>
<td>Check the voltage of power supply</td>
</tr>
<tr>
<td>Black image</td>
<td>Monitor improper voltage</td>
<td>Check fuse, check power cable, wires or connections (look for loose or broken wires)</td>
</tr>
<tr>
<td>White image</td>
<td>Monitor/Camera</td>
<td>Check main system cable. Make sure all connectors are connected properly. If ok, check 4 pin camera /monitor cable</td>
</tr>
<tr>
<td>Blurred image</td>
<td>Dirty camera lens</td>
<td>Clean camera lens</td>
</tr>
<tr>
<td>Engine noise or Static lines</td>
<td>Monitor</td>
<td>Check ground and +12V DC source.</td>
</tr>
<tr>
<td>No light displayed on monitor</td>
<td>Broken fuse or low brightness level</td>
<td>Check the brightness has been turned to the lowest level</td>
</tr>
<tr>
<td>No image</td>
<td>No power or unplugged connector</td>
<td>Check power and check for unplugged or broken camera cable</td>
</tr>
</tbody>
</table>

### Technical Support

For help with Zone Defense technical support, please email us.
Email: techsupport@ZoneDefenseTruck.Com
        techsupport@ZoneDefenseRV.Com

Phone support: 866-672-1212

### Optional Equipment

<table>
<thead>
<tr>
<th>Windshield Pedestal Monitor Mount - Part # 400A</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Z Windshield Mount allows for the monitor to be removed when not in use.</td>
</tr>
<tr>
<td>Zone Defense Truck/5th Wheel Coil Cable - Part# 359A</td>
</tr>
<tr>
<td>Auxiliary Coiled Camera Cable With 2 Receptacles</td>
</tr>
<tr>
<td>Zone Defense Camera Cables</td>
</tr>
<tr>
<td>20 Meter Cable Part #358</td>
</tr>
<tr>
<td>15 Meter Cable Part #358A</td>
</tr>
<tr>
<td>10 Meter Cable Part #358b</td>
</tr>
<tr>
<td>Color Camera - Part # 312-313C</td>
</tr>
<tr>
<td>Optional I/R Color camera w/ cables and 5m camera Cable</td>
</tr>
<tr>
<td>Dome Camera</td>
</tr>
<tr>
<td>Part # 312-313D</td>
</tr>
<tr>
<td>Color infrared camera w/ adjustable angle view 5m camera Cable</td>
</tr>
</tbody>
</table>

NOTES

Optional Equipment

- Windshield Pedestal Monitor Mount - Part # 400A
  E-Z Windshield Mount allows for the monitor to be removed when not in use.

- Zone Defense Truck/5th Wheel Coil Cable - Part# 359A
  Auxiliary Coiled Camera Cable With 2 Receptacles

- Zone Defense Camera Cables
  - 20 Meter Cable Part #358
  - 15 Meter Cable Part #358A
  - 10 Meter Cable Part #358b

- Color Camera - Part # 312-313C
  Optional I/R Color camera w/ cables and 5m camera Cable

- Dome Camera
  Part # 312-313D
  Color infrared camera w/ adjustable angle view 5m camera Cable

RV Parts/Sales Inquiries Sales@ZoneDefenseRV.Com
Trucking Parts/Sales Inquires Sales@ZoneDefenseTruck.Com
This manual has been provided courtesy of My RV Works, Inc.

www.myrvworks.com

You can find more RV service manuals here:

www.myrvworks.com/manuals

Over the years of running a mobile RV repair service, having a dedicated place to access service manuals for all the different appliances and components found on RVs was something that I always had a desire to create.

I hope this resource makes your RV repairs easier, as it has mine, but please be careful and follow proper safety practices when attempting to repair your own RV.

If in doubt, please consult with a professional RV technician!

DARREN KOEPP – OWNER, MY RV WORKS, INC.

All service manuals provided on www.myrvworks.com are believed to be released for distribution and/or in the public domain.