ZPass™

INSTALLATION GUIDELINES

ZONAR®

INSPECT • TRACK • KNOW

ELECTRONIC FLEET MANAGEMENT

www.**zonarsystems**.com

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Zonar Systems Hardware Installation Tips For Professional Installers

Zonar equipment will provide years of reliable service if properly installed and maintained. Zonar equipment is typically installed in heavy vehicle applications and is often subject to extreme temperatures, dust, dirt, vibration, and shock. Proper installation is the critical first step to equipment longevity and optimal performance.

This guide is meant to be a general guideline for the professional installer and technician. While we attempt to point out the most common installation questions and issues; common sense, good housekeeping procedures, attention to detail, safety adherence, and technical competence of the professional installer is critical for a successful installation.

Please refer to your specific vehicle manufacturer guidelines for the installation of electrical components and wiring.

A professional team of Zonar support technicians and engineers are available to answer your installation questions. Contact Zonar at 1-877-843-3847 or by email at customercare@zonarsystems.com.

Thank you,

Jeff Wells

Jeff Wells, Field Service Manager - Zonar Systems

As Zonar Systems is continuously improving the Product, Zonar may make changes to the Product at any time which may not be reflected in this document.
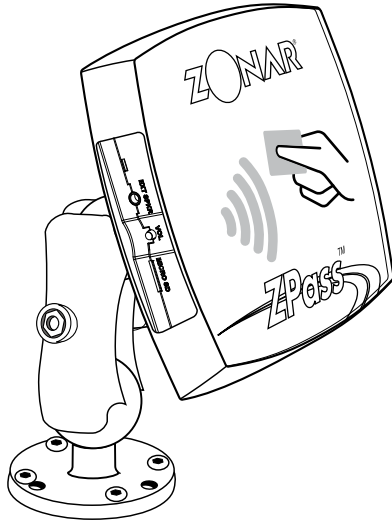
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CONTACT US TODAY • CALL TOLL-FREE: 877 843 3847

EMAIL: customercare@zonarsystems.com

REV: 02/28/11

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Limited Warranty

LIMITED WARRANTY: Zonar® warrants that the Hardware provided under Zonar's Subscription Agreement is free from material defects in workmanship for a period of one year for hardware purchased by customer.   THIS LIMITED WARRANTY IS MADE TO CUSTOMER ONLY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. Zonar EXPRESSLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WHICH MAY ARISE FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE

CUSTOMER'S SOLE AND EXCLUSIVE REMEDY AND ZONAR'S ENTIRE OBLIGATION UNDER THESE LIMITED WARRANTIES for defective equipment is the repair and replacement of the equipment free of charge by Zonar. Zonar shall not be liable to Customer or any third party for any general, special, punitive, incidental, indirect or consequential damages, or any lost profits or business, arising out of Zonar's Subscription Agreement.

FCC Compliance Statement (Part 15.19)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Warning: (Part 15.21)

Changes or modifications not expressly approved by Zonar Systems could void the user's authority to operate the equipment.

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Layout

1) Mount all equipment in the interior of the vehicle. GPS antenna and RFID tags are the only Zonar components that may be exposed to the outdoor elements.
2) Do not install Zonar equipment below windows and doors which open to the vehicles exterior to prevent water damage.
3) Lay all components out prior to installation to check for proper cable length and interference issues.
4) Avoid mounting equipment in difficult to access areas.
5) Avoid mounting equipment in dirty, dusty, or damp areas. (e.g. near floors and entrance ways)

Electrical

1) **Consult the vehicles manufacturer for specific installation guidelines. (Highly recommended for Multiplex electrical systems)**
2) All power leads (Red and White leads, GPS- Power Cable) must be connected to the vehicles protected circuitry (e.g. fuse panel, circuit breaker panel, protected circuits). Never electrically connect Zonar equipment to unprotected circuits. (e.g. directly to battery)
3) It is also required that all power leads (Red and White leads, GPS-Power Cable) be protected with a 3 to 5 amp fuse and inline fuse holder (included) for optimal system protection.
4) Electrical fuses should be installed as close to the source of power as possible.

Drill Holes

1) Capture all drill chips during drilling operations. Do not allow chips to fall onto equipment, furnishings, etc.
2) Deburr all drill holes on both sides of drilled surface. Example deburr tool: See Fig. 5-1 or visit http://www.grainger.com/Grainger/items/3VB51
3) All drill holes must have a rubber grommet or similar anti-chaffing system installed to protect cable assemblies. (e.g. plastic conduit)
4) Seal all penetration drill holes which may pass rain water.

Cable Management

1) Strain relieve and support all cable installations.
2) Avoid sharp bends and tight radius installations of cables.
3) Avoid moving components. (e.g. doors, steering, shafts, handles, fans, etc.)
4) Provide an adequate "Service Loops" i.e "cable slack" to allow for servicing of equipment.
5) Avoid routing cables thru doors, windows, and other pinch points.
6) Avoid routing cables in high personnel traffic areas.
7) Avoid routing antenna cables near radio and PA equipment.

General Housekeeping

1) Capture all drill chips during drilling operations. Do not allow drill chips to fall onto electrical equipment, furnishings, heating ducts, etc. Magnets, sticky tape, vacuums, physical barrier, etc. may all be used to accomplish this task.
2) Remove excess sealant. Sealant should be debris/contaminant free (e.g. drill chips), consistent, and uniform in appearance. Clip excess wire tie protrusions.
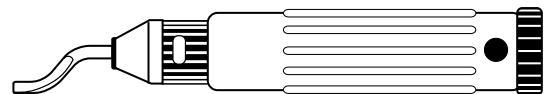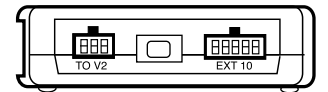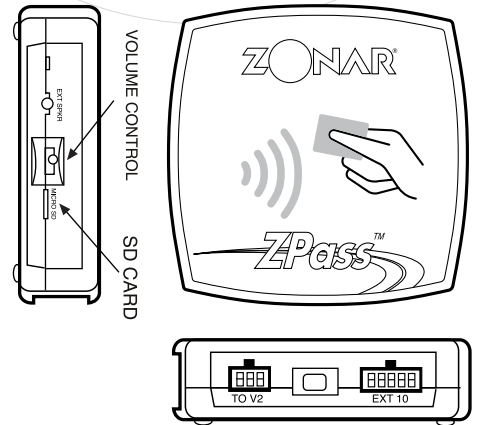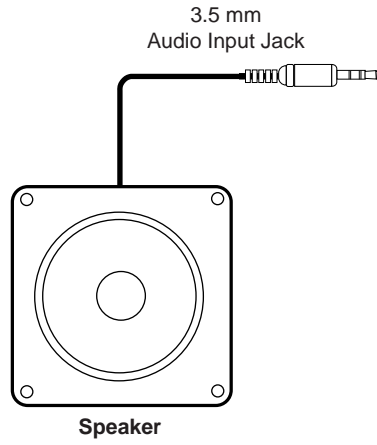
Fig. 5-1 Typical Deburr Tool

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Zonar ZPass™

3.5 mm
Audio Input Jack

VOLUME CONTROL

EXT SPKR

MICRO SD

SD CARD

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*Note: Speaker (optional) -
External power is not required.
Zonar recommends
Radio Shack Model# 21-131
or equivalent*

Speaker

TO V2   EXT 10
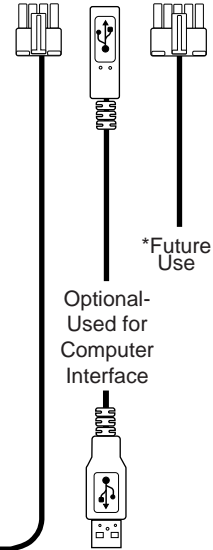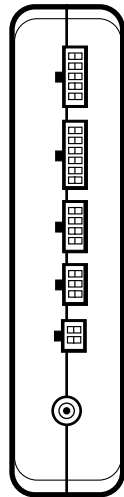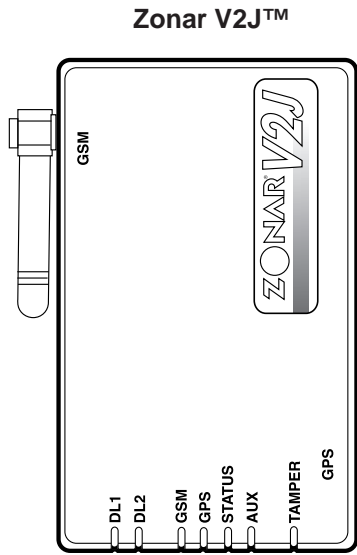
*Future
Use

9 Pin JBus Cable

Optional-
Used for
Computer
Interface

Zonar V2J™

GSM

ZONAR V2J

Vehicles
Diagnostics

ZPass Interface Cable
Part# 80438
15'

DL1
DL2
GSM
GPS
STATUS
AUX
TAMPER

GPS

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Mounting Options:
1) Peel and stick. See Fig 7-1
2) Ram mount. See Fig 7-2
3) User supplied options (e.g. Velcro®)

Suggested Mounting Areas:
1) Follow all general guidelines on page 5.
2) Typically mounted at passenger entrance/exit points at a convenient height and angle for passengers boarding and exiting the vehicle.
3) Ensure location of installed ZPass does not block driver view, interfere with vehicle operation and loading/unloading of passengers (e.g. snags coats, clothes, book bags, etc).
4) To prevent degrading read range and accuracy, keep reader away from metal structures and electrical sources of interference (e.g. radios, wiring, switches and relays) as much as possible.

Note: Verify placement acceptability with state DOT/Law Enforcement prior to installation.

Peel and Stick Adhesive Strip Method:
1) Select a flat surface, large enough to accommodate the reader.
2) Clean and dry the surface before placing the mounting plate. To obtain optimum adhesion, the surface must be clean and dry. The best surface cleaning solvent is an isopropyl alcohol/water mixture (rubbing alcohol).
3) Remove the backing from the peel and stick. Press and hold mounting position for 10 seconds to assure good adhesion. See Fig.7-1

Ram Mount:
All hardware included.
Optional backing plate (see Fig 7-2) - Used to provide additional structural support when needed (e.g. Mounting Ram Mount to Vinyl or thin sheet metal dashboard)
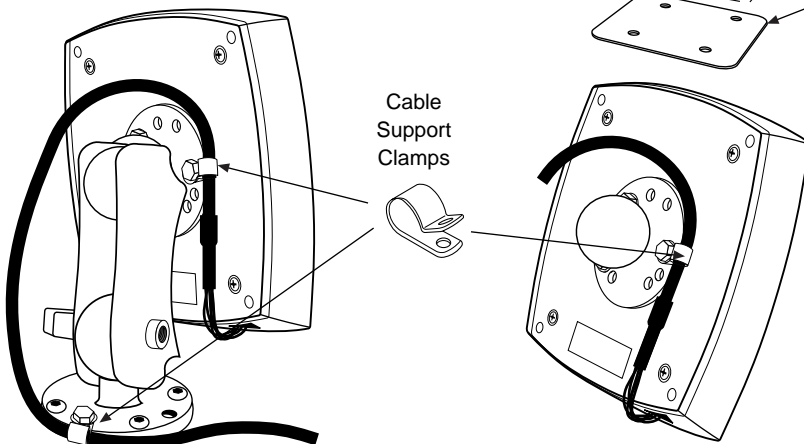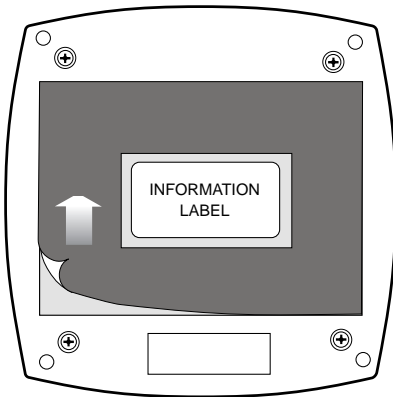
Fig. 7-1

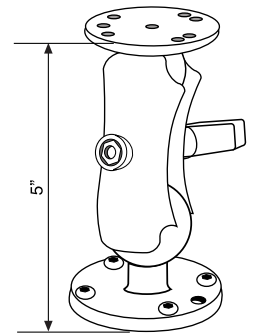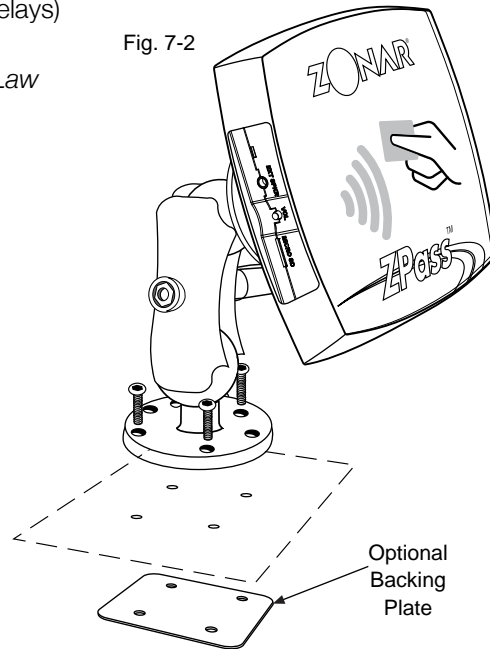INFORMATION LABEL

Fig. 7-2

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5"

Optional Backing Plate

Fig. 7-3

Cable Support Clamps
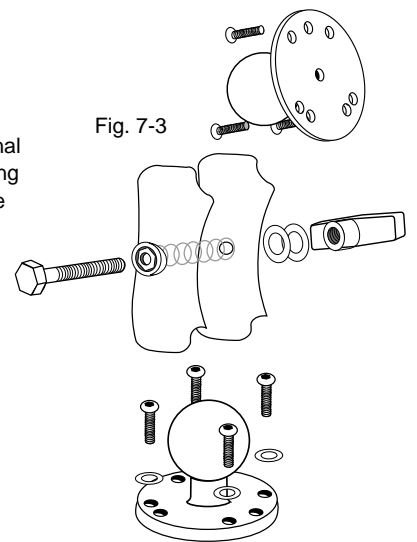
Operation

Color	State	Description	Notes
Blue	Solid	Ready to scan cards	
Green	1X Blink & Audible Beep	Successful card scan	Rescan of the same card requires 15 seconds between consecutive scans
Red	2X Red blinking LED	SD memory card missing or error	Reinsert or reseat SD card
	Red 1X blink	Synchronizing time	If continuous, see Troubleshooting Section (page 9)
	Solid	Card reader disabled - occurs when vehicle speed is greater than 25 mph	
Orange	Solid	Receiving Firmware update	This takes approximately 3 minutes

Post Install Checkout:

1) Start vehicle for one minute to establish GPS and Cellular connections

2) Reader LED should now be a steady blue to indicate the reader is ready to accept card scans

3 Scan card - Reader will 1X blink green and beep once to acknowledge a successful card scan

4) Reader LED will return to a solid blue state to indicate it is ready for additional scans

5) Verify successful card scan in Zonar's web based "ZPass" program. Customercode.zonarsystems.net/zpass or customercode.zonarsystems.net and go to the home tab the go to ZPass.

Volume Control Button:

1) Only works with external speaker. It does not change the volume level of the internal speaker.

2) Pushing the volume control button cycles through 4 available volume levels.

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Troubleshooting

Issue	Possible Cause	Remedy
No LED lights	Non-issue - Unit may be in lower power mode	Swipe ZPass card, if unit 1 X blinks green and beeps the ZPass unit is working properly
	ZPass unit sleeping. ZPass unit goes to low power / sleep mode 60 minutes after engine shutdown	Start engine, run for at least one minute to reestablish GPS connection
	Improper GPS Firmware	Ensure GPS Firmware (GTC, Assets, GPS units) is 97 or above
	ZPass interface cable issue (e.g. disconnected, severed, damaged, etc)	Visually inspect ZPass interface cable Part # 80438 for proper connection and replace if necessary
	GPS unit has no power (e.g. blown fuse, disconnected power cable, etc)	Reestablish power to GPS unit
Unit continuously 1X blinks Red	GPS does not have correct Firmware	Requires GPS Firmware 97 or greater
	GPS does not have correct time	Verify vehicle / Cellular connection / Zonar equipment is functioning properly by observing the GPS light states (3 solid Green LED (GSM, GPS, Status) with ignition on. If this is not the case it will be necessary to troubleshoot the vehicle, cellular connection, and/or Zonar equipment.
	GPS device port speed incorrect	You must contact Zonar to have the port speed set correctly. They will need to send two special parameters to the unit (8065/0 and 8091/1). After Zonar schedules these parameters, power cycle the GPS units (or wait 4 hours)
2X Red Blinking LED	SD memory card issue	Check to ensure SD card is present and properly seated. Reformat or replace if the SD memory card is present and properly seated
Red Solid LED	The Red LED will be solid when the vehicle is in motion (greater than 25 MPH). The reader will not scan cards in this condition	Do not scan cards when vehicle speed exceeds 25 MPH
Scans are not showing up in the web based ZPass program.	Card number is not entered in the ZPass web based system	Enter via CSV or manually enter all card numbers
	Ground Traffic Control™ user permission not properly set	Grant ZPass user "Show events" permission
	Scanning a card before it is eligible for rescan	Card requires 15 seconds between rescans
	Vehicle or environmental issue (e.g. Vehicle has no power, in a no cellular zone, blocked GPS signal, etc.)	Verify vehicle / Cellular connection / Zonar equipment is functioning properly by observing the GPS light states (3 solid Green LED (GSM, GPS, Status) with ignition on. If this is not the case it will be necessary to troubleshoot the vehicle, cellular connection, and/or Zonar equipment

Operational Notes:

1) SD card must be inserted and fully seated for the unit to operate. 2X Red blinking LED indicates an issue with the SD card.

2) Sleep Modes:

 A) Upon turning the vehicle engine off the ZPass unit LED will remain blue (Ready to scan cards) for approximate 10 minutes.

 B) After 10 minutes the reader will go into a low power savings mode (Blue LED will not be illuminated). The ZPass will still scan cards in this mode (The unit will 1X blink green and beep to indicate a successful scan).

 C) 1 hour after the Blue LED extinguishes the unit will go into a deep sleep mode - Blue LED will not be illuminated and the reader will not scan cards (No Green 1X blink and beep). The vehicle engine must be restarted and ran for 1 minute to re-enable card scanning.

3) Once a card is scanned, it cannot be rescanned for another 15 seconds.

4) Requires GPS Firmware 97 or greater.

5) Scan distance = 0-3"