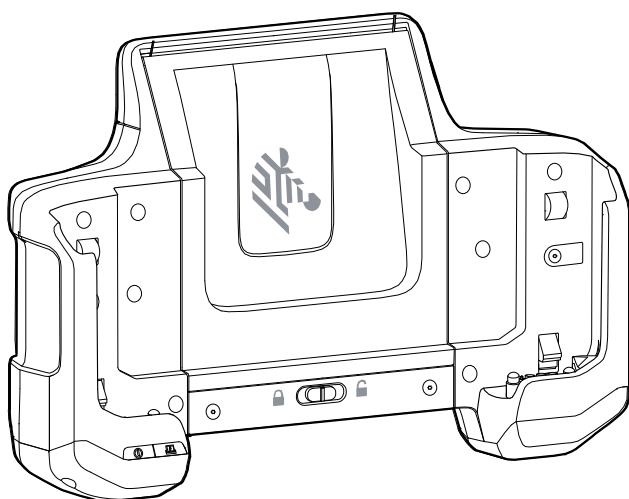


# ET6x

## Vehicle Dock



## Installation Guide



**ZEBRA**



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## **Publication Date**

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## Introduction

The ET6x Vehicle Dock provide for mounting an ET6x tablet in a vehicle. The CRD-ET6X-VEHDK-CON-01 contains two USB-A ports, and one RS-232 serial port. The CDRD-ET6X-VEDK-PTA-01 contains two USB-A ports, one RS-232 serial port, and three antenna pass through connectors.

## Unpacking

The Vehicle Dock ships with the following items:

- Vehicle Dock
- Keys
- Mounting hardware
  - Four bolts
  - Four washers
  - Four lock nuts
  - Cable ties.

## Optional Hardware

### Power

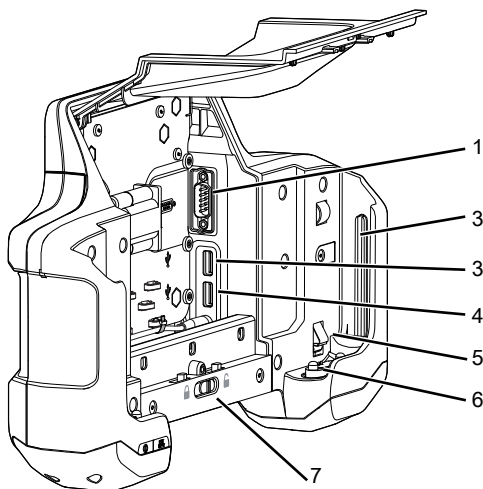
- CLA Cable (p/n 450143) - for powering the Vehicle Dock from a vehicle cigarette lighter port.
- DC/DC Power Supply (p/n PS1370) - for powering a Vehicle Dock and an ET60 from a 19 to 90 VDC power source. Must be used with the ET60 with installed Touch Screen Heater.
- 9 - 60 VDC DC/DC Power Supply (p/n 450083) - for powering the Vehicle Dock from a 9 to 60 VDC power source.
- 50 - 150 VDC DC/DC Power Supply (p/n 450084) - for powering the Vehicle Dock from a 50 to 150 VDC power source.
- Direct Wire Kit (p/n 300039) - for powering the Vehicle Dock to a new installation. The kit contains:
  - DC power cord
  - fuse holder cable
  - fuse
  - two butt splice connectors
  - two ring terminals.
- DC Power Adapter Cable (p/n CBL-ET-ADPA1-1) - for powering the Vehicle Dock from an existing VC80 power installation.
- DC Power Adapter Cable for Honeywell/LXE (p/n ACC-PWRCBL01) - for powering the Vehicle Dock from an existing Honeywell or LXE installation.
- DC Power Adapter (p/n CBL-ET6-ADPA2-1) - for connecting the DC/DC Power Supply PS1370 to the Vehicle Dock.
- AC Power Supply (p/n 450020) - for powering the Vehicle Dock from an AC power source.

### Keyboard

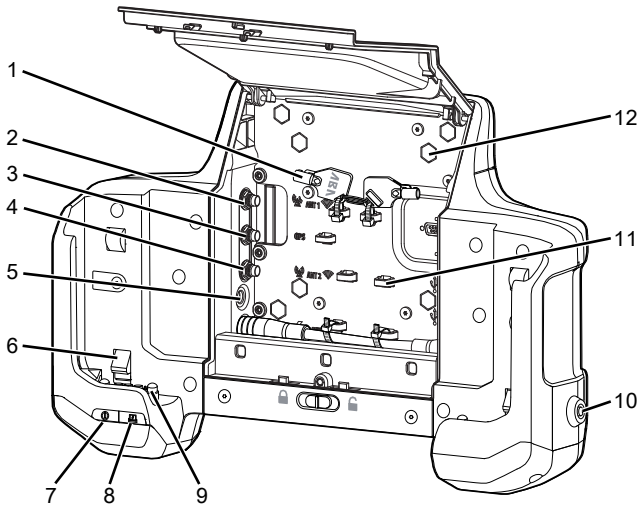
- Keyboard Mounting Bracket (KT-KYBDTRAY-ET6X-01) - mounts a USB keyboard to the Vehicle Dock.
- USB QWERTY Keyboard (p/n KYBD-QW-ET-S-1) - QWERTY style keyboard with USB cable.

- QWERTY Keyboard (p/n KYBD-QW-VC-01) - QWERTY style keyboard. Requires USB cable (CBL-ET-KBUSB1-01) or USB/RS-232 Y-cable (p/n CBL-ET-KBUSB2-01).
- AZERTY Keyboard (p/n KYBD-AZ-VC-01) - AZERTY style keyboard. Requires USB cable (CBL-ET-KBUSB1-01) or USB/RS-232 Y-cable (p/n CBL-ET-KBUSB2-01).

## Features



| Item | Description                                                                                                                                                         |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | RS-232 port (The Vehicle Dock ships with an RS-232 cover. Keep the cover in place at all times to prevent corrosion and preserve the water seal in RS232 connector) |
| 2    | Tablet alignment rail                                                                                                                                               |
| 3    | USB-A port                                                                                                                                                          |
| 4    | USB-A port                                                                                                                                                          |
| 5    | Tablet retention                                                                                                                                                    |
| 6    | USB pogo pins                                                                                                                                                       |
| 7    | Access door release latch                                                                                                                                           |



| Item | Description                                                         |
|------|---------------------------------------------------------------------|
| 1    | Keys (remove prior to use)                                          |
| 2    | ANT 1 SMA pass-through connector                                    |
| 3    | GPS SMA pass-through connector                                      |
| 4    | ANT 2 SMA pass-through connector                                    |
| 5    | 12 -15 VDC Power port                                               |
| 6    | Tablet retention                                                    |
| 7    | Vehicle Dock Power LED                                              |
| 8    | Tablet connection LED                                               |
| 9    | Power and pass through antenna pogo pins                            |
| 10   | Security lock                                                       |
| 11   | Cable mounting tabs                                                 |
| 12   | Mounting bolt holes (8) for VESA 75 x 75 mm or 100 x 100 mm pattern |

## Installation

### Mounting Safety



**CAUTION:** Do not install the Vehicle Dock in a location that affects vehicle safety, visibility, or ability to drive.

When using the Vehicle Dock in wet locations, the user must prevent water and dust from settling on the pogo pin connectors. The tablet should always be in dock or cover dock with a plastic bag.

Tighten peripherals with thumbscrews by hand only. Do not use tools for tightening thumbscrews.



**IMPORTANT:** The vehicle front end connected fuse must meet UL 275.  
If using an external antenna, connect antenna in a vertical position to the device.



**NOTE:** If installing peripherals, allow enough space when selecting a mounting location.

Failure to install the Vehicle Dock correctly, or modifications to the Vehicle Dock, may result in serious injury or damage to property. To ensure operator safety, you must use a calibrated torque wrench and the supplied mounting hardware specific to the device model purchased when fastening the Vehicle Dock and mount. Use of a mount in vehicles driven on public roads or highways is prohibited. Contact Zebra Technical Support or your Zebra representative if you have a problem with mount installation. For detailed mounting information, refer to the ET6x Product Reference Guide at [zebra.com/support](http://zebra.com/support).

## Electrical Guidelines

There are various electrical potentials when installing the Vehicle Dock on a vehicle such as a forklift.



**WARNING:** Most electrically driven forklift vehicles have floating chassis connected to neither DC+ or DC-. However, electrical faults can cause the battery + or - to be connected to the chassis via low resistance paths. All connected peripherals must be completely isolated.

The Vehicle Dock accepts DC power sources with a minimum of 12 to 15 VDC nominal. A DC/DC Power Supply is required for voltages above 15 VDC nominal.

Applying a voltage above 15 VDC nominal without the DC/DC Power Supply or reversing polarity may result in permanent damage to the dock and tablet and voids the product warranty.



**CAUTION:** Attach the Vehicle Dock connecting cable as close to the battery as possible. Connecting the Vehicle Dock to large electrical loads, such as converters for the forklift motor may result in random restarts, malfunctions and/or irreparable damage to the Vehicle Dock and tablet.

To connect devices fed by other power sources to the device, such as printers, power up the peripheral devices at the same time or after the device to avoid start-up problems, malfunctions, or irreparable damage to the Vehicle Dock and tablet.

## Wiring Guidelines

As with other vehicle cables, carefully consider the routing of the cables to ensure they do not pose a hazard to the operator or the safe operation of the vehicle. If necessary, secure the cables with cable ties or some other mechanical means to prevent loops or loose lengths of wire from catching on stationary items when the vehicle is in motion.

Before installing the cables between the Vehicle Dock and other devices, consider the following:

- Ensure that drilling holes do not damage the vehicle or its wiring.
- Protect cable runs from pinching, overheating and physical damage.
- Use grommets to protect cables that pass through metal.
- Use plastic straps and tie-downs to secure cables and connectors in their desired location, away from areas where they may get snagged or pulled.
- Keep cables away from heat sources, grease, battery acid and other potential hazards.

- Keep cables away from control pedals and other moving parts that may damage the cables or interfere with the operation of the vehicle.



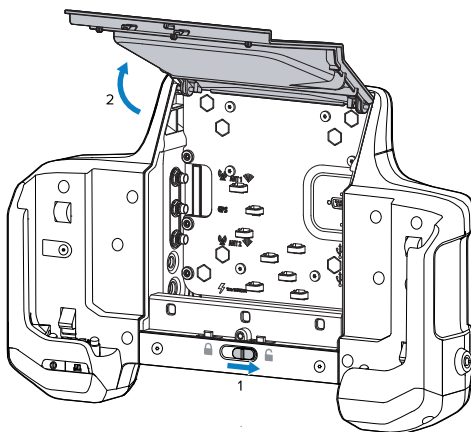
**CAUTION:** Make sure the cables run inside the roll cage of the vehicle.

## Mounting the Vehicle Dock

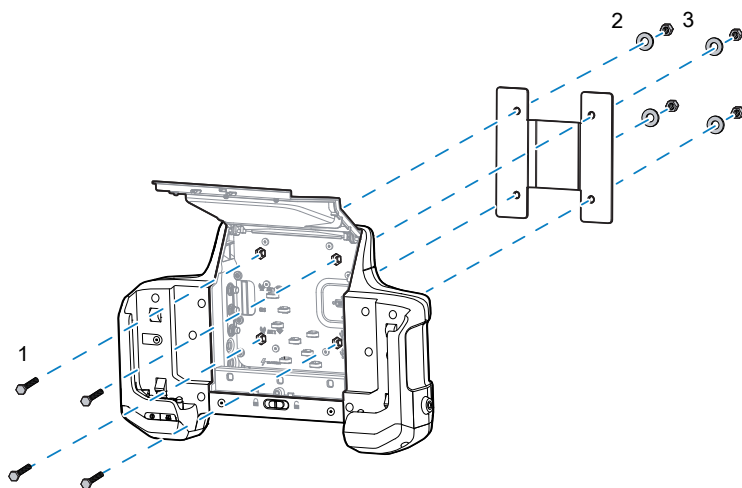
Mount the Vehicle Dock to third-party mounting systems that use VESA 75 x 75 mm or 100 x 100 mm mounting patterns.

1. Slide the release latch to the open position.

The access door opens automatically.



2. Align the Vehicle Dock mounting holes with the third-party bracket (4) mounting holes.

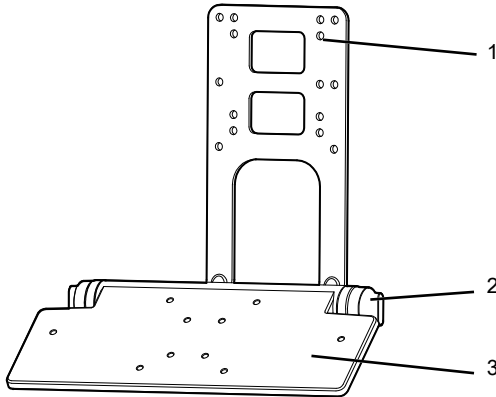


3. Insert the four bolts (1) into the dock bolt holes and through the bracket.
4. Place the washers (2) onto the bolts.

5. Secure with four lock nuts (3).

## Installing the Keyboard Mounting Bracket

Use the optional Keyboard Mounting Bracket to mount a keyboard onto the Vehicle Dock.

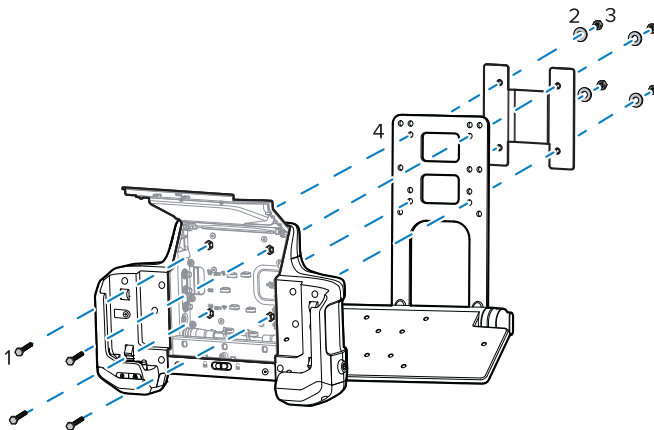


|   |                |
|---|----------------|
| 1 | Mounting Holes |
| 2 | Locking Knobs  |
| 3 | Tray           |



**NOTE:** Mount the Vehicle Dock to third-party mounting systems that use 100 mm or 75 mm VESA mounting patterns.

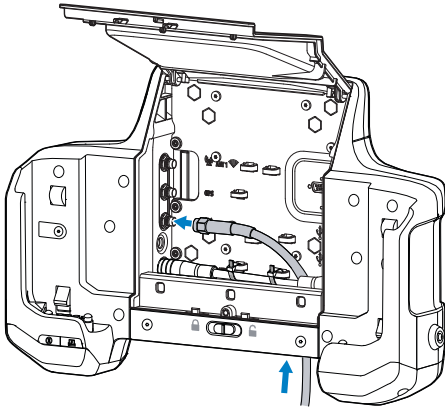
1. Align the Vehicle Dock mounting holes with the keyboard bracket (4) third-party bracket (5) mounting holes.



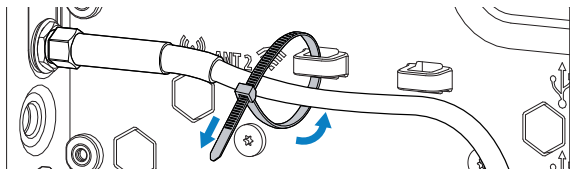
2. Insert four bolts (1) into the Vehicle Dock bolt holes and through the brackets (4).
3. Place the washers (2) onto the bolts.
4. Secure with four lock nuts (3).

## Cable Routing

1. Route all cables from the bottom of the Vehicle Dock.



2. Connect cables.
3. Secure cables with cable ties.



## Power

Refer to the ET6x Product Reference Guide at [zebra.com/support](http://zebra.com/support) for a complete list of optional parts and accessories.

The installation instructions are divided into:

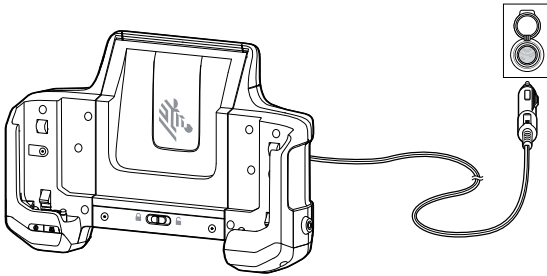
- CLA Cable installation
- New wired installations
- Replacement legacy installations.

## Installing a CLA Cable

Use the CLA cable to power the Vehicle Dock from a vehicle cigarette lighter port.

1. Open the Vehicle Dock Access Door.
2. Route the CLA cable DC connector through the bottom access hole in the bottom of the dock.
3. Plug the DC connector into the Power port.
4. Secure the cable to a mounting point with a cable tie.
5. Close the Access Door.

6. Plug the plug into the cigarette lighter receptacle.

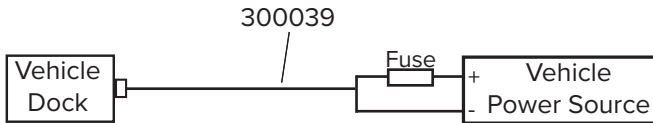


## New Wired Installations

This section describes the procedures to install the Vehicle Dock in a new installation.

### Vehicles with Power 15 VDC or Less

For vehicles with a power source that is 15 VDC or less, a DC/DC Power Supply is not required. Use the Direct Wire Kit to connect the Vehicle Dock to the power source.



1. Measure the distance from the vehicle power source to the Vehicle Dock power port.
2. Cut the Direct Wire Kit cable from the DC power plug to length.
3. Strip the ends of the two wires to 6 mm (0.25 in.).
4. Strip both ends of the fuse holder wires to 6 mm (0.25 in.).
5. Using a butt splice connector, connect the red wire to one end of the fuse holder wire.
6. Connect a ring terminal to the other end of the fuse holder wire.
7. Connect a ring terminal to the end of the black wire.
8. Insert the fuse into the fuse holder.
9. Close the fuse holder cover.
10. Connect the black wire to the negative power source.
11. Connect the fuse wire to the positive power source.
12. Open the Vehicle Dock Access Door.
13. Route the power connector through the bottom access hole in the bottom of the dock.
14. Plug the DC connector into the Power port.
15. Secure the cable to a mounting point with a cable tie.
16. Close the Access Door.

### Vehicles with Power Greater than 15 VDC

Use a DC/DC Power Supply when the power source (usually the forklift truck battery) exceeds the input range of the ET6x (for example, trucks equipped with a 72 VDC battery).

- Vehicle with power between 19 - 90 VDC and ET60 with heated touch screen, use CBL-ET6-ADP2-1, CA1210, and DC/DC Power Supply (p/n PS1370).
- Vehicle with power between 9 - 60 VDC, use Direct Wire Kit and DC/DC Power Supply (p/n 450083).

- Vehicle with power between 50 - 150 VDC, use Direct Wire Kit and DC/DC Power Supply (p/n 450084).

## Mounting the DC/DC Power Supply



**CAUTION:** Only qualified service personnel should connect the device to the vehicle battery.

For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. This fused circuit requires a user supplied 5 or 10 amp maximum time delay (slow blow) high interrupting rating fuse. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 127 mm (5 in.) of the battery positive (+) terminal.

Avoid usage in areas where moisture can affect the power supply connections. The power supply should be mounted in a dry location within the vehicle or placed in a suitable protective enclosure.

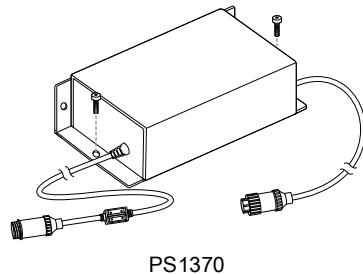
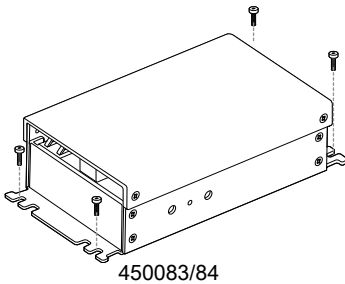
Risk of ignition or explosion. Explosive gas mixture may be vented from the battery. Work only in well ventilated area. Avoid creating arcs and sparks at the battery terminal.



**NOTE:** Power adapter and extension cable requirements may vary.

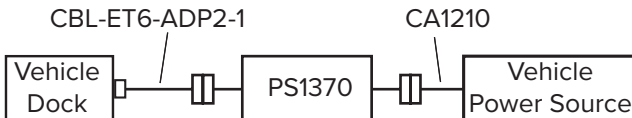
Use the DC/DC Power Supply when replacing an existing vehicle computer installation and for new installations.

Mount the DC/DC Power Supply to the vehicle using screws (not included).



## New Installation with PS1370 Power Supply

When installing a new installation, use the DC Power Adapter (p/n CBL-ET6-ADPA2-1), DC/DC Power Supply (p/n PS1370), and the Power Extension Cable (p/n CA1210). Must be used with the ET60 with installed Touch Screen Heater.

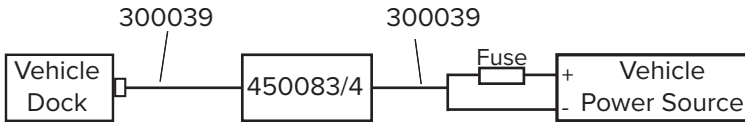


1. Mount the DC/DC Power Supply to the vehicle using four screws (not included).
2. Install the Power Extension Cable to the vehicle power source. Refer to the CA1210 Power Extension Cable Installation Instructions, MN-002747-01, supplied with the cable.
3. Connect Power Supply input connector to the Power Extension Cable connector.
4. Connect Power Supply output connector to the DC Power Adapter connector.

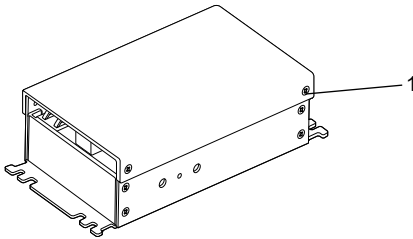
5. Route the DC Power Adapter DC connector through the bottom access hole in the bottom of the dock.
6. Plug the DC connector into the Power port.
7. Secure the cable to a mounting point with a cable tie.
8. Close the Access Door.

## New Installation with 450083 or 450084 Power Supply

When installing a new installation, use the Direct Wire Kit (p/n 300039).

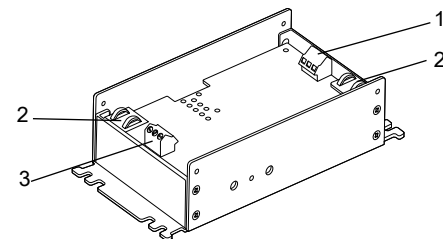


1. Mount the DC/DC Power Supply (p/n 450083 or 450084) to the vehicle using four screws (not included).
2. Using a #2 Phillips screwdriver, remove and retain the four screws securing the cover to the power supply.



|   |            |
|---|------------|
| 1 | Screws (4) |
|---|------------|

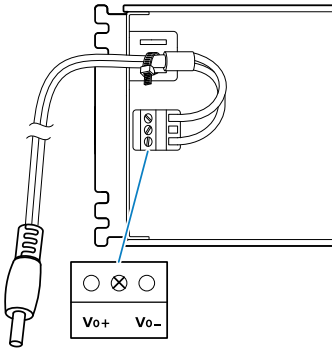
3. Lift the cover off the power supply.



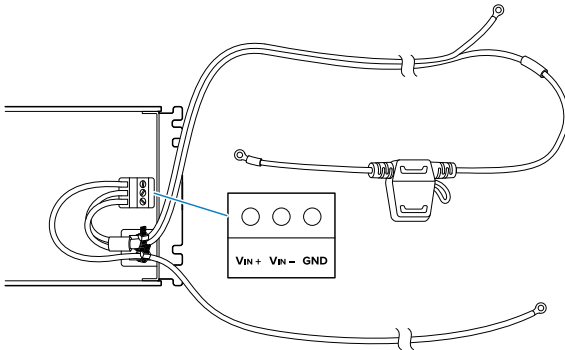
|   |                       |
|---|-----------------------|
| 1 | Input power terminal  |
| 2 | Mounting point        |
| 3 | Output power terminal |

4. Measure the distance from the installed DC/DC Power Supply to the Vehicle Dock power port.
5. Cut the Direct Wire Kit cable from the DC power plug to length. Save the rest of the cable.
6. Strip the ends of the two wires to 6 mm (0.25 in.).

7. Insert the black wire into the **Vo-** terminal and the red wire into the **Vo+** terminal.



8. Secure the terminal screws.
9. Use cable tie (not included) to secure the cable to the mounting point.



10. Strip the ends of the two wires to 6 mm (0.25 in.).
11. Insert the black wire into the **Vin-** terminal and the red wire into the **Vin+** terminal.
12. Secure the terminal screws.
13. Strip the end of the Ground wire (customer supplied) to 6 mm (0.25 in.).
14. Insert the ground wire into the **GND** terminal.
15. Use cable tie (not included) to secure the cables to the mounting point.
16. Strip both ends of the fuse holder wires to 6 mm (0.25 in.).
17. Using a butt splice connector, connect the red wire to one end of the fuse holder wire.
18. Connect a ring terminal to the other end of the fuse holder wire.
19. Connect a ring terminal to the end of the black wire.
20. Insert the fuse into the fuse holder.
21. Close the fuse holder cover.
22. Connect the black wire to the to the negative connection of the vehicle DC power source.
23. Connect red wire to the to the positive connection of the vehicle DC power source.
24. Secure the ground wire to the DC/DC Power Supply mounting screw.
25. Place the cover on the DC/DC Power Supply.
26. Secure using the four screws retained during removal.

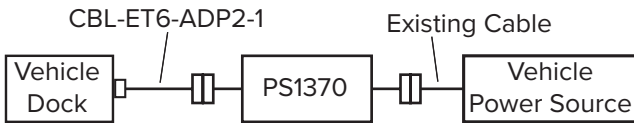
27. Route the DC Power Adapter DC connector through the bottom access hole in the bottom of the dock.
28. Plug the DC connector into the Power port.
29. Secure the cable to a mounting point with a cable tie.
30. Close the Access Door.

## Replacing Legacy Installations

This section describes the procedures to install the Vehicle Dock in an existing installation.

### Replacing an Existing Legacy Installation with PS1370 Power Supply

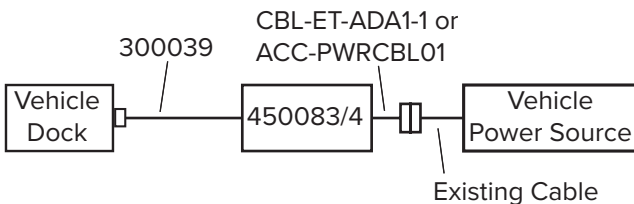
When replacing an existing legacy installation with an ET6x installation, use the DC Power Adapter (p/n CBL-ET6-ADPA2-1), and the DC/DC Power Supply (p/n PS1370).



1. Mount the DC/DC Power Supply to the vehicle using four screws (not included).
2. Connect Power Supply input connector to the existing power cable connector.
3. Connect Power Supply output connector to the DC Power Adapter connector.
4. Open the Vehicle Dock Access Door.
5. Route the DC Power Adapter DC connector through the bottom access hole in the bottom of the dock.
6. Plug the DC connector into the Power port.
7. Secure the cable to a mounting point with a cable tie.
8. Close the Access Door.

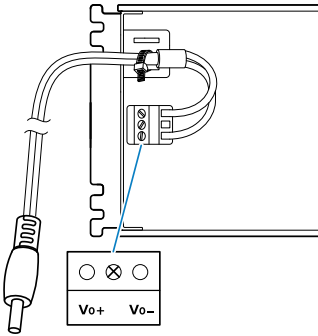
### Replacing an Existing Legacy Installation with 450083 or 450084 Power Supply

When replacing an existing legacy installation with an ET6x installation, use the Direct Wire Kit and either a DC Power Adapter Cable (p/n CBL-ET-ADA1-1 for Zebra vehicle computers), or DC Power Adapter Cable (p/n ACC-PWRCBL01 for Honeywell or LXE vehicle computers).

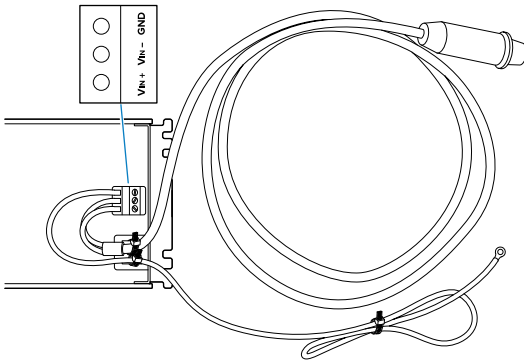


1. Remove the existing vehicle computer.
2. Install the appropriate DC/DC Power Supply.
3. Measure the distance from the installed DC/DC Power Supply to the Vehicle Dock power port.
4. Cut the Direct Wire Kit cable from the DC power plug to length.
5. Strip the ends of the two wires to 6 mm (0.25 in.).

6. Insert the black wire into the **Vo-** terminal and the red wire into the **Vo+** terminal.



7. Secure the terminal screws.
8. Use cable tie (not included) to secure the cable to the mounting point.
9. Secure the terminal screw.



- 10.Strip the ends of CBL-ET-ADPA1-1 cable (or ACC-PWRCBL01 for Honeywell and LXE) to 6 mm (0.25 in.)
- 11.Insert the cable black wire into the Vin- terminal and the red wire into the Vin+ terminal.
- 12.Strip the ends of a ground wire (sold separately) to 6 mm (0.25 in.).
- 13.Insert one end of the ground wire (customer supplied) into the GND terminal.
- 14.Secure the terminal screws.
- 15.Use cable tie (not included) to secure the cables to the mounting point.
- 16.Connect cable connector to the existing power cable connector.
- 17.Secure the ground wire to the DC/DC Power Supply mounting screw.
- 18.Place the cover on the DC/DC Power Supply.
- 19.Secure using the four screws retained during removal.
- 20.Open the Vehicle Dock Access Door.
- 21.Route the Direct Wire Cable DC connector through the bottom access hole in the bottom of the dock.
- 22.Plug the DC connector into the Power port.
- 23.Secure the cable to a mounting point with a cable tie.
- 24.Close the Access Door.

## Installing an External Antenna

To determine the best antenna option for your location, contact your Zebra representative.

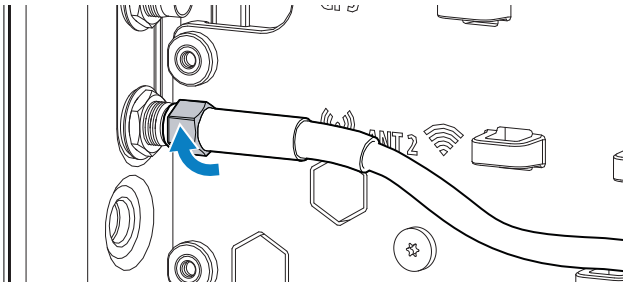


**CAUTION:** If using a magnetic mount antenna, place it in a location that balances the need for the device to communicate with the access points and local Bluetooth peripherals.

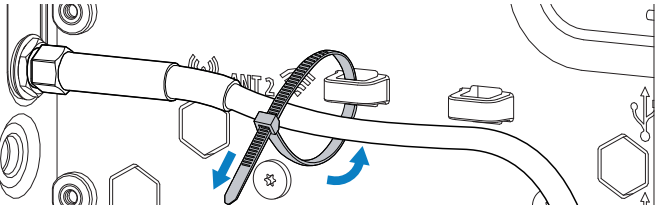


**NOTE:** The tablet switches from the external antennas to the internal antennas when the tablet is removed from the Vehicle Dock. When the tablet is re-inserted into the Vehicle Dock, the tablet switches back to the external antennas.

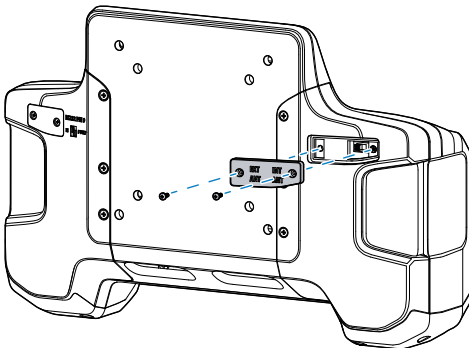
1. Open the Access Door.
2. Route the external antenna cable up through the bottom of the Vehicle Dock.
3. Connect the antenna cables to the appropriate port on the inside of the Vehicle Dock.



4. Secure cables with cable ties.



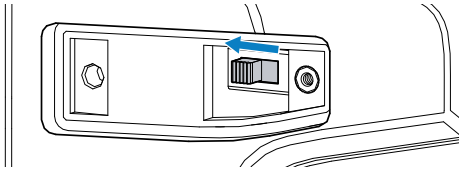
5. Remove two screws securing the antenna access door on the back of the Vehicle Dock.





**NOTE:** If not using any external antennas, slide the switch to the INT ANT position.

6. Ensure the switch is to the EXT ANT position.

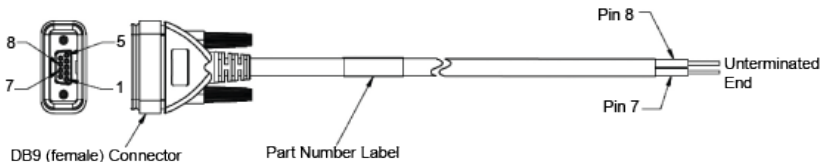


7. Replace the antenna access door.
8. Set antenna configuration using the **SRV PTA Settings** application on the ET6x. See the ET6x Product Reference Guide.

## Installing the Screen Blanking Cable

To use screen blanking, connect the Screen Blanking cable (p/n CA1300) to the Vehicle Dock RS-232 connector and to the a switch on the vehicle. Activate this switch electrically (for example, motion sensor) or mechanically (for example, pedal switch) when the vehicle is in motion.

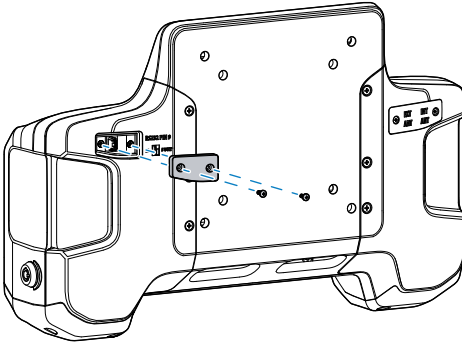
The screen blanking feature makes use of the RS-232 port to monitor electrical relay closure. When enabled, the CTS/RTS pins of the RS-232 port are continuously monitored by the screen blanking application.



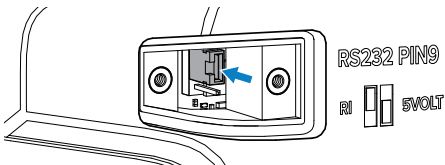
When the vehicle is in motion, the switch closes the circuit, allowing data packets to be sent or received through the RTS and CTS pins. The computer detects that the circuit is closed and turns off the screen. When the vehicle is not in motion, the switch opens the circuit, preventing data packets from being sent or received. The computer detects that the circuit is open and turns on the screen.

1. Open the Access Door.
2. Route the Screen Blanking Cable up through the bottom of the Vehicle Dock.
3. Remove the RS-232 connector cover.
4. Connect the cable to the RS-232 port on the inside of the Vehicle Dock.
5. Tighten the thumb screws to ensure proper water sealing.
6. Secure cable with cable ties.

7. Remove two screws securing the RS-232 access door on the back of the Vehicle Dock.



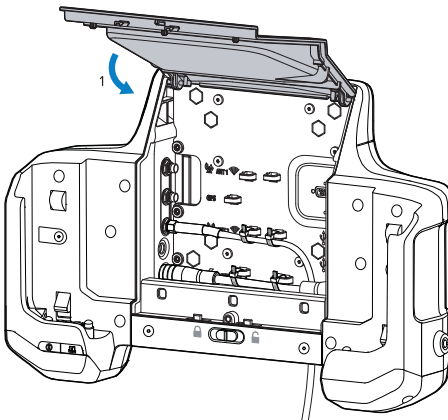
8. Move the jumper to the bottom two pins.



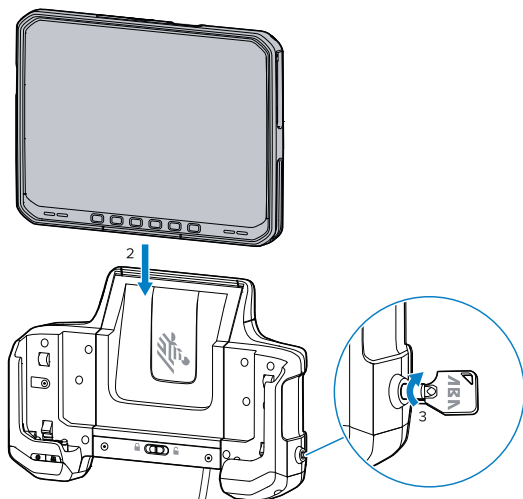
9. Replace the RS-232 access door.

## Inserting the Tablet

1. Close the access door.



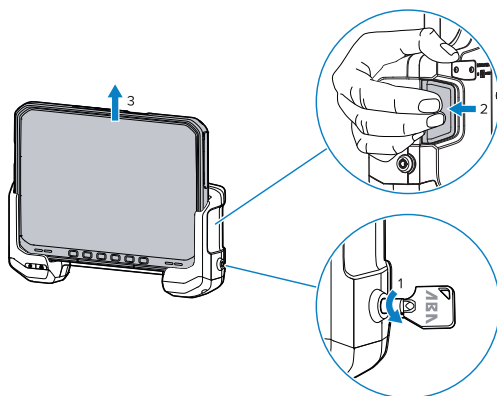
2. Align the tablet with the dock alignment rails.



3. Turn the lock to the lock position.

## Removing the Tablet

1. Turn the lock to the unlock position.



2. Press either release latch. The tablet ejects slightly.
3. Lift the tablet from the dock.

## Installing the Keyboards

The following keyboards are available for use with the ET6x:

- QWERTY keyboard - Requires USB cable (CBL-ET-KBUSB1-01) or USB/RS232 Y-Cable (CBL-ET-KBUSB2-01)
- AZERTY keyboard - Requires USB cable (CBL-ET-KBUSB1-01) or USB/RS232 Y-Cable (CBL-ET-KBUSB2-01)
- USB QWERTY Keyboard (p/n KYBD-QW-ET-S-1) - QWERTY style keyboard with USB cable.

The keyboard can be mounted on the Vehicle Dock Keyboard Mount or on an external RAM mount.

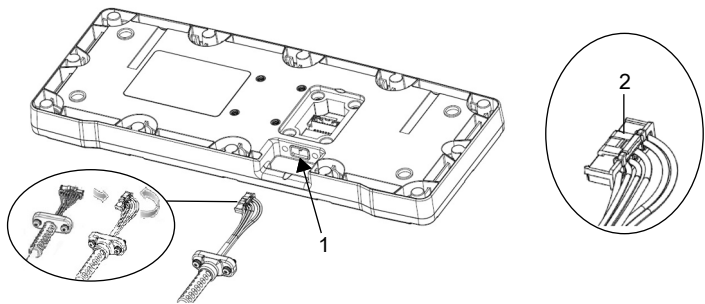
Installing the Keyboard Cable



For CBL-ET-KBUSB1-01, and CBL-ET-KBUSB2-01 only.

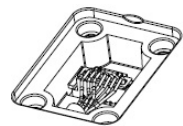
To install the keyboard USB cable:

- 1. Remove the four screws securing the cable cover to the keyboard.
- 2. Turn the cable connector at a right angle as shown below and insert the connector (with connector clips on top) into the keyboard housing.

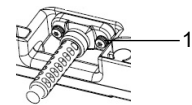


|   |                  |
|---|------------------|
| 1 | Keyboard Housing |
| 2 | Connector Clips  |

- 3. Turn the cable connector straight (with connector clips on top) and plug the connector in the keyboard.

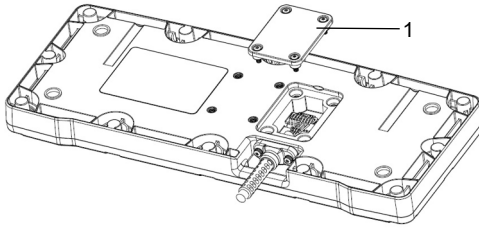


- 4. Secure the cable retention to the housing using the two retention screws. Torque the M3 screws to 6kgf-cm (5.2 lbs-in).



|   |                                |
|---|--------------------------------|
| 1 | Cable Retention and Screws (2) |
|---|--------------------------------|

5. Gently push the wires downward and install the cable cover. Torque the four M3 screws to 6kgf-cm (5.2 lbs-in).

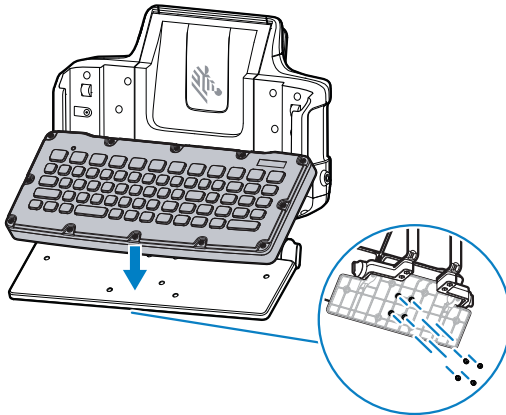


|   |                                |
|---|--------------------------------|
| 1 | Cable Cover with M3 Screws (4) |
|---|--------------------------------|

## Mounting the Keyboard

To mount the keyboard onto the Keyboard Mount tray:

1. Align the keyboard with the tray on the Keyboard Mount.



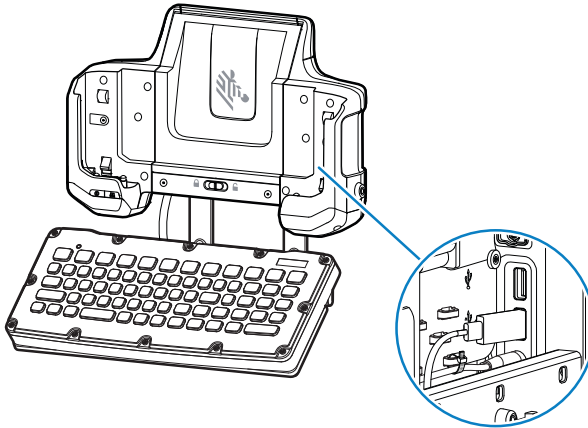
2. Insert four screws through the tray and into the keyboard.
3. Secure screws.
4. Route keyboard cable through the bottom of the Vehicle Dock.
5. Plug the USB connector into one of the USB ports.



**CAUTION:** Ensure that the thumb-screws on the RS-232 connector are tight to ensure water sealing.

6. If required, remove the RS-232 connector cover and plug the RS-232 connector into the RS-232 port.

7. Tighten connector thumb-screws.



8. Secure the cable(s) using cable ties.
9. Use the adjustment knobs to position the keyboard tray angle.
10. To adjust the keyboard tray position, loosen the right and left locking knobs two full turns.
11. Rotate the keyboard tray to the desired position and tighten the keyboard tray locking knobs to secure the tray in position.

## Installing a Keyboard on a RAM Mount

Use RAM Mounts if the keyboard is not attached to the Vehicle Dock, but mounted remotely from the Vehicle Dock at another place on the truck.

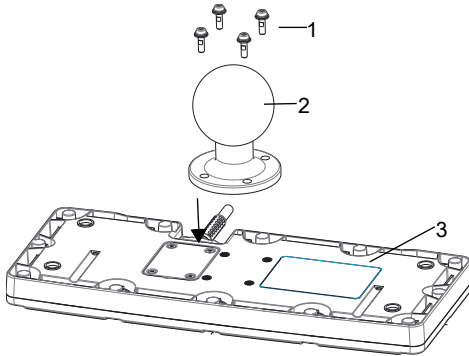


**CAUTION:** If mounting to a thin surface such as drywall or plywood, a reinforcing plate is required.

| Part Number | Description                      |
|-------------|----------------------------------|
| MT3502      | 2.25" Ball base                  |
| M4x14       | Four Screws with Captive Washers |

To mount the RAM mount on the keyboard:

1. Align the four holes on the ball base plate with the four holes on the keyboard bottom.



|   |                 |
|---|-----------------|
| 1 | Screws (4)      |
| 2 | Ball Base       |
| 3 | Keyboard Bottom |

2. Secure using the four screws with captive washers.

## Keyboard Heater

The USB keyboards contain three internal USB heaters that prevent damage when operating in condensing environments:

- Low - this heater operates with the standard USB cable, and turns on when the temperature is below 20° C (68° F).
- Normal - this heater operates with the Y-cable, and turns on when the temperature is below 15° C (59° F).
- High - this heater operates with the Y-cable, and turns on when the temperature is below 5° C (41° F).

